



**Products Catalog** 

# HYDRAULIC & LUBE FILTRATION





**Hydraulic & Lube Filtration** 

# **Vision Mission Value Quality Statement:**

### Vision:

We design solutions for industry and for the success of our customers by:

- Optimizing the use of technology with applications
- Using an efficient, timely customized process to fill specific customer needs
- Increasing capacity and streamlining operations.
   Preserving our reputation for reliability
- Expanding globally to support our customers and stay current with new technologies
- Leveraging and sharing our knowledge to meet challenges openly
- Nurturing a creative, cooperative culture committed to the individual and to providing the best solutions for the customers

# **Mission Statement:**

### Partnerships

Innovating products, processes and services to improve performance and efficiency in our industry.

### Schroeder Industries Core | Shared Values: Honesty

Day-to-Day Behaviors:

- Tell the truth at all times, in all matters
- Have open lines of communication and share timely, accurate and thorough information with internal and external customers
- Do not steal and respect each other's and the Company's property

### Teamwork

Day-to-Day Behaviors:

- Work as a team
- Cooperate within and between departments
- Coach and mentor; listen and share knowledge, experience and ideas
- Treat others with respect and consideration in all circumstances
- Invest in the development and growth of all team members
- Keep our work areas safe and clean

### Leadership

Day-to-Day Behaviors:

- Recognize that we are empowered to act as leaders and participate in the decision making process
- Take responsibility for and have pride in our work
- Set goals and celebrate the efforts and accomplishments of our teammates
- Value our greater community and take leadership roles in our neighborhoods and for the environment

# Ingenuity | Innovation

Day-to-Day Behaviors:

- Value innovative thinking and the generation and implementation of new ideas to solve customer (internal & external) problems
- Be flexible and adapt to new ideas and different ways of doing things
- Utilize available resources for new designs and innovations

# **Quality Policy:**

Continuous improvement in our business to ensure a quality product, shipped on time, without compromise.

# **Limitations of Liability**

The information contained in the catalog (including, but not limited to, specifications, configurations, drawings, photographs, dimensions and packaging) is for descriptive purposes only. Any description of the products contained in this catalog is for the sole purpose of identifying the products and shall not be deemed a warranty that the products shall conform to such description. No representation or warranty is made concerning the information contained in this catalog as to the accuracy or completeness of such information. Schroeder Industries LLC reserves the right to make changes to the products included in this catalog without notice. A copy of our warranty terms and other conditions of sale are available upon request. A placed order constitutes acceptance of Schroeder's terms and conditions.

Failure, improper selection or improper use of the products and/or systems described herein or related items can cause death, personal injury and property damage.

This catalog and other documentation from Schroeder Industries provides product information for consideration by users possessing technical expertise.

It is important that the user analyze all aspects of the specific application and review the current product information in the current catalog. Due to the variety of operating conditions and applications for these products, the user is solely responsible for making the final product selection and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, design, availability and pricing are subject to change at any time without notice.





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# **Detailed Contents: Hydraulic & Lube Filters**

|   |  | Pressure psi (bar)  | Flow gpm (L/min)   | Page  |
|---|--|---|--|---|
|   | Top-Ported High Pressure Filters   |   |  |   |
|   | NF30   | 3000 (210)  | 20 (75)  | 45  |
|   | NFS30  | 3000 (210)  | 20 (75)  | 49  |
|   | YF30   | 3000 (210)  | 25 (100)   | 53  |
|   | CFX30  | 3000 (210)  | 30 (115)   | 57  |
|   | PLD  | 3000 (210)  | 100 (380)  | 61  |
|   | DF40   | 4000 (275)  | 30 (115)   | 65  |
|   | CF40   | 4000 (275)  | 45 (170)   | 69  |
|   | PF40   | 4000 (275)  | 50 (190)   | 73  |
|   | LC50   | 5000 (350)<br>5000 (345)  | 9 (35)   | 77  |
|   | RFS50<br>RF60  | 6000 (345)  | 30 (115)<br>30 (115)   | 81<br>85  |
|   | CF60   | 6000 (415)  | 50 (190)   | 89  |
| -   | CTF60  | 6000 (415)  | 75 (284)   | 93  |
| bs  | VF60   | 6000 (415)  | 70 (265)   | 97  |
| 500   | LW60   | 6000 (415)  | 300 (1135)   | 101   |
| -<br>9  | Base-Ported High Pressure Filters  |   |  |   |
| 00  | KF30   | 3000 (210)  | 100/150 (380/570)  | 105   |
| (15   | GKF30 GeoSeal®   | 3000 (210)  | 100/150 (380/570)  | 340   |
| ers   | TF50   | 5000 (345)  | 40 (150)   | 109   |
| Filt  | KF50   | 5000 (345)  | 100/150 (380/570)  | 113   |
| re  | GKF50 GeoSeal®   | 5000 (345)  | 100/150 (380/570)  | 340   |
| High Pressure Filters (1500 - 6500 psi)             | KC50   | 5000 (345)  | 100/150 (380/570)<br>100/150 (380/570)   | 117   |
| Pre   | GKC50 GeoSeal®<br>MKF50  | 5000 (345)<br>5000 (345)  | 200 (760)  | 340<br>121  |
| db  | GMKF50 GeoSeal   |   | 200 (760)  | 341   |
| Ξ   | KC65   | 6500 (450)  | 100 (380)  | 125   |
| ë   | GKC65 GeoSeal®   | 6500 (450)  | 100 (380)  | 341   |
| SECTION 3:  | Servo Protection (Sandwich) Filter   |   |  |   |
| L<br>L  | NOF30-05   | 3000 (210)  | 12 (45)  | 129   |
| SI  | NOF50-760  | 5000 (345)  | 15 (57)  | 133   |
|   | FOF60-03   | 6000 (415)  | 12 (45)  | 137   |
|   | Manifold Mount Filter Kits (Bowls  | & Installation Drawings)  |  |   |
|   | NMF30  | 3000 (210)  | 20 (75)  | 141   |
|   | RMF60<br>Cartridge Elements for use in Man   | 6000 (415)  | 30 (115)   | 143   |
|   |  |   | a (a a)  |   |
|   | 1 14-( R/X I()   | 3000 (210)  | 6(23)  | 145   |
|   | 14-CRZX10<br>20-CRZX10   | 3000 (210)<br>3000 (210)  | 6 (23)<br>12 (45)  | 145<br>146  |
|   | 14-CR2X10<br>20-CRZX10<br>Hydrostatic (Bi-Directional) Flow F  | 3000 (210)  | 6 (23)<br>12 (45)  | -   |
|   | 20-CRZX10  | 3000 (210)  |  | -   |
|   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)   | 12 (45)<br>100 (380)<br>100 (380)  | 146   |
|   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Port  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)   | 12 (45)<br>100 (380)   | 146<br>147  |
|   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Port<br>High Pressure Water Service Filter  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)  | 146<br>147<br>151<br>155  |
|   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Port<br>High Pressure Water Service Filter<br>WKC50   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)  | 12 (45)<br>100 (380)<br>100 (380)  | 146<br>147<br>151   |
|   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)   | 146<br>147<br>151<br>155<br>333   |
|   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)   | 146<br>147<br>151<br>155<br>333<br>161  |
|   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retur<br>GH<br>GH<br>GHHF  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)  | 146<br>147<br>151<br>155<br>333<br>161<br>165   |
|   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>1000 (69)  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)  | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169  |
| si)   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)   | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173   |
| 10 psi)   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retur<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>100 (380)   | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342  |
| 1500 psi)   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>1400 (100)  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)   | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173   |
| to 1500 psi)  | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5<br>7000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>25 (100)<br>100 (380)   | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181  |
| (up to 1500 psi)                                    | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GK9 GeoSeal®  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5<br>5<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (60)  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>25 (100)<br>100 (380)<br>100 (380)<br>100 (380)   | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>8181<br>342  |
| sis (up to 1500 psi)                                | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GK9 GeoSeal®<br>2K9  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5<br>5<br>725 (50)<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (60)  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>25 (100)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)  | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>173<br>342<br>177<br>181<br>342<br>185  |
| ilters (up to 1500 psi)                             | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GK9 GeoSeal®<br>2K9<br>G2K9 GeoSeal®   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (60)<br>900 (60)   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)  | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>842<br>177<br>181<br>342<br>185<br>343   |
| re Filters (up to 1500 psi)                         | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GK9 GeoSeal®<br>2K9<br>G2K9 GeoSeal®<br>3K9  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5<br>7000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (60)<br>900 (60)<br>900 (60)  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)  | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>8<br>181<br>342<br>185<br>343<br>189   |
| ssure Filters (up to 1500 psi)                      | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Portu<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GK9 GeoSeal®<br>2K9<br>G2K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (60)<br>900 (60)<br>900 (60)   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>25 (100)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)   | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>177<br>181<br>342<br>185<br>343<br>189<br>343  |
| Pressure Filters (up to 1500 psi)                   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Portel<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retur<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filton<br>K9<br>GK9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filton<br>K9<br>GX9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>G3K9 GeoSeal®<br>G3K9 GeoSeal®<br>G3K9 GeoSeal®<br>CF5  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (60)  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)   | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>189<br>343   |
| m Pressure Filters (up to 1500 psi)                 | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Portential)<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Returned<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filtontial<br>K9<br>GK9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filtontial<br>K9<br>GX9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filtontial<br>K9<br>GX9 GeoSeal®<br>SRS<br>GX9 GeoSeal®<br>SK9<br>G3K9 GeoSeal®<br>SK9<br>G3K9<br>G5<br>SK9<br>SK9<br>SK9<br>SK9<br>SK9<br>SK9<br>SK9<br>SK9   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (50)<br>900 (50)<br>9  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>300 (1135)  | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>193<br>197   |
| dium Pressure Filters (up to 1500 psi)              | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>MHS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filto<br>K9<br>GK9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filto<br>K9<br>G2K9 GeoSeal®<br>3K9<br>G2K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>3K9<br>QF5<br>3QF5<br>QFD2   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (60)<br>9  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>300 (1135)<br>300 (1135)   | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>193<br>197<br>201   |
| Medium Pressure Filters (up to 1500 psi)            | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retur<br>GH<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filton<br>K9<br>GK9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filton<br>K9<br>GZK9 GeoSeal®<br>3K9<br>GZK9 GeoSeal®<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (50)<br>900 (50)<br>9  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 ( | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>189<br>343<br>193<br>197<br>201<br>205   |
| 4: Medium Pressure Filters (up to 1500 psi)         | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GK9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GX9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GX9 GeoSeal®<br>SRLT<br>DESE SERVE<br>GX9 GeoSeal®<br>SRLT<br>DESE SERVE<br>CF5<br>GX9 GeoSeal®<br>GX9 GeoSeal GEO<br>GX9 GeoSeal®   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5<br>5<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (50)<br>900   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 ( | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>173<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>193<br>197<br>201<br>205<br>209  |
| ON 4: Medium Pressure Filters (up to 1500 psi)      | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retur<br>GH<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filton<br>K9<br>GK9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filton<br>K9<br>GZK9 GeoSeal®<br>3K9<br>GZK9 GeoSeal®<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA<br>GZK9 GEOSEA  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (50)<br>900 (50)<br>9  | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 ( | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>189<br>343<br>193<br>197<br>201<br>205   |
| CTION 4: Medium Pressure Filters (up to 1500 psi)   | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Porte<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filte<br>K9<br>GK9 GeoSeal®<br>2K9<br>G2K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>2K9<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5<br>3CF5 | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (10)<br>1500 (100)<br>1500 (100)   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (30) (30)<br>100 (30) (30)<br>100 (30) (30)<br>100 (30) (30)<br>100 (30) (30) (30)<br>100 (30) (30) (30) (30) (30) (30) (30) (3  | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>189<br>343<br>193<br>197<br>201<br>205<br>209<br>213<br>217                                    |
| SECTION 4: Medium Pressure Filters (up to 1500 psi) | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>H560<br>MHS60<br>KFH50 (Base-Portel<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retur<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GK9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filter<br>K9<br>GX9 GeoSeal®<br>2K9<br>G2K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>4K9<br>G3K9 GeoSeal®<br>4K9<br>G4F5<br>5SQLF15<br>Medium Pressure Water Service Filter  | $\begin{array}{r} 3000\ (210) \\ \hline \mbox{ligh Pressure Filters} \\ \hline 6000\ (415) \\ \hline 6000\ (415) \\ \hline 6000\ (345) \\ \mbox{s} \\ \hline \mbox{rn Line Filters} \\ \hline \mbox{725}\ (50) \\ \hline \mbox{1000}\ (69) \\ \hline \mbox{s} \ \mbox{s} \ \mbox{s} \\ \hline \mbox{s} \ $ | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>300 (1135)<br>300 (1325)<br>450 (1900)<br>500 (                             | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>189<br>343<br>193<br>197<br>201<br>205<br>209<br>213<br>217<br>207<br>333                      |
| SECTION 4: Medium Pressure Filters (up to 1500 psi) | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Portel<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retur<br>GH<br>GHHF<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filton<br>K9<br>GK9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filton<br>K9<br>GX9 GeoSeal®<br>2K9<br>G3K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>QF5<br>3QF5<br>QFD5<br>QFD5<br>QF15<br>QLF15<br>SSQLF15<br>Medium Pressure Water Service Filton<br>Top-Ported WKF5<br>Top-Ported WKF5  | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>T Line Filters<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>1400 (100)<br>275<br>900 (60)<br>900 (50) (35)<br>1500 (100)<br>1500 (100)   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>100 (380)<br>300 (1135)<br>300 (1325)<br>450 (1900)<br>500 (1900)<br>500 (1900)<br>100 (380)<br>100 (380)   | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>189<br>343<br>193<br>197<br>201<br>205<br>209<br>213<br>209<br>213<br>217<br>333<br>333        |
| SECTION 4: Medium Pressure Filters (up to 1500 psi) | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Portel<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filto<br>K9<br>GX9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filto<br>K9<br>G2K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>QF5<br>QF5<br>QF5<br>QF5<br>QF5<br>QF5<br>QF15<br>QLF15<br>SSQLF15<br>Medium Pressure Water Service Fi<br>Top-Ported WKF5<br>Top-Ported WKF5   | $\begin{array}{r} 3000\ (210) \\ \hline \mbox{ligh Pressure Filters} \\ 6000\ (415) \\ 6000\ (415) \\ 6000\ (345) \\ \mbox{s} \\ \hline \mbox{s} \\ \hline \mbox{s} \\ \hline \mbox{s} \\ \hline \mbox{rn Line Filters} \\ \hline \mbox{725}\ (50) \\ 725\ (50) \\ 725\ (50) \\ 725\ (50) \\ 1000\ (69) \\ 500\ (35) \\ 500\ (35) \\ 500\ (35) \\ 600\ (60) \\ 900\ (60)$   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (1135)<br>300 (1325)<br>450 (1900)<br>500 (1900)<br>500 (1900)<br>100 (380)<br>100 (380)<br>1     | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>193<br>197<br>201<br>205<br>209<br>213<br>209<br>213<br>209<br>213<br>333<br>334               |
| SECTION 4: Medium Pressure Filters (up to 1500 psi) | 20-CRZX10<br>Hydrostatic (Bi-Directional) Flow H<br>HS60<br>KFH50 (Base-Portel<br>High Pressure Water Service Filter<br>WKC50<br>Top-Ported Medium Pressure Retu<br>GH<br>RLT<br>KF5<br>GKF5 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filto<br>K9<br>GZK9 GeoSeal®<br>SRLT<br>Base-Ported Medium Pressure Filto<br>K9<br>GZK9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>3K9<br>G3K9 GeoSeal®<br>QF5<br>QFD5<br>QFD5<br>QFD5<br>QF15<br>SSQLF15<br>Medium Pressure Water Service Fi<br>Top-Ported WKF5<br>Top-Ported WKF5<br>Top-Ported WKF5   | 3000 (210)<br>ligh Pressure Filters<br>6000 (415)<br>6000 (415)<br>ed) 5000 (345)<br>s<br>5000 (345)<br>rn Line Filters<br>725 (50)<br>725 (50)<br>725 (50)<br>1000 (69)<br>500 (35)<br>500 (35)<br>500 (35)<br>1400 (100)<br>ers<br>900 (60)<br>900 (5)<br>500 (35)<br>500 (35)<br>5   | 12 (45)<br>100 (380)<br>100 (380)<br>70 (265)<br>100 (380)<br>35 (130)<br>100 (380)<br>70 (265)<br>100 (380)<br>100 (1135)<br>300 (1135)<br>350 (1325)<br>450 (1700)<br>500 (1900)<br>500 (1                             | 146<br>147<br>151<br>155<br>333<br>161<br>165<br>169<br>173<br>342<br>177<br>181<br>342<br>177<br>181<br>342<br>185<br>343<br>189<br>343<br>193<br>197<br>201<br>205<br>209<br>213<br>217<br>333<br>334<br>334<br>334 |
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# Note to the Reader

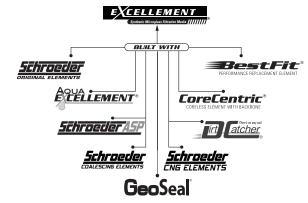
The aim of our catalog is to provide the information and guidance you'll need to make informed and appropriate choices for your filtration needs.

Illustrated and easy to understand, Section 1 is now widely used as a training tool by many companies, including original equipment manufacturers for whom Schroeder provides value-added products. The revised Section 1 continues to serve as an effective "primer" on contamination control fundamentals. In this section, we also provide filtration information and guidance for selecting the optimal filter and element media for your application.

Section 1 also explains recent changes in industry standards regarding how fluid cleanliness is defined and measured. Recent technological advancements in the measurement of microscopic particles, coupled with the establishment of a new standard test dust for calibration purposes, necessitated these changes. Although the new standards may seem confusing at first, they enable more accurate sizing

of dirt particles and reduce variability in output among different automatic particle counters. The end result is more reliable data for the user.

In Section 2, you'll find extensive technical data on Schroeder's Excellement<sup>®</sup> Z-Media<sup>®</sup>, which combines high efficiency, low pressure drop and exceptional dirt holding capacity. Schroeder's design engineers have also given special attention to developing more environmentally friendly products, such as Corecentric<sup>®</sup>



elements, which contain no metal and can be crushed, shredded or burned.

Sections 3 through 9 describe the types of contamination control products and accessories we offer. Whether your hydraulic system requires pressure filters, tank-mounted filters, return-line filters, or some combination of these, this updated catalog will help you find the right Schroeder filter to do the job. Of course, every filter comes with a Schroeder original element, available in a wide variety of media and micron ratings.

Dirt Alarm<sup>®</sup>, BestFit<sup>®</sup>, Excellement<sup>®</sup>, DirtCatcher<sup>®</sup> and CoreCentric<sup>®</sup> are registered trademarks of Schroeder Industries.

# Visit Us Online...

Schroeder's web site, www.schroederindustries.com, is filled with helpful resources.

Replacing filter elements is simpler than ever before with our Online Cross-Reference Guide to Bestfit<sup>®</sup> replacement elements. With this user-friendly guide you can match 41,000 filter elements from 150 other manufacturers with appropriate Bestfit<sup>®</sup> replacements. Click the BestFit<sup>®</sup> link on our home page or got to the direct link at www.schroederindustries.info.



# **Corporate Overview**



Schroeder Industries, an ISO 9001:2008 certified company, focuses on developing filtration and fluid service products for our customers in the fluid power industry and is proud of our proven track record of providing quality products over the last sixty years. The designs you see in this catalog are the result of thousands of hours of field testing and laboratory research...and decades of experience.

Schroeder was one of the first companies to demonstrate the need for, and benefits of, hydraulic filtration. We pioneered the development of micronic filtration, helping to set performance standards in industrial fluid power systems. As a result, Schroeder is now a leader in filtration and fluid conditioning—and the proof of our expertise lies in our broad mix of unsurpassed products. Our mission statement reflects our continuing commitment to excellence:

# Partnerships

Innovating products, solutions, processes and services to improve performance and efficiency in industry.

We design solutions for industry and for the success of our customers by:

- Optimizing the use of technology with applications
- Using an efficient, timely customization process to fill specific customer needs
- Increasing manufacturing capacity and streamlining operations
- Preserving our reputation for reliability
- Expanding globally to support our customers and stay current with new technologies
- Leveraging and sharing our knowledge to meet challenges openly
- Nurturing a creative, cooperative culture committed to the individual and to providing the best solutions for our customers

Our goal is to be your filtration partner. Our expertise in filtration technology, our superior filter and element manufacturing capabilities, and our dedication to customer service and product support are the reasons we're considered experts in Advanced Fluid Conditioning Solutions<sup>®</sup>.

We are committed to providing the best available filter products to meet necessary cleanliness levels at a competitive price. As a cost-effective quality producer, we can work with your purchasing department to supply contamination control technology or develop long-range pricing programs that can improve your company's bottom line.



# **Capabilities**

# Product Distribution

Schroeder Industries has in place a strategically located international distribution network, supported by our professional and experienced sales and marketing team. Distributor personnel are trained in the important aspects of filter application by Schroeder in training sessions held at our factory and around the globe. The effectiveness of our product and service support is multiplied by utilizing Schroeder's extensive distributor network. All Schroeder Industries distributors meet very strict criteria to enhance our ability to serve the needs of our valued customers.

Schroeder's distributor network includes over 100 distributor locations throughout Europe, the United Kingdom, South Africa, Australia, Asia, North America and South America, so that customers worldwide can rely on Schroeder's exceptional support.

# Manufacturing and Testing

Schroeder Industries' corporate headquarters are located in Leetsdale, PA (USA) with an additional manufacturing facility in Cumberland, MD (USA). Filter housings and diagnostic and specialty products are manufactured at our Pittsburgh plant, while filter elements are manufactured in our Cumberland plant. Both facilities have the skilled workforce and the capacity to meet our customers' needs. Schroeder's research and development center as well as our contamination control laboratory are located at our corporate headquarters.

# Markets Served

Schroeder's products, technical expertise, commitment to research and development, and ongoing improvements in manufacturing enable us to provide products and services that improve performance and efficiency in many major industries, including:



CONSTRUCTION

MINING

TECHNOLOGY

PULP & PAPER



INDUSTRIAL

MOBILE

VEHICLES

RAILROAD





MACHINE

TOOL

OFFSHORE

STEEL

MAKING





CHEMICAL

MARIN



POWER GENERATION



WASTE WATER TREATMENT



# **Products**

Schroeder Industries' products are continually tested using the latest ISO and NFPA test procedures in our engineering lab. Our dynamic test stands are in constant operation, subjecting our filter housings to cyclic pressure to verify their rated fatigue and burst pressures per NFPA Standard T2.6.1. Statistically sampled elements are tested to ensure fabrication integrity in the manufacturing process. They are also tested for efficiency and dirt-holding capacity in a multi-pass test stand, equipped with in-line particle counting capabilities, which are calibrated to ISO standards.

Engineering Laboratory

Extensive testing is conducted to ensure compatibility with various hydraulic fluids, including the newest fire-resistant fluids, per ISO 2943 Standard. Flow fatigue tests are run to evaluate the structural strength of elements, per ISO 3724 Standard.

| Design and Testing Standards<br>Filter Housings | s of Schroeder  | Design and Testing Standar<br>High Efficiency Elements | rds of Schroeder |  |
|---|-----------------|--|------------------|--|
| Description Standard                            |                 | Description  | Standard         |  |
| Burst Pressure Test                             | NFPA/T-2.6.1    | Element Collapse (Burst)                               | ISO 2941         |  |
| Fatigue Testing                                 | NFPA/T-2.6.1    | Fabrication Integrity                                  | ISO 2942         |  |
| Pressure/Life Rating                            | NFPA/T-3.10.17  | Material Compatibility                                 | ISO 2943         |  |
| of a Spin-On Filter                             | 1117-01 5.10.17 | End Load   | ISO 3723         |  |
| Pressure Drop vs. Flow                          | ISO 3968        | Element Flow Fatigue                                   | ISO 3724         |  |
|   |                 | Pressure Drop vs. Flow                                 | ISO 3968         |  |
|   |                 | Multi-Pass   | ISO 16889        |  |



# **Products**

# An Open Invitation

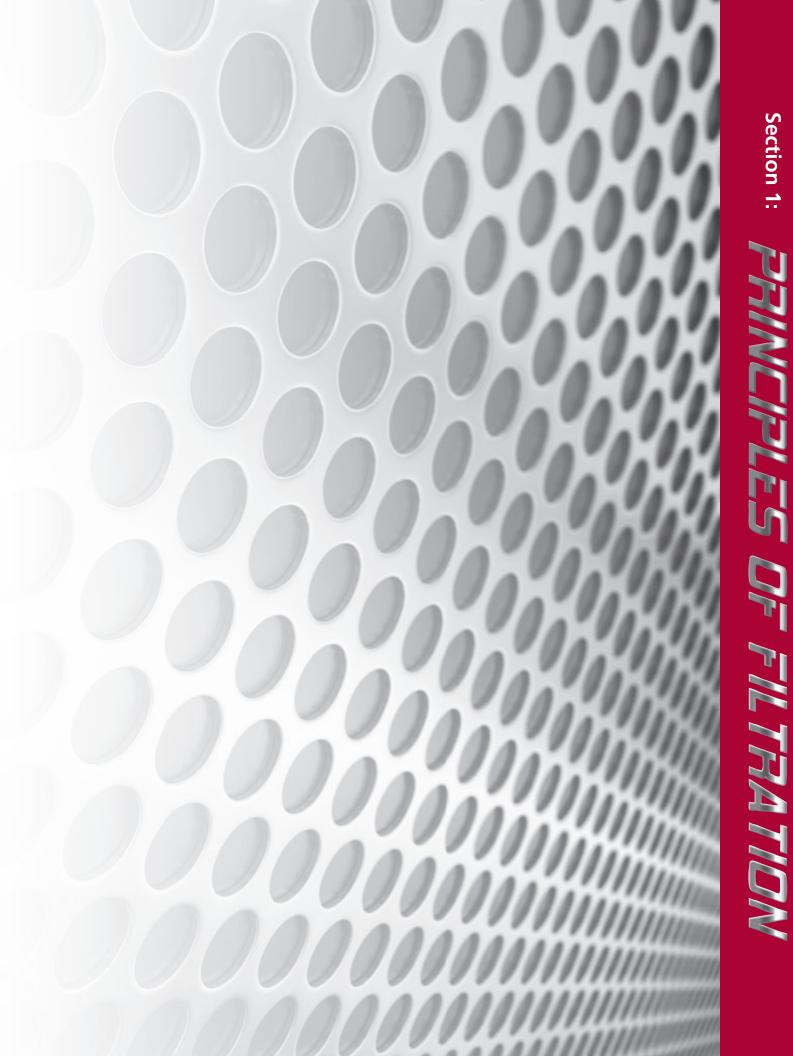
We invite you to present us with any specific filtration challenge you may experience. Schroeder will design and make filters to meet your specific requirements. To find out more, and/or obtain a quote, call us to speak with a sales representative or technical specialist. They can help determine the optimal filtration strategy for a given system. While the quantity of any product manufactured to fit a customer's needs will determine the economic feasibility of a particular project, in many cases, we can offer modified products in relatively small quantities at competitive prices and short lead times.

Over the years, Schroeder design engineers have encountered virtually every type of hydraulic system. We are proud of our continuing success in providing "value-added products" for our customers, that is, making or modifying our products to meet their specific needs. When customers order products from Schroeder, they are assured of a reliable source of supply, consistent and prompt service, and direct support. Pre and post-technical service is provided to ensure customer satisfaction.

So if you're faced with a filtration dilemma, call us. Schroeder Industries: Advanced Fluid Conditioning Solutions<sup>®</sup>.







# **Contamination Control Fundamentals**

# Why Filter?

**Over 90% of all hydraulic system failures are caused by contaminants in the fluid.** Even when no immediate failures occur, high contamination levels can sharply decrease operating efficiency.

Contamination is defined as any substance which is foreign to a fluid system and damaging to its performance. Contamination can exist as a gas, liquid or solid. Solid contamination, generally referred to as particulate contamination, comes in all sizes and shapes and is normally abrasive.

High contaminant levels accelerate component wear and decrease service life. Worn components, in turn, contribute to inefficient system operation, seizure of parts, higher fluid temperatures, leakage, and loss of control. All of these phenomena are the result of direct mechanical action between the contaminants and the system components. Contamination can also act as a catalyst to accelerate oxidation of the fluid and spur the chemical breakdown of its constituents.

Filtering a system's fluid can remove many of these contaminants and extend the life of system components.

# How a System Gets Contaminated

Contaminants come from two basic sources: they either enter the system from outside (ingestion) or are generated from within (ingression). New systems often have contaminants left behind from manufacturing and assembly operations. Unless they are filtered as they enter the circuit, both the original fluid and make-up fluid are likely to contain more contaminants than the system can tolerate. Most systems ingest contaminants through such components as inefficient air breathers and worn cylinder rod seals during normal operation. Airborne contaminants are likely to gain admittance during routine servicing or maintenance. Also, friction and heat can produce internally generated contamination.

### Figure 1. Typical Examples of Wear Due to Contamination



Vanes for Vane Pump



Relief Valve Piston



Vane Pump Cam Ring

# Size of Solid Contaminants

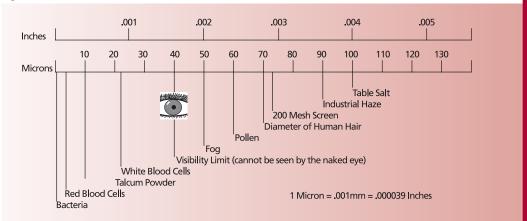
The size of solid particle contaminants is commonly measured in micrometers,  $\mu$ m, (usually referred to as microns,  $\mu$ ). A micron is a unit of length equal to one millionth of a meter or about .00004 inch. Particles that are less than 40  $\mu$  cannot be detected by the human eye.

| Substance           | Microns | Inches   |
|---------------------|---------|----------|
| Grain of table salt | 100 µ   | .0039"   |
| Human hair          | 70 µ    | .0027 "  |
| Talcum powder       | 10 µ    | .00039"  |
| Bacteria (average)  | 2μ      | .000078" |

Figure 2 shows the sizes of some common substances. To gain some perspective, consider the diameters of the following substances:

A *micron rating* identifies the size of particles that a particular filtration media will remove. For instance, Schroeder Z10 filter media is rated at  $\beta$ 10  $\geq$ 1000, meaning that it can remove particles of 10  $\mu$  and greater at 99.9% efficiency.

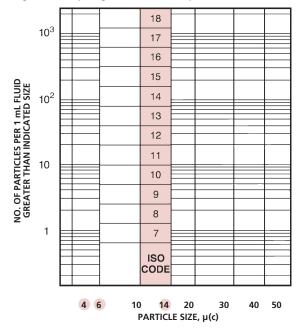
### Figure 2. Sizes of Known Particles in Inches and Microns



In hydraulic fluid power systems, power is transmitted and contained through a liquid under pressure within an enclosed circuit. These fluids all contain a certain amount of solid particle contaminants. The amount of particulate contaminants present in a hydraulic or lubrication system's fluid is commonly referred to as its cleanliness level.

ISO 4406:1999 provides guidelines for defining the level of contamination present in a fluid sample in terms of an ISO rating. It uses three scale numbers, representing the number of particles greater than or equal to 4  $\mu$ (c), 6  $\mu$ (c), and 14  $\mu$ (c) in size per 1 mL of sample fluid.

Figure 3 shows the graph used to plot particle counts per ISO 4406:1999.



### Figure 3. Graphing Particle Counts per ISO 4406:1999

How Contaminants are Measured and Reported

ISO Scale Numbers– ISO 4406:1999

# ISO Scale Numbers– ISO 4406:1999

(continued)

### Table 1. ISO 4406:1999 Hydraulic Fluid Power-Solid Contamination Code

| John CC   | intamination code              |                 |           |                                |                 |  |  |  |
|-----------|--------------------------------|-----------------|-----------|--------------------------------|-----------------|--|--|--|
|           | er of Particles<br>mL of Fluid | Scale<br>Number |           | er of Particles<br>mL of Fluid | Scale<br>Number |  |  |  |
| More Than | Up to and Including            | Number          | More Than | Up to and Including            | Number          |  |  |  |
| 1,300,000 | 2,500,000                      | 28              | 40        | 80                             | 13              |  |  |  |
| 640,000   | 1,300,000                      | 27              | 20        | 40                             | 12              |  |  |  |
| 320,000   | 640,000                        | 26              | 10        | 20                             | 11              |  |  |  |
| 160,000   | 320,000                        | 25              | 5         | 10                             | 10              |  |  |  |
| 80,000    | 160,000                        | 24              | 2.5       | 5                              | 9               |  |  |  |
| 40,000    | 80,000                         | 23              | 1.3       | 2.5                            | 8               |  |  |  |
| 20,000    | 40,000                         | 22              | 0.64      | 1.3                            | 7               |  |  |  |
| 10,000    | 20,000                         | 21              | 0.32      | 0.64                           | 6               |  |  |  |
| 5,000     | 10,000                         | 20              | 0.16      | 0.32                           | 5               |  |  |  |
| 2,500     | 5,000                          | 19              | 0.08      | 0.16                           | 4               |  |  |  |
| 1,300     | 2,500                          | 18              | 0.04      | 0.08                           | 3               |  |  |  |
| 640       | 1,300                          | 17              | 0.02      | 0.04                           | 2               |  |  |  |
| 320       | 640                            | 16              | 0.01      | 0.02                           | 1               |  |  |  |
| 160       | 320                            | 15              | 0.00      | 0.01                           | 0               |  |  |  |
| 80        | 160                            | 14              |           |                                |                 |  |  |  |
|           |                                |                 |           |                                |                 |  |  |  |

■ ISO codes are made up of 3 numbers representing the number of particles  $\ge 4 \mu(c)$ ,  $\ge 6 \mu(c)$  and  $\ge 14 \mu(c)$ . The particle count is expressed as the number of particles per mL.

- Reproducibility below scale number 8 is affected by the actual number of particles counted in the fluid sample. Raw counts should be more than 20 particles. If this is not possible, then refer to bullet below.
- When the raw data in one of the size ranges results in a particle count of fewer than 20 particles, the scale number for that size range shall be labeled with the symbol ≥.

EXAMPLE: A code of  $14/12/\ge 7$  signifies that there are more than 80 and up to and including 160 particles equal to or larger than 4  $\mu$ (c) per mL and more than 20 and up to and including 40 particles equal to or larger than 6  $\mu$ (c) per mL. The third part of the code,  $\ge 7$  indicates that there are more than 0.64 and up to and including 1.3 particles equal to or larger than 14  $\mu$ (c) per mL. The  $\ge$  symbol indicates that less than 20 particles were counted, which lowers statistical confidence. Because of this lower confidence, the 14  $\mu$ (c) part of the code could actually be higher than 7, thus the presence of the  $\ge$  symbol.

# Cleanliness Levels– ISO 4406:1999

The following example shown in Figure 4 illustrates the cleanliness level, or ISO rating, of a typical petroleum-based fluid sample using the ISO Code 4406:1999 rating system.

The fluid sample contains a certain amount of solid particle contaminants, in various shapes and sizes.

Since the number of 4  $\mu$ (c) particles falls between 2500 and 5000, the first ISO range number is 19 using Table 1. The number of 6  $\mu$ (c) particles falls between 160 and 320 particles, so the second ISO range number is 15. The number of 14  $\mu$ (c) particles falls between 10 and 20, making the third range number 11. Therefore, the cleanliness level for the fluid sample shown in Figure 4 per ISO 4406:1999 is 19/15/≥11.

# Figure 4. Determining the ISO Rating of a Fluid Using ISO 4406:1999

| Sample   | e Fluid (1 mL) | If Particle Count<br>Falls Between                  | Scale<br>Number is* |
|----------|----------------|---|---------------------|
| Particle | Number         | ▶ 2500-5000   | 19                  |
| Size     | of Particles   | ▶ 160-320   | 15                  |
| ≥ 4 µ(c) | 3,000          | 100-520   | 15                  |
| ≥ 5 µ(c) | 700            | <b>7</b> 10-20                                      | 11                  |
| ≥ 6 µ(c) | 200            |   | ***                 |
| ≥10 µ(c) |                |   | *Source: ISO 4406:1 |
| ≥14 µ(c) | 15             | Sample Fluid is ISO 19/1<br>te: When the raw data i |                     |
| ≥15 µ(c) |                | <br>iges results in a particle                      |                     |
| ≥20 µ(c) | 10             | particles the range code                            |                     |
| ≥30 µ(c) | 3              | it size range shall be pre                          |                     |

# 14 SCHROEDER INDUSTRIES

The pressure of a hydraulic system provides the starting point for determining the cleanliness level required for efficient operation. Table 2 provides guidelines for recommended cleanliness levels based on pressure. In general, Schroeder defines pressure as follows:

| Low pressure:    | 0-500 psi (0-35 bar)         |
|------------------|------------------------------|
| Medium pressure: | 500-2999 psi (35-206 bar)    |
| High pressure:   | 3000 psi (206 bar) and above |

A second consideration is the type of components present in the hydraulic system. The amount of contamination that any given component can tolerate is a function of many factors, such as clearance between moving parts, frequency and speed of operation, operating pressure, and materials of construction. Tolerances for contamina gear pump performan found in n stringent r which nee (ISO 16/14

Today, mai are providi recommen are often li product ca the manuf may be ex or in system codes). So levels for o

# Table 4. C

2/0/0

| naterials of construction. Tolerances for<br>mination range from that of low pressure<br>pumps, which normally will give satisfactory<br>rmance with cleanliness levels typically<br>I in new fluid (ISO_19/17/14), to the more |                  |               |                                |           | (ISO Code)<br>4 μ(c)/6 μ(c)/14 μ(c) |
|---|------------------|---------------|--------------------------------|-----------|-------------------------------------|
|   |                  |               | Hydraulic Servo Val            | ves       | 15/13/11                            |
|   |                  |               | Hydraulic Proportional Valves  |           | 16/14/12                            |
| ent requirements for<br>need oil that is eig  |                  |               | Hydraulic Variable Piston Pump |           | 16/14/12                            |
| 6/14/11).   | grit times clear |               | Hydraulic Fixed Piston Pump    |           | 17/15/12                            |
| , many fluid power  | - component m    | nanufacturers | Hydraulic Variable Vane Pump   |           | 17/15/12                            |
| oviding cleanliness level (ISO code)  |                  |               | Hydraulic Fixed Van            | e Pump    | 18/16/13                            |
| nmendations for the   |                  |               | Hydraulic Fixed Gea            | ar Pump   | 18/16/13                            |
| ict catalog or can b  | be obtained by   | contacting    | Ball Bearings                  |           | 15/13/11                            |
| anufacturer directle<br>be expressed in des   |                  |               | Roller Bearings                |           | 16/14/12                            |
| system cleanliness l  |                  |               | Journal Bearings (>            | 400 rpm)  | 17/15/13                            |
| ). Some typically re  | commended c      | leanliness    | Journal Bearings (<            | 400 rpm)  | 18/16/14                            |
| for components ar   | re provided in   | lable 3.      | Gearboxes                      |           | 18/16/13                            |
|   |                  |               | Hydrostatic Transmi            | ssions    | 16/14/11                            |
|   |                  |               | Pumps                          |           | 16/14/12                            |
| e 4. Cleanliness Cla  | ass Compariso    | ns            |                                |           |                                     |
| ISO   | SAE AS           | NAS           | MIL-STD                        | ACFTD Gra | avimetric Level-mg/L                |
| 4409:1999   | 4059:E           | 1638-01/196   | 1246A 1967                     |           |                                     |
| 24  |                  |               |                                |           |                                     |
| 23/20/18  |                  | 12            |                                |           |                                     |
| 22/19/17  | 12               | 11            |                                |           |                                     |
| 21/18/16  | 11               | 10            |                                |           |                                     |
| 20/17/15  | 10               | 9             | 300                            |           |                                     |
| 19/16/14  | 9                | 8             |                                |           |                                     |
| 18/15/13  | 8                | 7             | 200                            |           | 1                                   |
| 17/14/12  | 7                | 6             |                                |           |                                     |
| 16/13/11  | 6                | 5             |                                |           |                                     |
| 15/12/10  | 5                | 4             |                                |           | 0.1                                 |
| 14/11/9   | 4                | 3             | 100                            |           |                                     |
| 13/10/8   | 3                | 2             |                                |           |                                     |
| 12/9/7  | 2                | 1             |                                |           | 0.01                                |
| 11/8/6  | 1                | 0             |                                |           |                                     |
| 10/7/5  | 0                | 00            |                                |           |                                     |
| 8/7/4   | 00               |               | 50                             |           |                                     |
| 5/3/01  |                  |               | 25                             |           |                                     |
|   |                  |               |                                |           |                                     |

5

# Table 2. Cleanliness Level Guidelines Based

| on Pressure  |   |
|--|---|
| System Type  | Recommended<br>Cleanliness Levels<br>(ISO Code)           |
| Low pressure – manual control (0 - 500 psi)            | 20/18/15 or better  |
| Low to medium pressure –<br>electro-hydraulic controls | 19/17/14 or better  |
| High pressure – servo<br>controlled                    | 16/14/11 or better  |
| Table 3. Recommended Clean<br>(ISO Codes) for Fluid    |   |
| Components   | Cleanliness Levels<br>(ISO Code)<br>4 μ(c)/6 μ(c)/14 μ(c) |
| Hydraulic Servo Valves                                 | 15/13/11  |
| Hydraulic Proportional Valves                          | 16/14/12  |
| Hydraulic Variable Piston Pump                         | 16/14/12  |
| Hydraulic Fixed Piston Pump                            | 17/15/12  |
| Hydraulic Variable Vane Pump                           | 17/15/12  |
| Hydraulic Fixed Vane Pump                              | 18/16/13  |
| Hydraulic Fixed Gear Pump                              | 18/16/13  |
| Ball Bearings  | 15/13/11  |
| Roller Bearings  | 16/14/12  |
| Journal Bearings (>400 rpm)                            | 17/15/13  |
| Journal Bearings (<400 rpm)                            | 18/16/14  |
| Gearboxes  | 18/16/13  |
| Hydrostatic Transmissions                              | 16/14/11  |
| Pumps  | 16/14/12  |

# Required Cleanliness Levels

This table is based on data shown in various hydraulic component manufacturer's catalogs. Contact Schroeder for recommendations for your specific system needs.

For your convenience, Table 4 provides a cross reference showing the approximate correlation between several different scales or levels used in the marketplace to quantify contamination. The table shows the code levels used for military standards 1638 and 1246A, as well as the SAE AS4059 standard.

# **Element Technical Data Fundamentals**

# Performance Specifications/ Filtration Ratings

Schroeder filter elements meet a wide variety of requirements in today's workplace, from the simplest to the most sophisticated fluid power systems. Established industry standards enable users to select the optimal filter element for any application.

When evaluating the performance of hydraulic filter elements, the most important parameters to consider are:

(a) efficiency

(b) beta stability

(c) dirt holding capacity

(d) pressure drop vs. flow

(a) *Efficiency*, or filtration ratio, expressed by "Beta" (ß) relates to how well an element removes contamination from fluid. Higher efficiency translates to cleaner oil, better protection of system components, less down time for repair, and lower maintenance costs.

(b) *Beta stability* is defined as an element's ability to maintain its expected efficiency as differential pressure across the element increases. Differential pressure will increase as contamination is trapped, or with an increase in fluid viscosity (cold start). Beta stability is important because it relates to how well an element will perform in service over time. When the element is loaded with contamination, or when it is subjected to cold starts, will it perform as well as it did when new?

(c) *Dirt holding capacity (DHC)* is the amount of contamination that an element can trap before it reaches a predetermined "terminal" differential pressure. Dirt holding capacity is related to element life. Since elements with higher DHC need changed less frequently, DHC has a direct impact on the overall cost of operation. When selecting filter elements, it is beneficial to compare DHC of elements with similar particle removal efficiency.

(d) *Pressure Drop vs. Flow* is simply a measure of resistance to fluid flow in a system. It is important to consider the initial pressure drop ( $\Delta$ p) across the filter element (and housing). Ideally, a filter element should be sized so that the initial pressure drop across the clean element (plus the filter housing drop) is less than half the bypass valve setting in the filter housing.

When selecting a filter element for your system, be sure to consider all four of these performance criteria. If an element is strong in three areas, but weak in another, it may not be the right choice. At every level of filtration, Schroeder's Excellement<sup>®</sup> Z-Media<sup>®</sup> elements offer the best combination of high efficiency, high beta stability, high dirt holding capacity, and low pressure drop.

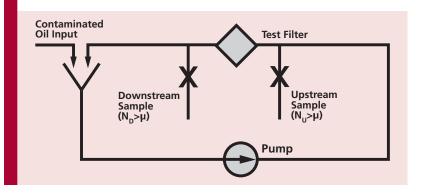
# The Multi-pass Test

Filter element efficiency ratings, beta stability, and capacities are determined by conducting a multi-pass test under controlled laboratory conditions. This is a standard industry test with procedure published by the International Standards Organization (ISO 16889). The multi-pass test yields reproducible test data for appraising the filtration performance of a filter element including its particle removal efficiency. These test results enable the user to: (1) compare the quality and specifications offered by various filter element suppliers and (2) select the proper filter element to obtain the optimal contamination control level for any particular system.

Hydraulic fluid (Mil-H-5606) is circulated through a system containing the filter element to be tested. Additional fluid contaminated with ISO MTD Test Dust is introduced upstream of the element being tested. Fluid samples are then extracted upstream and downstream of the test element.

Dirt holding capacity is defined as the total grams of ISO MTD Test Dust added to the system to bring the test filter element to terminal pressure drop.

# Figure 5. Multi-Pass Test Schematic



The filtration ratio (more commonly referred to as the Beta ratio) is, in fact, a measure of the particle capture efficiency of a filter element.

Per ISO 16889 
$$\beta_{X(c)} = \frac{\text{number of particles upstream } @ x(c) \text{ microns}}{\text{number of particles downstream } @ x(c) \text{ microns}}$$

where x(c) is a specified particle size.

Example: 
$$^{\beta}10 = \frac{400}{100} = 400$$

This particle capture efficiency can also be expressed as a percent by subtracting the number 1 from the Beta (in this case 4) and multiplying it by 100:

Efficiency\_{10} = 
$$\frac{(4-1)}{4}$$
 x 100 = 75%

The example is read as "Beta ten is equal to four, where 400 particles, 10 microns and larger, were counted upstream of the test filter (before) and 100 particles, 10 microns and larger, were counted downstream of the test filter (after)."

The filter element tested was 75% efficient in removing particles 10 microns and larger.

| To calculate a filter element's percent efficiency, subtract 1 from the Beta, divide that answer by the Beta, |  |
|---|--|
| then multiply by 100.   |  |

|         | Example                 |
|---------|-------------------------|
| Step 1: | $\beta_{10(c)} > +1000$ |
| Step 2: | 1000 -1 = 999           |
| Step 3: | 999 ÷ 1000 = .999%      |
| Step 4: | .999 x 100 = 99.9%      |

# According to ISO 16889, each filter manufacturer can test a given filter element at a variety of flow rates and terminal pressure drop ratings that fit the application, system configuration and filter element size. Results may vary depending on the configuration of the filter element tested and the test conditions.

Currently, there is no accepted ISO, ANSI, or NFPA standard regarding absolute ratings. Some filter manufacturers use  $\beta_X(c) \ge 75$  (98.7% efficiency) for their absolute rating. Others use  $\beta_X(c) \ge 100$  (99.0% efficiency),  $\beta_X(c) \ge 200$  (99.5% efficiency), or  $\beta_X(c) \ge 1000$  (99.9% efficiency). Performance of Schroeder elements is shown in the Element Performance Chart for each filter housing in Sections 3 through 8 at a number of filtration ratios to allow the user to evaluate our performance against that of our competitors.

# *Beta stability* is defined as an element's ability to maintain its expected efficiency as differential pressure across the element increases. Differential pressure will increase as contamination is trapped, or with an increase in fluid viscosity. An element's beta stability is displayed in the Filtration Ratio (Beta) vs. Differential Pressure curve from a typical multi-pass test report per ISO 16889. Good beta stability is demonstrated by consistent or improving efficiency as differential pressure builds across the element. Conversely, decreasing efficiency as pressure builds is a sign of poor stability. Poor beta stability is an indication of a filter element's structural deficiency. It is a sign of potential problems in a "real world" situation. Contamination, "cold starts", and flow surges can all create high differential pressure across an element that may cause efficiency to decrease if it is not structurally sound. In cases of "cold starts" and flow surges, the media structure in elements with poor stability can become permanently damaged in milliseconds. The result is lower efficiency and decreased system protection without warning to the operator. High beta stability results when an element is well-built with quality, durable materials. Strength of filter media and reinforcement layers, impervious seaming, proper end cap adhesion, and a rigidly supported structure all play a part in an element's beta stability. Excellement® media structure typically maintains beta stability over 100 psi.

# **Filtration Ratio**

Efficiency

# Beta Stability

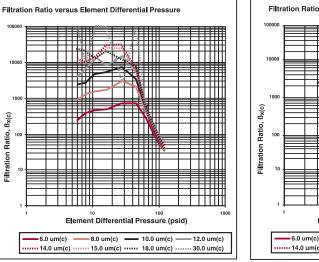
Efficiency / Filtration Ratio (Beta)

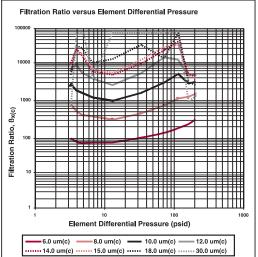
# **Beta Stability**

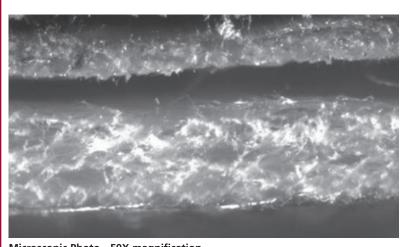
(continued)

Example of poor beta stability – efficiency declines as differential pressure increases.

Example of Excellement<sup>®</sup> beta stability – efficiency does not decline as differential pressure increases.







Microscopic Photo - 50X magnification Top: competitor's media Bottom: Schroeder Excellement<sup>®</sup> Z-Media<sup>®</sup> Thin, weak media cannot withstand differential pressure as well as Z-Media<sup>®</sup>. Dirt holding capacity (DHC) is the amount of contaminant (expressed in grams) the element will retain before it goes into bypass. All other factors being equal, an element's DHC generally indicates how long the element will operate until it needs to be replaced. The element's life span is directly related to the cost of operating the filter.

Dirt holding capacity, sometimes referred to as "retained capacity," is a very important and often overlooked factor in selecting the right element for the application. The dirt holding capacity of an element is measured in grams of ISO medium test dust contaminant as determined from the multi-pass test (ISO 16889). When selecting filter elements, it is beneficial to compare the dirt holding capacities of elements with similar particle removal efficiencies.

### Table 5. Typical Dirt Holding Capacities for Z-Media® Elements

| Z-Media® Elements |      |      |        |      |      |  |  |  |
|-------------------|------|------|--------|------|------|--|--|--|
| Element           | 74   |      | Medium |      | 705  |  |  |  |
| Size              | Z1   | Z3   | Z5     | Z10  | Z25  |  |  |  |
| 3TA               | 9    | 7    | 10     | 8    | 8    |  |  |  |
| 3TB               | 27   | 11   | 12     | 11   | 11   |  |  |  |
| 5TB               | 40   | 18   | 21     | 17   | 18   |  |  |  |
| KB                | 110  | 99   | 138    | 110  | 112  |  |  |  |
| KI                | 85   | 88   | 130    | 104  | 106  |  |  |  |
| KKI               | 181  | 185  | 263    | 174  | 214  |  |  |  |
| 27KI              | 336  | 345  | 357    | 324  | 279  |  |  |  |
| 16Q               | 258  | 283  | 254    | 280  | 234  |  |  |  |
| 39Q               | 593  | 1001 | 691    | 940  | 537  |  |  |  |
| 39QCLQF           | 1259 | 1293 | 869    | 1214 | 1102 |  |  |  |
| 39QPML            | 1485 | 1525 | 1235   | 1432 | 1299 |  |  |  |
| BBI               | 306  |      | 341    | 272  |      |  |  |  |
| KG                | 112  | 115  | 119    | 108  | 93   |  |  |  |
| KKG               | 224  | 230  | 238    | 216  | 186  |  |  |  |
| 27KG              | 336  | 345  | 357    | 247  | 279  |  |  |  |
| 4Y                | 6    | 5    | 6      | 5    | 5    |  |  |  |
| 8Y                | 12   | 10   | 12     | 11   | 9    |  |  |  |
| 8R                | 33   | 26   | 51     | 29   | 30   |  |  |  |
| К                 | 112  | 115  | 119    | 108  | 93   |  |  |  |
| КК                | 224  | 230  | 238    | 216  | 186  |  |  |  |
| 27K               | 336  | 345  | 357    | 324  | 279  |  |  |  |
| FZX               | 6    | 5    | 7      | 5    | 5    |  |  |  |
| SVZX              | 27   | 21   | 30     | 24   | 24   |  |  |  |
| 5CT               | 27   | 22   | 31     | 24   | 25   |  |  |  |
| 8CT               | 44   | 35   | 49     | 39   | 40   |  |  |  |
| 14CT              | 94   | 75   | 105    | 84   | 85   |  |  |  |
| 5CTZ              | 19   | 16   | 18     | 21   | 17   |  |  |  |
| 8CTZ              | 31   | 27   | 34     | 28   | 24   |  |  |  |
| 14CTZ             | 66   | 57   | 64     | 72   | 60S  |  |  |  |
| 6G                | 38   | 30   | 42     | 34   | 34   |  |  |  |
| 9G                | 64   | 51   | 71     | 57   | 58   |  |  |  |
| 5H                | 26   | 28   | 39     | 47   | 48   |  |  |  |
| 9H                | 51   | 42   | 59     | 42   | 48   |  |  |  |
| 13HZ              | N/A  | 100  | 113    | 119  | 123  |  |  |  |
| 16QCLQF           | 307  | 315  | 364    | 306  | 278  |  |  |  |
| 16QPML            | 307  | 315  | 364    | 330  | 299  |  |  |  |
| 25DN              | N/A  | 57   | 62     | 52   | 48   |  |  |  |
| 40DN              | N/A  | 105S | 115    | 104  | 94   |  |  |  |

# Dirt Holding Capacity

When sizing a filter, it is important to consider the initial differential pressure ( $\Delta P$ ) across the element and the housing. Elements offering a lower pressure drop at a high Beta efficiency are better than elements with a high  $\Delta P$  at the same efficiency. At every level of filtration, Schroeder's Excellement<sup>®</sup> Z-Media<sup>®</sup> elements offer the best combination of high efficiency, high stability, high dirt holding capacity, and low pressure drop. The pressure drop of an element is determined by testing according to ISO 3968.

# Pressure Drop

**Collapse Rating** 

The collapse (crush) rating of a filter (determined by ISO 2941/ANSI B93.25) represents the differential pressure across the element that causes it to collapse. The collapse rating of a filter element installed in a filter housing, with a bypass valve, should be at least two times greater than the full flow bypass valve pressure drop. The collapse rating for filter elements used in filter housings with no bypass valve should be at least the same as the setting of the system relief valve upstream of the high-crush element. When a high collapse element becomes clogged with contamination all functions downstream of the filter will become inoperative.

# **Element Media Selection Considerations** The Right Media for the Right Application = Job Matched Filtration

# Filtration Application Guidelines

Selecting the proper Schroeder media for your application is easy if you follow these simple guidelines.

Step 1. Remember that the key to cost effective contamination control is to maintain the system's cleanliness at the tolerance level of the system's most sensitive component. So, the first step is to identify the most sensitive component.

**Step 2.** Determine the desired cleanliness level (ISO Code) for that component by referring to Figure 3 on page 13 or by contacting the component manufacturer directly.

Step 3. Identify the Schroeder filter medium referencing Table 6 that will meet or exceed the desired cleanliness level.

**Step 4.** Remember to regularly check the effectiveness of the selected media through the use of contamination monitoring equipment.

# Table 6. Schroeder Element Media Recommendations

| Desired Cleanliness Levels<br>(ISO Code) | Schroeder<br>Media |
|--|--------------------|
| 20/18/15-19/17/14                        | Z25                |
| 19/17/14-18/16/13                        | Z10                |
| 18/16/13-15/13/10                        | Z5                 |
| 15/13/10-14/12/9                         | Z3                 |
| 14/12/9-13/11/8                          | Z1                 |

# Effect of Ingression

Filter element life varies with the dirt holding capacity of the element and the amount of dirt introduced into the circuit. The rate of this ingression in combination with the desired cleanliness level should be considered when selecting the media to be used for a particular application. Table 7 provides recommendations accordingly.

The amount of dirt introduced can vary from day to day and hour to hour, generally making it difficult to predict when an element will become fully loaded. This is why we recommend specifying a Dirt Alarm<sup>®</sup>.

Schroeder-designed Dirt Alarms<sup>®</sup> provide a vital measure of protection for your system by indicating when the filter element needs to be changed or cleaned. Schroeder filters are available with visual, electrical and electrical-visual combination Dirt Alarms<sup>®</sup>. These indicators may also be purchased as separate items. For more information on Dirt Alarms<sup>®</sup>, see Appendix A.

## Table 7. Recommended Schroeder Media to Achieve Desired Cleanliness Levels Based on Ingression Level

| Desired<br>Cleanliness<br>Levels<br>(ISO Code) | Ingression<br>Rate | Schroeder<br>Element<br>Medium |
|--|--------------------|--------------------------------|
| 20/18/15                                       | High               | Z25                            |
| 19/17/14                                       | Low                | Z25                            |
| 19/17/14                                       | High               | Z10                            |
| 18/16/13                                       | Low                | Z10                            |
| 18/16/13                                       | High               | Z5                             |
| 15/13/10                                       | Low                | Z5                             |
| 15/13/10                                       | High               | Z3                             |
| 14/12/9  | Low                | Z3                             |
| 14/12/9  | High               | Z1                             |
| 13/12/9  | Low                | Z1                             |

To obtain the desired cleanliness level (ISO Code) using the suggested Schroeder filter medium, it is recommended that a minimum of one-third of the total fluid volume in the system pass through the filter per minute. If fluid is filtered at a higher flow rate, better results may be achieved. If only a lesser flow rate can be filtered, a more efficient media will be required.

Systems operating in a clean environment, with efficient air-breather filters and effective cylinder rod wiper seals, may achieve the desired results at a lower turnover rate. Systems operating in a severe environment or under minimal maintenance conditions should have a higher turnover. Turnover must be considered when selecting the location of the system's filter(s).

Since the pressure drop versus flow data contained in our filter catalog is for fluids with a viscosity of 150 SUS (32.0 cSt), and a specific gravity of .86, we are often asked how to size a filter with a viscosity other than 150 SUS (32.0 cSt) or a specific gravity other than .86. In those instances where the viscosity or specific gravity is significantly higher, it may be necessary to use a larger element. To make this determination, we need to calculate the life of the element, using the following equation:

| EL | = R | С – | (H  | + 8 | =) |
|----|-----|-----|-----|-----|----|
|    |     | C   | (11 |     | -/ |

| where.                               |                           |
|--------------------------------------|---------------------------|
| EL = Element Life (expressed in psi) | H = Housing pressure drop |
| RC = Relief valve cracking pressure  | E = Element pressure drop |

1. The housing pressure drop can be read directly from the graph. This value is not affected by viscosity or the number of elements in the housing, since housing flow is turbulent.

2. The element pressure drop is directly proportional to viscosity, since element flow is laminar.

Schroeder's "rule of thumb" for element life, as calculated from the above equation, is to work towards a differential pressure drop that is no more than half (50%) of the bypass setting.

The interval between element changeouts can be extended by increasing the total filter element area. Many Schroeder filters can be furnished with one, two, or three elements or with larger elements. By selecting a filter with additional element area, the time between servicing can be extended for little additional cost.

Schroeder filters have been used successfully to filter a variety of fire resistant fluids for over five decades. Filtering these fluids requires careful attention to filter selection and application. Your fluid supplier should be the final source of information when using these fluids. The supplier should be consulted for recommendations regarding limits of operating conditions, material and seal compatibility, and other requirements peculiar to the fluid being used within the conditions specified by the fluid supplier.

# **High Water Content Fluids**

W/horo

High water content fluids consist primarily of two types: water and soluble mineral base oil, and water with soluble synthetic oil. The oil proportion is usually 5%, but may vary from as low as 2% to as high as 10%.

Standard Schroeder Z1, Z3, Z5, Z10, and Z25 elements are compatible with both types of high water content fluids. Filter sizing should be the same as with 150 SUS (32 cSt) mineral based hydraulic oil. Z1 and Z3 elements may be used; however, element changeouts will be more frequent. Some special factors that need to be considered in the selection process include the following:

- All aluminum in the filter housing should be anodized. This can be accomplished by using the "W" adder as shown in the filter model number selection chart.
- When using 95/5 fluids, check with fluid supplier for compatibility with aluminum.
- Buna N or Viton<sup>®</sup> seals are recommended.
- The high specific gravity and low vapor pressure of these fluids create a potential for severe cavitation problems. Suction filters or strainers should not be used. The Schroeder Magnetic Separator (SKB), page 327, with its low pressure drop, is recommended for pump protection from ferrous or large particles.

# Invert Emulsions

Invert emulsions consist of a mixture of petroleum based oil and water. Typical proportions are 60% oil to 40% water. Standard Schroeder filters with Z10 and Z25 media elements are satisfactory for use with these fluids. Filters should be sized conservatively for invert emulsions. These fluids are non-Newtonian—their viscosity is a function of shear. We recommend up to twice the normal element area be used as space and other conditions permit.

# Amount of Fluid Filtered

# Sizing a Filter Element

Fluid Compatibility: Fire Resistant Fluids Some special factors that need to be considered in the selection process include the following:

# Fluid Compatibility: Fire Resistant Fluids (cont.)

Potential exists for cavitation problems with invert emulsions similar to high water based fluids. SKB suction separators are recommended for pump protection from ferrous or large particles.

■ Buna N or Viton<sup>®</sup> seals are recommended.

# Water Glycols

Water glycols consist of a mixture of water, glycol, and various additives. Schroeder Z3, Z5, Z10 and Z25 elements are satisfactory for use with these fluids. Some special factors that need to be considered in the selection process include the following:

- All aluminum in the filter should be anodized. This can be accomplished by using the "W" option as shown in the filter model number selection chart.
- Potential exists for cavitation problems with water glycols similar to high water based fluids. SKB suction separators are recommended for pump protection from ferrous or large particles.
- Buna N or Viton<sup>®</sup> seals are recommended.

# **Phosphate Esters**

Phosphate esters are classified as synthetic fluids. All Schroeder filters and elements can be used with most of these fluids. Sizing should be the same as with mineral based oils of similar viscosity. Some special factors that need to be considered in the selection process include the following:

- For phosphate esters, specify EPR seals (designated by "H" seal option) for all elements. As a general rule, all Z-Media<sup>®</sup> (synthetic) is compatible and 10 and 25 µ only E media (cellulose) with phosphate esters.
- For Skydrol<sup>®</sup>, only 3, 5, 10, and 25 μ Z-Media<sup>®</sup> (synthetic) should be used, and "H.5" should be designated as the seal option. The "H.5" seal designation calls for EPR seals and stainless steel wire mesh in element construction.

# Pressure Drop Correction for Specific Gravity

Pressure drop curves shown in this catalog are predicated on the use of petroleum based fluid with a specific gravity of 0.86. The various fire resistant fluids discussed in this section have a specific gravity higher than 0.86, which affects pressure drop. Use the following formula to compute the correct pressure drop for the higher specific gravity:

Corrected pressure drop =  $\frac{\text{Fluid specific gravity}}{0.86}$  x Catalog pressure drop

Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.

# **Filter Selection Considerations**

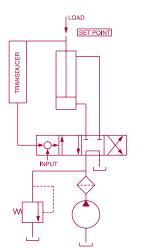


Figure 6(a). Pressure Filtration Circuit

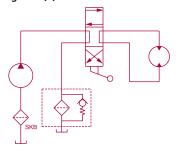


Figure 6(b). Return Line Filtration Circuit

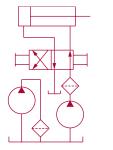


Figure 6(c). Re-circulating Filtration Circuit

**Pressure filtration:** Pressure filters usually produce the lowest system contamination levels to assure clean fluid for sensitive high-pressure components and provide protection of downstream components in the event of catastrophic failures. Systems with high intermittent return line flows may need only be sized to match the output of the pump, where the return line may require a much larger filter for the higher intermittent flows. See Figure 6(a).

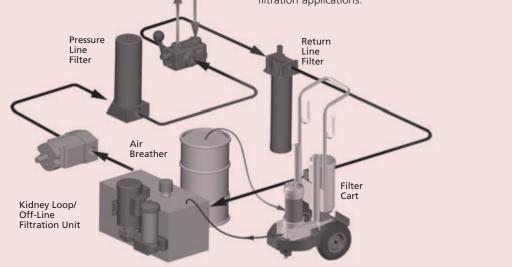
**Return line filtration:** Return line filters are often considered when initial cost is a major concern. A special concern in applying return line filters is sizing for flow. Large rod cylinders and other components can cause return line flows to be much greater than pump output. Return lines can have substantial pressure surges, which need to be taken into consideration when selecting filters and their locations. See Figure 6(b).

**Re-circulating filtration:** While usually not recommended as a system's primary filtration (due to the high cost of obtaining adequate flow rates) re-circulating, or off-line, filtration is often used to supplement on-line filters when adequate turnover cannot be obtained with the latter. It is also often an ideal location in which to use a water removal filter. Off-line re-circulating filters normally do not provide adequate turnover flow rates to handle the high contamination loading occasioned by component failures and/or inefficient maintenance practices. See Figure 6(c).

**Suction filtration:** Micronic suction filters are not recommended for open-loop circuits. The cavitation these filters can cause significantly outweighs any advantage obtained by attempting to clean the fluid in this part of the system. SKB magnetic suction separators are recommended, as they will protect the pump from large and ferrous particles, without the risks of cavitation.

**Breather filtration:** Efficient filter breathers are required for effective contamination control on non-pressurized reservoirs and should complement the liquid filtration component.

**Multiple filtration:** For systems incorporating large total fluid volumes, it may be necessary to employ filters in more than one location. Multiple pressure filters, pressure and return line filters, and recirculating filters are examples of multiple filtration applications.



# **Filter Location**

# Seven Steps to Selecting a Filter

It is important to keep in mind that all system components have some tolerance for contamination. The key to cost effective contamination control is to maintain the system's cleanliness level at the tolerance level of the most sensitive component. To filter more stringently just adds unnecessary cost. Little, if any, increase in component life or reliability is obtained by further reducing the contamination level. Once the desired cleanliness level (ISO code) is determined, selecting a cost effective filtration system can be readily accomplished.

| 1. Determining desired cleanliness level | <b>Step 1.</b> Determine the most sensitive component in the system. Then, determine the desired cleanliness level (ISO code) by using Figures 2 and 3 (page 13) or by contacting the manufacturer directly.   |
|--|--|
|  | Operating pressure levels also have a bearing on cleanliness requirements.   |
| 2. Selecting correct medium              | <b>Step 2.</b> Using Tables 6 and 7 (page 20, respectively), identify the proper Schroeder filter media to employ.   |
| 3. Where to filter                       | <b>Step 3.</b> Determine where to locate the filters, using the information on the previous page, "Filter Location."   |
| 4. Selecting filter housing              | <b>Step 4.</b> Refer to the Filter Product Index in the Table of Contents, pages 3-5 and the individual filter catalog pages to select the specific filter housing that will meet the requirements set forth in Steps 2 and 3 above, as well as the pressure and flow parameters at the particular filter's location.  |
|  | Consideration should also be given to installation<br>convenience for your particular application. Use the<br>selection charts shown on the catalog page<br>to determine the specific filter model number for<br>the desired media at the required flow rate.  |
| 5. Selecting filter breather             | <b>Step 5.</b> For non-pressurized reservoirs, refer to our Accessories Catalog; L-4329 to select the appropriate filter breather.   |
| 6. Contamination control practices       | Step 6. Implement the appropriate manufacturing,   |
|  | assembly, and maintenance contamination control<br>procedures. Effective contamination control is<br>achieved through the conscientious use of sound<br>manufacturing and maintenance practices. Some<br>examples are: filtering make-up oil; controlling<br>contamination ingestion during manufacturing,<br>assembly, maintenance, and repair processes;<br>and properly maintaining cylinder wiper seals. |

# **Filter Selection Considerations**

Parameters: A piston pump and servo system with 20 gpm (76 L/min) pump flow, 30 gpm (114 L/min) return flow, 4000 psi (275 bar) system pressure, and total system volume of 60 gallons (227 liters), with a non-pressurized reservoir.

# Filtration Selection Exercise

**Step 1 example.** The servo valve is the system's most sensitive component. Referring to Figures 2 and 3 (page 13), you can see that a cleanliness level (ISO Code) of 16/14/11 or better is recommended for a high pressure system containing a servo valve.

Step 2 example. Table 8 recommends the Schroeder Z5 element media or finer to achieve a cleanliness level of 16/14/11.

**Step 3 example.** A combination of a pressure filter upstream of the servo valve and a return line filter would provide cost effective contamination control for servo systems.

**Step 4 example.** Filter model DF40, shown on page 65, is selected as the appropriate pressure filter because of its 30 gpm and 4000 psi capacities. A look at the Element Selection Chart for the DF40 located on page 67 verifies that the CZ5 element will handle 20 gpm, and the appropriate model number is DF40-1CZ5.

The ZT in-tank return line filter is selected for the 30 gpm return flow and the Z5 media. As shown in the model selection chart for the ZT on page 266, the proper model number to meet the specifications is ZT-8ZZ5.

**Step 5 example.** Using our Accessories Catalog; L-4329, select the ABF-3/10-S breather/strainer.

**Step 6 example.** Implement the appropriate manufacturing, assembly and maintenance contamination control procedures.

**Step 7 example.** Check start-up and ongoing system cleanliness (ISO Codes). Schroeder offers oil sampling kits that can be forwarded to a lab for particle counting and determination of cleanliness levels.

# Table 8. Schroeder Element Media Recommendations

| Desired Cleanliness Levels | Schroeder |
|----------------------------|-----------|
| (ISO Code)                 | Media     |
| 20/18/15-19/17/14          | Z25       |
| 19/17/14-18/16/13          | Z10       |
| 18/16/13-15/13/10          | Z5        |
| 15/13/10-14/12/9           | Z3        |
| 14/12/9-13/11/8            | Z1        |

# Rated Fatigue Pressure

The application of individual filters should take fatigue ratings into consideration when there are flow or pressure variations creating pressure peaks and shock loads.

Typical hydraulic systems that use highly repetitive operations include plastic injection molding machines, die-cast machines, and forging and stamping press systems. In these and other similar applications, rated fatigue pressure should be considered when selecting a filter.

It has been common practice in the fluid power industry to establish component ratings for maximum operating pressure based on the minimum yield pressure, which is usually one third of the minimum yield pressure for higher-pressure components and one fourth of the minimum yield pressure for lower-pressure components. This rating method has proved satisfactory for many years, but it does not directly address the subject of fatigue.

The National Fluid Power Association has introduced a method (NFPA T2.6.1) for verifying the fatigue pressure rating of the pressure-containing envelope of a metal fluid power component. In this method, components are cycled from 0 to test pressure for 1 million cycles (10 million cycles is optional). The rated fatigue pressure (RFP) is verified by testing. We establish the desired RFP from design, then we calculate the cycle testing pressure (CTP), and then conduct tests at CTP per 1,000,000 cycles.

The T2.6.1 Pressure Rating document is available from the National Fluid Power Association, 3333 N. Mayfair Road, Milwaukee, WI 53222-3219.

| Model      | Rated Fatigue<br>Pressure psi (bar) | Model              | Rated Fatigue<br>Pressure psi (bar) |
|------------|-------------------------------------|--------------------|-------------------------------------|
| NF30/NFS30 | 2400 (165)                          | LW60               | 5800 (400)                          |
| YF30       | 1800 (125)                          | ZT                 | 90 (6)                              |
| DF40/CF40  | 1800 (125)                          | RT/LRT             | 90 (6)                              |
| PF40       | 2500 (173)                          | QT/IRF             | 100 (7)                             |
| LC50       | 5000 (350)                          | KF3                | 290 (20)                            |
| CFX30      | 1800 (125)                          | KL3                | 300 (20)                            |
| RF60       | 3500 (240)                          | TF1                | 270 (19)                            |
| CF60       | 4000 (276)                          | LF1/MLF1           | 250 (17)                            |
| VF60       | 3300 (230)                          | RLD                | 350 (24)                            |
| KF30       | 2500 (170)                          | RLT                | 750 (52)                            |
| TF50       | 3500 (240)                          | GH                 | 725 (50)                            |
| KF50/KC50  | 3500 (240)                          | GHHF               | 725 (50)                            |
| KFH50      | 3500 (240)                          | SRLT               | 750 (52)                            |
| MKF50      | 3500 (240)                          | KF8/QF5/3QF5       | 500 (35)                            |
| KC65       | 5500 (380)                          | K9/2K9/3K9         | 750 (52)                            |
| NOF50-760  | 4000 (275)                          | QF15/QLF15/SSQLF15 | 800 (55)                            |
| FOF60/PF40 | 4000 (275)                          | HS60               | 6000 (415)                          |
| CTF60      | 6000 (415)                          |                    |                                     |

### Table 9. Fatigue Pressure Ratings

Contact Factory For: RFS50, FOF30, NOF30-05, MTA, MTB, KT, BFT, PAF1, MAF1, MF2, RTI, KTK, LTK, QF5 and QFD5 Fatigue Ratings. All water service and GeoSeal<sup>®</sup> models match their standard model for Rated Fatigue Pressure.

# Manifold Mounting

In some filtration applications, it is advantageous to have the inlet and outlet ports mount directly onto a block without any hydraulic hose in between. Schroeder offers several such manifold-mounted filter models, including NFS30, YF30, PF40, LC50 DF40, RFS50, KF30, TF50, KF50, KC50, and KFH50. Drawings for these porting options are labelled "Optional Subplate Porting" and are included on respective catalog pages.

# No-Element Indicator

The No-Element Indicator is a unique, patented signaling device designed to alert the user if no filter element is present in the housing. This virtually eliminates any possible confusion on the part of the user that the filter contains an element and is functioning in a normal manner.

The tamper proof system utilizes a patented internal valve design. If the element is not installed in the housing, the valve restricts flow, causing a high pressure drop. The high pressure drop, in turn, causes the Schroeder Dirt Alarm<sup>®</sup> to indicate that the element is not installed in the housing.

The only way to deactivate the indicator is to install the element in the housing.

This feature is available in the following filter models: RT, TF1, KF3, CF40, DF40, CF60, TF50, KF30, KF50, KC50, KC65, and MKF50 that are equipped with a Schroeder Dirt Alarm<sup>®</sup>. No-element indicator is not available when the indicator is placed in the cap in base-ported filters.

# 26 SCHROEDER INDUSTRIES

# **Ordering Information**

For each filter that is shown in Sections 3, 4, 5, 6, 7 (partial) and 8 there is a Model Number Selection Chart. This chart lists all the configurations and accessories available for that specific filter.

Model numbers for all Schroeder filters are formulated by listing the appropriate codes, from left to right, according to the designated boxes shown in the chart. The letter or letter/number combination identifies the basic filter series. For instance, as shown in Figure 7, KF30-3KZ3-P-D5 designates a KF30 high-pressure, base-ported filter with three synthetic 3 µ elements, Buna N seals, 11/2" NPTF porting, and a visual cartridge Dirt Alarm®.

settina

test ports

U = Series 1215 7/16

L = Two 1/4" NPTF inlet

& outlet female

**UNF** Schroeder

Check Test Point

installed in Cap

(upstream &

downstream)

**UNF** Schroeder

Check Test Point

installed in Cap

(upstream)

UU = Series 1215 7/16

Visual with

Thermal

Lockout

Electrical

Electrical

with

Thermal

Lockout

Electrical

Visual

Electrical

Visual with

Thermal

Lockout

### Figure 7. Model Number Selection How to Build a Valid Model Number for a Schroeder KF30: BOX 5 BOX 1 BOX 2 BOX 3 BOX 4 BOX 6 BOX 7 BOX 8 BOX 9 **BOX 10** KF30 Example: NOTE: Only boxes 7 and 9 may contain more than one option BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9 **BOX 10** Ζ D5 = KF301KZ10SD5 KF30 1K 10 S BOX 1 BOX 2 BOX 3 mber & Size of Elements Filter Series Media Type KF30 K, KK, 27K E Media (Cellulose) Omit = 2 Κ AS =Anti-Stat Media (synthetic) KFN30 Κ Excellement® Z-Media® (synthetic) 3 Z = (Non-bypass Aqua-Excellement® ZW Media ZW = housings requires Zx ZX = Excellement® Z-Media® (High Collapse centertube) high collapse W =W Media (water removal) elements) Media (reusable metal mesh) N size only M = BOX 4 BOX 5 BOX 7 BOX 6 **Micron Rating** Seal Material Magnet option Porting = 1 Micron (Z, ZW, ZX media) P = 1 ½" NPTF 1 Omit = Buna N Omit = None 3 = 3 Micron (AS,E, Z, ZW, ZX media) P32 = 2" NPTF V = Viton® M = Magnet = 5 Micron (AS, Z, ZW, ZX media) S = SAE-24(AS,E,M, Z, ZW, ZX media) inserts (not H = FPR10 = 10 Micron F = 1 ½" SAE available w/ = 25 Micron (E, Z, ZW, ZX media) 25 H.5 = Skydrol® 4-bolt flange indicator in 60 = 60 Micron (M media) Code 61 compatibility 150 = 150 Micron (M media) cap) F32 = 2" SAE 260 = 260 Micron (M media) 4-bolt flange Code BOX 9 BOX 8 61 O = Subplate Options **Dirt Alarm® Options** B24 = ISO 228Omit = None Omit = None G-1 ½' D = Pointer X = Blocked bypass D5 = Visual pop-up **BOX 10** Visual 50 = 50 psi bypass D5C = D5 in cap

D9 = All stainless D5

D8C = D8 in cap

MS5LC = Low current MS5

MS10LC = Low current MS10

MS12LC = Low current MS12

MS16LC = Low current MS16

MS5LCT = Low current MS5T

MS10LCT = Low current MS10T

MS12LCT = Low current MS12T

MS16LCT = Low current MS16T

MS17LCT = Low current MS17T

MS13DCLCT = Low current MS13DCT

MS14DCLCT = Low current MS14DCT

D8 = Visual w/ thermal lockout

MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable

MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)

MS = Cam operated switch  $w/ \frac{1}{2}$ " conduit female connection

MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)

MS10 = Electrical w/ DIN connector (male end only)

MS16 = Electrical w/ weather-packed sealed connector

MS17LC = Electrical w/ 4 pin Brad Harrison male connector

MS11 = Electrical w/ 12 ft. 4-conductor wire

MS5T = MS5 (see above) w/ thermal lockout

MS10T = MS10 (see above) w/ thermal lockout

MS12T = MS12 (see above) w/ thermal lockout

MS16T = MS16 (see above) w/ thermal lockout

MS13 = Supplied w/ threaded connector & light

MS13DCT = MS13 (see above), direct current, w/ thermal lockout

MS14DCT = MS14 (see above), direct current, w/ thermal lockout

# Model Number Selection

# NOTES:

- Box 2. Number of elements must equal 1 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length.
- Box 5. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 7. For options F & F32, bolt depth .75" (19 mm).

For option O, O-rings included; hardware not included.

- Box 8. X and 50 options are not available with KFN30.
- Box 9. Standard indicator setting for nonbypassing model is 50 psi unless otherwise specified.
- Box 10. Options N, G509 and G588 are not available with KFN30. N option should be used in conjunction with dirt alarm.

Additional Options

N = No-Element

Indicator (not

available w/

housings w/

indicator in cap

drain opposite

KFN30 or

G509 = Dirt Alarm and

G588 = Electric Switch

standard

and drain

opposite

standard

Omit = None

# Element Selection Chart for Flow Requirements

For each filter shown in the catalog, there is an element selection chart to determine the correct element to be used for a particular flow requirement (see Figure 8 for an example). The chart uses a petroleum-based hydraulic fluid with 150 SUS viscosity.

The process involves the following: Determine the working pressure of the system (3000 psi in this example) and the maximum flow (75 gpm). Then select the media (Z-Media®), and the micron filtration (3  $\mu$ ). For example, the filter selected, following the above steps, is a KF30-2KZ3-P-D5. If the system pressure is 5000 psi and all other parameters are the same, then the model number would be KF50-2KZ3-P-D5.

Figure 8. KF30 Housing and Element Selection Chart for Flow Requirement

|                       | Elen       | ient     | Element selections are predicated on the use of 150 SUS (32 cS |           |             |      |                       | 2 cSt) |      |        |       |  |
|-----------------------|------------|----------|--|-----------|-------------|------|-----------------------|--------|------|--------|-------|--|
| Pressure              | Series     | Part No. | petroleum based fluid and a 40 psi (2.8 bar) bypass valve.     |           |             |      |                       |        |      |        |       |  |
|                       |            | К3       | 1K3 2K3 3K3 See M  |           | 1K3 2K3 3K3 |      |                       |        | MF   | K50    |       |  |
|                       | E<br>Media | K10      | 1K10   | 1K10 2K10 |             | 3K10 |                       | 0      | Se   | e MFK5 | D     |  |
|                       | Media      | K25      |  | 1K25      |             |      |                       | 2K25   |      |        |       |  |
| То                    |            | KZ1      | 1KZ1 2K2   |           |             | 2KZ1 |                       |        | 3    | KZ1    |       |  |
| 3000 psi<br>(210 bar) | Z<br>Media | KZ3      | 1KZ3   |           |             | 2KZ3 |                       | :      | 3KZ3 |        |       |  |
| (,                    |            | KZ5      | 1KZ5   |           |             |      | 2                     | KZ5    |      | 3KZ5   |       |  |
|                       | meana      | KZ10     | 1KZ10  |           |             |      |                       | 2KZ    | 10   | 3K10   |       |  |
|                       |            | KZ25     |  |           | 2KZ         | 25   |                       |        |      |        | 2KZ25 |  |
|                       | Flow       | gpm o    | ) 25   | 50        | )           | 75   | <mark>ا</mark><br>100 | )      | 12   | 5      | 150   |  |
|                       | Flow       |          | 0 100  | 2         | 00          | 300  |                       | 400    |      | 500    | 600   |  |

Shown above are the elements most commonly used in this housing. requires 2" porting (P32)

# Correcting for Viscosity and Specific Gravity

Element pressure drop information in this publication is based on the viscosity (150 SUS or 32cSt) and specific gravity (0.86) of the most commonly used hydraulic oils.

If the viscosity or specific gravity of the fluid you are designing for is different from these, use the following formulas to obtain the correct  $\Delta P$  values.

| Corrected element $\Delta P =$ | = $\Delta P$ from curve | x — | SUS viscosity<br>150 | — x | specific gravity<br>0.86 |
|--------------------------------|-------------------------|-----|----------------------|-----|--------------------------|
|                                |                         | OR  |                      |     |                          |
| Corrected element ∆P =         | = ΔP from curve         | x — | cST viscosity<br>32  | — x | specific gravity<br>0.86 |



# **Schroeder Element Media**

Z-Media<sup>®</sup> Elements (Synthetic)

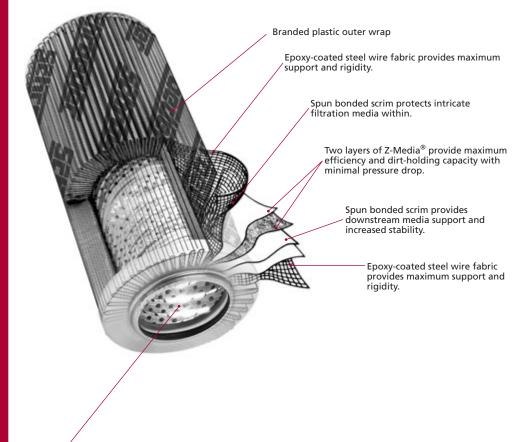




The special class of micro-glass and other fibers used in Z-Media<sup>®</sup> are manufactured with utmost precision, to specific thicknesses and densities, and bonded with select resins to create material with extra fine passages. No other filter media can provide the benefits of Schroeder's Excellement<sup>®</sup> Z-Media<sup>®</sup>: maximum dirt-holding capacity, superior particle capture, excellent beta stability, minimum pressure drop, high flow rate and low operating cost.

The typical multiple layer construction (shown in Figure 9) has evolved from comprehensive laboratory testing to provide extended element life and system protection. Each successive layer performs a distinct and necessary function. The outermost layer is designed to maintain element integrity. Beyond this layer is a spun bonded scrim, offering coarse filtration and protection for the filtering layers within. Multiple sheets of fine filtering media follow, providing intricate passageways for the entrapment of dirt particles. Together, the various layers of filter media provide the ideal combination for peak filtration performance.

# Figure 9. Cutaway of Excellement® Z-Media®



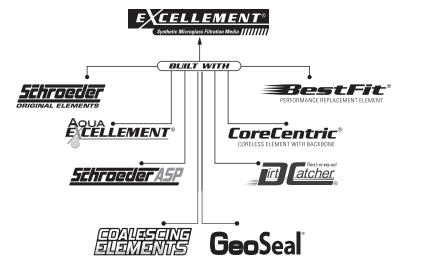
Crush-protective center tube.

Schroeder's complete line of quality filtration elements—including Schroeder's original element designs, BestFit<sup>®</sup> replacement elements, CoreCentric<sup>®</sup> coreless repair elements and DirtCatcher<sup>®</sup> —are manufactured with Excellement<sup>®</sup> Z-Media<sup>®</sup>.

The better efficiencies, excellent stability, lower pressure drops, and higher dirt holding capacities provided by Excellement<sup>®</sup> Z-Media<sup>®</sup> mean cleaner oil, longer element life, and less downtime. They outlast, outperform, and excel in every measurable benchmark.

The Excellement<sup>®</sup> Z-Media<sup>®</sup> series of filter elements have been designed, tested, and proven to be the best performing elements available on the market today.

- Better flow characteristics:
- Improved efficiency:
- Higher dirt holding capacity:
- Multi-layer construction:
- Beta stability:
- ristics: Lower pressure drop and improved flow stability
  - Cleans oil in less time and improved reliability
    - Longer element life, lower maintenance costs (labor) and decreased inventory costs (parts)
    - Each layer performs a distinct function and double layer of Excellement<sup>®</sup> Z-Media<sup>®</sup>
    - Excellement<sup>®</sup> Z-Media<sup>®</sup> maintains efficiency as differential pressure increases



Schroeder Z-Media<sup>®</sup> elements are tested under cyclic flow conditions to verify flow fatigue characteristics. Extra strength and rigidity are engineered into every one of these filter elements through the use of epoxy-coated steel wire fabric and additional support layers. (ZX Series high crush strength capabilities are available for 3000 psi applications.)

A wide range of Schroeder Z-Media<sup>®</sup> elements enable you to achieve the desired cleanliness level for your system. Developed through comprehensive laboratory testing and field performance studies, these elements have been proven effective. Shown in Table 10 are cleanliness levels that can be achieved using Z-Media<sup>®</sup> filter elements in various applications.

| Application  | Cleanliness*<br>Level |  |  |  |  |  |
|--|-----------------------|--|--|--|--|--|
| Railroad Maintenance-of-Way<br>Equipment             | ISO 19/17/14          |  |  |  |  |  |
| Power Generation<br>Turbine Skid                     | ISO 17/15/13          |  |  |  |  |  |
| Timber Harvesting Equipment                          | ISO 17/15/12          |  |  |  |  |  |
| Plastic Injection<br>Molding Machine                 | ISO 17/15/12          |  |  |  |  |  |
| Paper Mill Lube System                               | ISO 16/14/11          |  |  |  |  |  |
| Aircraft Test Stand                                  | ISO 15/13/10          |  |  |  |  |  |
| Hydraulic Production Test Stand                      | ISO 13/11/8           |  |  |  |  |  |
| *Higher or lower levels can be obtained by selecting |                       |  |  |  |  |  |

**Table 10. Typical Field Application Results** 

coarser or finer Schroeder Z-Media<sup>®</sup>, respectively.

Table 11 shows the ISO 16889 filtration ratios (Betas) for Schroeder Z-Media<sup>®</sup> elements Z1, Z3, Z5, Z10 and Z25. Figure 10 depicts the information in Table 11 graphically and provides corresponding % efficiencies. The numbers contained in the tables are simply specific data points from the plots for the respective media shown. The filtration ratio (Beta) is shown on the left side and the equivalent particle capture efficiency (%) is shown on the right for particle sizes shown across the bottom. The filtration ratio (in Table 13) indicates the particle size at which the filtration ratio for the element is greater than a given number.

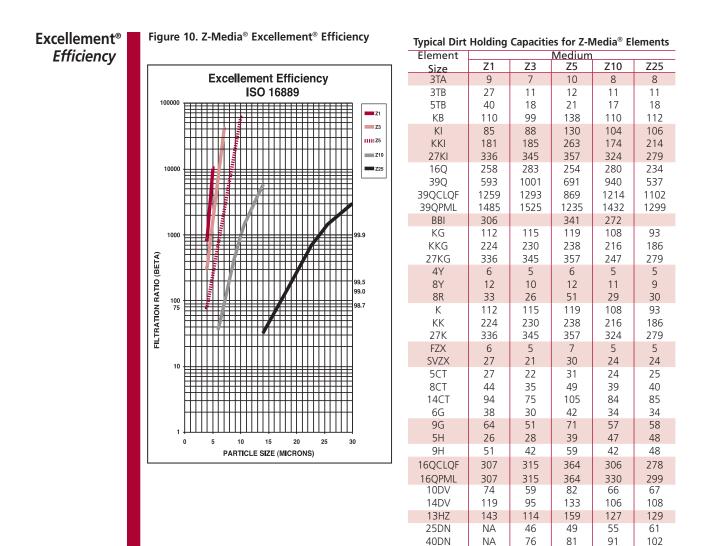
| Flowert          | Filtration Ratio Per ISO 16889 |                      |                        |                         |  |  |
|------------------|--------------------------------|----------------------|------------------------|-------------------------|--|--|
| Element<br>Media | βx(c) ≥ 75<br>(98.7%)          | βx(c) ≥ 100<br>(99%) | βx(c) ≥ 200<br>(99.5%) | βx(c) ≥ 1000<br>(99.9%) |  |  |
| Z1               | <4.0                           | <4.0                 | <4.0                   | 4.2                     |  |  |
| Z3               | <4.0                           | <4.0                 | <4.0                   | 4.8                     |  |  |
| Z5               | <4.0                           | 4.2                  | 4.8                    | 6.3                     |  |  |
| Z10              | 6.8                            | 7.1                  | 8.0                    | 10.0                    |  |  |
| Z25              | 16.3                           | 17.1                 | 19.0                   | 24.0                    |  |  |

# Table 11. Z-Media<sup>®</sup> Filtration Ratios

# Excellement<sup>®</sup> Elements Have Improved Filtration Ratios

Features and

**Benefits** 



Excellement Elements Have High Dirt Holding Capacities



Dirt holding capacity (DHC), simply stated, is the amount of solid contamination that an element can hold before the filter housing reaches its terminal bypass setting. The higher the dirt holding capacity, the longer the element will last. This translates to fewer element purchases, less frequent equipment shutdowns, decreased maintenance time, and reduced inventory. In short, it means money saved.

85

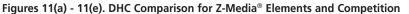
164

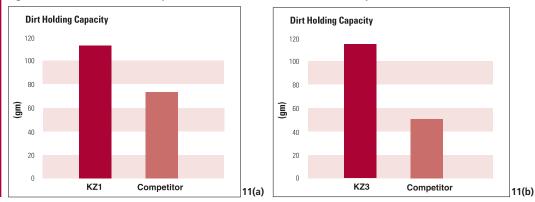
131

183

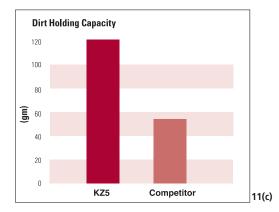
146

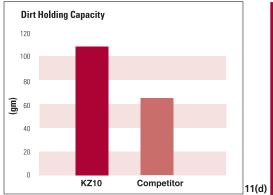
149



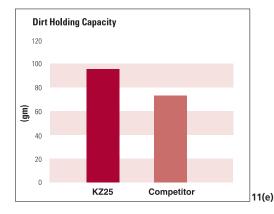


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# Table 12. Typical Dirt-Holding Capacities for Z-Media<sup>®</sup> Element (in grams)

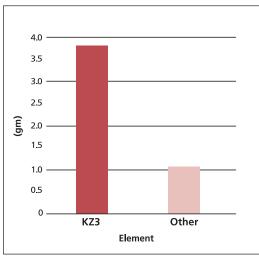


| Tuno           | Element Size (Diameter x Length) |               |              |                |               |  |
|----------------|----------------------------------|---------------|--------------|----------------|---------------|--|
| Type<br>Medium | 2" x 6"<br>6R                    | 3" x 8"<br>8T | 4" x 9"<br>K | 5" x 18"<br>BB | 6" x 39"<br>Q |  |
| Z1             | 15                               | 51            | 112          | 268            | 1485          |  |
| Z3             | 15                               | 52            | 115          | 275            | 1525          |  |
| Z5             | 16                               | 59            | 119          | 301            | 1536          |  |
| Z10            | 14                               | 55            | 108          | 272            | 1432          |  |
| Z25            | 15                               | 56            | 93           | 246            | 1299          |  |
|                |                                  |               |              |                |               |  |

The data shown represents the cumulative results of multi-pass tests in accordance with ISO 16889. Tests are conducted on a regular basis at Schroeder's own laboratory and at approved independent facilities.

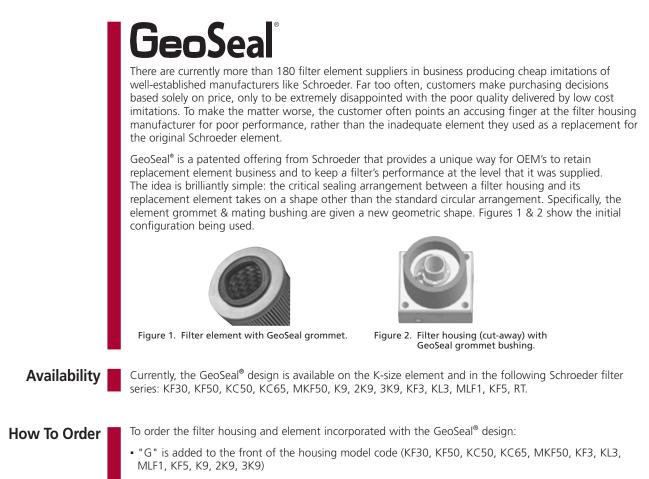
A monetary value can be calculated for a filter element by considering its dirt holding capacity and efficiency in combination with its cost. To make this determination, first find out how much you're spending to clean your fluid to a desirable cleanliness level. Then figure out how much contamination (in grams) that the element is actually retaining. These two numbers will make it possible to calculate the grams of dirt per dollar spent. It's one thing to clean the oil, but it's another to clean the oil and simultaneously provide maximum element life. With Excellement® Z-Media®, you don't need to sacrifice element life to achieve high efficiency.

We are confident that the high efficiencies, exceptional dirt holding capacities, and low pressure drops combined with Schroeder's competitive prices— make elements made with Excellement® Z-Media® the best value in the market today.



# Figure 12. Grams of Dirt Held per Dollar Spent

Cost Per Gram Analysis



- "BG" is added to the element model code for RT (one end of the element has the GeoSeal<sup>®</sup>; the other end has an integrated bypass valve)
- "G" is added to the element model code for all other housings

# **GeoSeal**<sup>®</sup> Filters Selection Guide

|          |  | Pressure<br>psi (bar) | Flow<br>gpm (L/min) | Element<br>Length/Size | Page |
|----------|--|-----------------------|---------------------|------------------------|------|
|          | High Pressure GeoSeal® Filters               |                       |                     |                        |      |
|          | GKF30 GeoSeal®                               | 3000 (210)            | 100/150 (380/570)   | KG, KKG, 27KG          | 340  |
|          | GKF50 GeoSeal®                               | 5000 (345)            | 100/150 (380/570)   | KG, KKG, 27KG          | 340  |
|          | GKC50 GeoSeal <sup>®</sup>                   | 5000 (345)            | 100/150 (380/570)   | KG, KKG, 27KG          | 340  |
|          | GMKF50 GeoSeal®                              | 5000 (345)            | 200 (760)           | KG, KKG, 27KG          | 341  |
|          | GKC65 GeoSeal®                               | 6500 (450)            | 100 (380)           | KG, KKG, 27KG          | 341  |
| Filters  | Medium Pressure GeoSeal <sup>®</sup> Filters |                       |                     |                        |      |
|          | GKF5 GeoSeal®                                | 500 (35)              | 100 (380)           | KG                     | 342  |
| GeoSeal® | GK9 GeoSeal®                                 | 900 (60)              | 100 (380)           | KG, KKG, 27KG          | 342  |
| Gec      | G2K9 GeoSeal°                                | 900 (60)              | 100 (380)           | KG, KKG, 27KG          | 343  |
|          | G3K9 GeoSeal®                                | 900 (60)              | 100 (380)           | KG, KKG, 27KG          | 343  |
|          | Low Pressure GeoSeal® Filters                |                       |                     |                        |      |
|          | GKF3 GeoSeal®                                | 300 (20)              | 100 (380)           | KG, KKG, 27KG          | 344  |
|          | GKL3 GeoSeal®                                | 300 (20)              | 120 (455)           | KG, KKG, 27KG, 18LG    | 344  |
|          | GMLF1 GeoSeal®                               | 300 (20)              | 200 (760)           | KG                     | 345  |
|          | GRT GeoSeal®                                 | 100 (7)               | 100 (380)           | KBG, KKBG, 27KBG       | 345  |

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# Schroeder ASP

The Anti-Static Pleat Media (ASP<sup>®</sup>) element was developed to greatly reduce or eliminate electrostatic discharging problems that can occur during filtration of hydraulic and lube fluids. By combining proven Excellement<sup>®</sup> media and ASP<sup>®</sup> technology, it is now possible to offer both high filtration efficiency and electrical conductivity.

# Several key areas can contribute to Electrostatic Discharge:

- Filter Media media layer construction can influence high voltage charge
- Hydraulic Fluids group II and III have low conductivity
- Temperature higher voltage charge will generally exist with lower temperature
- Viscosity high viscosity rates typically result in high voltage charge
- High oil contamination -increases resistance to flow and higher voltage charges

| К       | С      | N      | SBF-6000      | SDF-8300      | 39QPML      |
|---------|--------|--------|---------------|---------------|-------------|
| KAS3    | CAS3   | NAS3   | AS-6000-183V  | AS-8300-163V  | 39QPMLAS3V  |
| KAS5    | CAS5   | NAS5   | AS-6000-185V  | AS-8300-165V  | 39QPMLAS5V  |
| KAS10   | CAS10  | NAS10  | AS-6000-1810V | AS-8300-1610V | 39QPMLAS10V |
| KKAS3   | CCAS3  | NNAS3  | AS-6000-363V  | AS-8300-393V  |             |
| KKAS5   | CCAS5  | NNAS5  | AS-6000-365V  | AS-8300-395V  |             |
| KKAS10  | CCAS10 | NNAS10 | AS-6000-3610V | AS-8300-3910V |             |
| 27KAS3  |        |        |               |               |             |
| 27KAS5  |        |        |               |               |             |
| 27KAS10 |        |        |               |               |             |

# Anti-Static Pleat Elements





# Patent # 7384547

| KDZ1    | KKDZ1  |
|---------|--------|
| KDZ3    | KKDZ3  |
| KDZ5    | KKDZ5  |
| KDZ10   | KKDZ10 |
| KDZ25   | KKDZ25 |
| BBDZ1   |        |
| BBDZ3   |        |
| BBDZ5   |        |
| BBDZ10  |        |
| BBDZ25  |        |
| 18LDZ1  |        |
| 18LDZ3  |        |
| 18LDZ5  |        |
| 18LDZ10 |        |
| 18LDZ25 |        |
|         |        |

DirtCatcher<sup>®</sup> elements from Schroeder offer a superior alternative to inside-out filtration. The patented outer shell prevents contaminants from falling back into the system during element changes while still providing the excellent dirt retention of Excellement<sup>®</sup> media. DirtCatcher<sup>®</sup> elements are currently available in single and double length K, BB, and 18L size elements, and feature Excellement<sup>®</sup> media within. Part numbers appear on left.

Currently, DirtCatcher<sup>®</sup> elements can be purchased separately or as part of our RT, KF3, KF8, BFT, and LRT filter assemblies.

The DirtCatcher<sup>®</sup> solution provides peace of mind to those concerned with dirt escaping from elements during the removal process while delivering all the advantages of Schroeder original (outside-in flow) elements:

- Better Pressure Drop
- Greater Surface Area
- Better Pleat Stability

As this design is only available from Schroeder, it goes without saying that DirtCatcher's unique design also allows OEM's to retain 100% of aftermarket business.

# DirtCatcher® Elements



# CoreCentric<sup>®</sup> Coreless Element





# CORELESS ELEMENT WITH BACKBONE

The CoreCentric<sup>®</sup> Coreless element is an environmentally friendly, all plastic element (no metal parts) that can be crushed, shredded or burned. These alternative methods of disposal will not only greatly reduce solid waste volumes, but also reduce disposal costs simultaneously.

CoreCentric<sup>®</sup> Coreless repair elements are designed to ensure optimum performance and ease of service. Built with Excellement<sup>®</sup> Z-Media<sup>®</sup>, CoreCentric<sup>®</sup> Coreless repair elements (QCL) fit in all Pall 8304 and 8314 housings and are available in the 8", 13", 16", and 39" lengths. Note: To ensure fast delivery, CoreCentric<sup>®</sup> elements are available with Viton<sup>®</sup> seals only.

CoreCentric<sup>®</sup> elements are designed with an integral patent design, cylindrical center core that provides column strength, added structural stability, and easy element removal. This core eliminates both the sticking and vertical sagging problems that can occur when using other manufacturer's coreless designs.

Schroeder's CoreCentric® elements are the only coreless element designed with backbone. We call it the "CORE ON CORE" element design.

# **CoreCentric Coreless BestFit Element Information**

| Part<br>Number      | Filtration Ratio<br>(ßx≥200)<br>Efficiency | Filtration Ratio<br>(ßx(c)≥1000)<br>Efficiency | Dirt<br>Holding<br>Capacity |
|---------------------|--|--|-----------------------------|
| 16QCLZ1V/39QCLZ1V   | < 4.0                                      | 4.2  | 307/1259                    |
| 16QCLZ3V/39QCLZ3V   | < 4.0                                      | 4.8  | 315/1293                    |
| 16QCLZ5V/39QCLZ5V   | 4.8  | 6.3  | 364/1302                    |
| 16QCLZ10V/39QCLZ10V | 8.0  | 10.0   | 306/1214                    |
| 16QCLZ25V/39QCLZ25V | 19.0                                       | 24.0   | 278/1102                    |



# Series ZX High Collapse Elements (Synthetic)



ORIGINAL ELEMENTS BUILT WITH EXCELLEMENT Schroeder offers a line of high crush media elements for use in its non-bypass version of filter housings, which include the: NFN30, DFN40, CFN40, RFN60, CFN60, TFN50, KFN30, KFN50, KCN50, MKFN50, KCN65, FOF30, FOF60 and NOF30.

The high crush elements have a collapse rating of 3000 psid. The elements and their nominal sizes are shown below.

# Table 13. Schroeder High Crush Element Sizes

| -                       |                            |
|-------------------------|----------------------------|
| Element                 | Nominal Element Size       |
| CZX3, CZX10             | 3.0" Diameter x 4.8" Long  |
| CCZX3, CCZX10           | 3.0" Diameter x 9.5" Long  |
| FZX3                    | 1.3" Diameter x 3.3" Long  |
| KZX1, KZX3,             |                            |
| KZX10, KZX25            | 3.9" Diameter x 9.0" Long  |
| KKZX1, KKZX3, KKZX5,    |                            |
| KKZX10, KKZX25          | 3.9" Diameter x 18.0" Long |
| 27KZX1, 27KZX3, 27KZX5, |                            |
| 27KZX10, 27KZX25        | 3.9" Diameter x 18.0" Long |
| NNZX3, NNZX10,          |                            |
| NNZX25                  | 1.7" Diameter x 8.0" Long  |
| SVZX3, SVZX10           | 1.7" Diameter x 8.0" Long  |
| 8TZX3                   | 3.0" Diameter x 8.0" Long  |
|                         |                            |



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Schroeder manufactures over 1900 Bestfit<sup>®</sup> Performance Replacement elements. In addition, Schroeder produces all of the technical data to support the sale of these products. The Bestfit family consists of standard elements, cartridge and spin-on replacement Corecentric<sup>®</sup> coreless repair elements, and the melt-blown and spun-bonded process filtration elements. Most importantly, we offer the easiest way to determine the Schroeder equivalent of nearly 32,000 competitive elements using the Schroeder online element search, accessible through our web site at www.schroederindustries.info (See Figure 15).

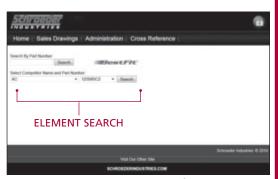


Figure 15. Online BestFit® Cross Reference

Simply clicking on "BestFit Element Cross Reference"

on the Schroeder Industries home page (www.schroederindustries.com) or accessing the direct link above allows you to match filter elements by entering either the manufacturer's name or part number. When searching by part number, the search will activate as soon as three characters are entered. The results table includes the corresponding BestFit® replacement element, dimensions (inside diameter, outside diameter and length), element style (e.g., cartridge or spin-on), media type (metal mesh, water removal, synthetic glass, or paper) and performance specifications, including filtration ratio and dirt holding capacity.

Schroeder BestFit Elements include the following series:

| QCLZ (8314 replacement) | SBF-0160R | SBF-0660R | SBF-170B  | SBF-7500 | SBF-9021     | SBF-HF4    |
|-------------------------|-----------|-----------|-----------|----------|--------------|------------|
| QPML (8310 replacement) | SBF-0161D | SBF-0661D | SBF-2000  | SBF-7507 | SBF-9100     | SBF-MF-100 |
| SBF-0030D               | SBF-0240D | SBF-0850R | SBF-2544  | SBF-8200 | SBF-9400     | SBF-PXX    |
| SBF-0030R               | SBF-0240R | SBF-0950R | SBF-2600R | SBF-8300 | SBF-9600     | SBF-PXW    |
| SBF-0031D               | SBF-0241D | SBF-1000  | SBF-270   | SBF-8400 | SBF-9601     | SBF-RP83   |
| SBF-0060D               | SBF-0280D | SBF-1001  | SBF-270B  | SBF-8500 | SBF-9604     | SBF-TXX    |
| SBF-0060R               | SBF-0281D | SBF-1002  | SBF-370   | SBF-8700 | SBF-9650     | SBF-TXW    |
| SBF-0661D               | SBF-0330D | SBF-1010  | SBF-370B  | SBF-8800 | SBF-9651     | SBF-UE319  |
| SBF-0110D               | SBF-0330R | SBF-1050  | SBF-6000  | SBF-8900 | SBF-9800     | SBF-UE619  |
| SBF-0110R               | SBF-0331D | SBF-1051  | SBF-6400  | SBF-8914 | SBF-9801     |            |
| SBF-0111D               | SBF-0500R | SBF-1300R | SBF-6500  | SBF-937  | SBF-9901     |            |
| SBF-0160D               | SBF-0660D | SBF-170   | SBF-7400  | SBF-9020 | SBF-BPE-7509 |            |

Used in process and cutting fluid applications, melt-blown and spun-bonded elements are manufactured with either polypropylene or nylon filter media. Element fibers are blown onto and thermally bonded to a central support core with increasing fiber density towards the core, creating depth filtration. All layers are interlinked to offer maximum support while ensuring high void volume. The thermal bonding process minimizes media migration, providing consistent and reliable performance. They excel in dirt holding capacity and have low pressure drops. They also offer wide chemical compatibility, as well as being structurally sound and able to withstand high flow rates.

Melt-blown and spun-bonded elements fit most industrial housings incorporating the double open ended sealing arrangement, as well as standard polypropylene, PVC, and polycarbonate housings. In addition, these elements are available with end caps for most plug-in style O-ring fittings, making them ideally suited to more critical applications requiring the assurance of these double seals.

They have a wide range of applications including:

- Machine tool coolants
- Roll mill coolants
- EDM fluids
- Quench oils

- Parts washing solvents
- Electrophoretic paints
- Etching solutions
- Plating solutions
- Light oils
- Fuels
- High water containing fluids

#### BestFit<sup>®</sup> High Performance Replacement Elements



Melt-Blown and Spun-Bonded Filter Elements For Process and Cutting Fluid Applications



For technical information on process filtration solutions, request catalog #L-2728.

#### E Media Elements (Cellulose)



Recognized as one of the industry's most cost effective media available in the marketplace, Schroeder E media is an excellent choice for a wide variety of hydraulic system applications.

The E3 media is a specially designed mixture of cellulose and micro-glass, which provides both high dirt holding capacity and high particle capture efficiency, resulting in one of the industry's most cost effective cellulose media. Schroeder E10 media, used in the popular K10 element, is a standard for numerous industries, enabling continuous, trouble-free system operation.

#### Please note: The "E" identification for the media is not shown in the element model number. For example, our standard K3 and K10 elements are constructed with E media.

Table 14 shows the filtration ratios for Schroeder E media elements, while Figure 18 depicts this information graphically and provides corresponding % efficiencies for both the E3 and E10 media.

#### Table 14. E Media Efficiency Ratings per ISO 4572 without Antistatic Additive

|                  | Filtration Ratios (Beta)       |                               |                                 |                |                |                 |                 |
|------------------|--------------------------------|-------------------------------|---------------------------------|----------------|----------------|-----------------|-----------------|
| Element<br>Media | β <sub>X</sub> ≥ 75<br>(98.7%) | β <sub>X</sub> ≥ 100<br>(99%) | β <sub>X</sub> ≥ 200<br>(99.5%) | ß <sub>3</sub> | ß <sub>5</sub> | <sup>ß</sup> 10 | <sup>в</sup> 20 |
| E3               | 6.8                            | 7.5                           | 10.0                            | 28             | 48             | 200             | >1000           |
| E10              | 15.5                           | 16.2                          | 18.0                            | —              | 1.3            | 10              | 400             |

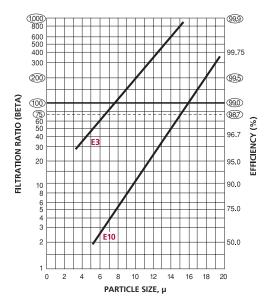
The cost effectiveness of E media becomes even more apparent when dirt holding capacity is considered (see Table 15). The dollars spent per gram of dirt retained with an E media element makes it an excellent choice for many contamination control programs.

#### Table 15. Typical Dirt Holding Capacities for E Media Elements

| (ACFTD capacity in grams) |     |     |  |  |  |
|---------------------------|-----|-----|--|--|--|
| Element                   | Me  | dia |  |  |  |
| Size                      | E3  | E10 |  |  |  |
| Ν                         | 8   | 7   |  |  |  |
| NN                        | 12  | 10  |  |  |  |
| С                         | 14  | 12  |  |  |  |
| CC                        | 30  | 25  |  |  |  |
| А                         | 16  | 13  |  |  |  |
| К                         | 54  | 44  |  |  |  |
| 9C                        | 30  | 25  |  |  |  |
| BB                        | 162 | 132 |  |  |  |
| 18L                       | 108 | 88  |  |  |  |
| Μ                         | 50  | 37  |  |  |  |
| 8Z                        | 39  | 32  |  |  |  |
| 8T                        | 39  | 32  |  |  |  |
| Р                         | —   | 37  |  |  |  |
| 9V                        | 32  | 26  |  |  |  |
| 14V                       | 51  | 41  |  |  |  |
| 6R                        | 9   | 8   |  |  |  |

The data shown represents the cumulative results of E media multi-pass tests. Tests are conducted on a regular basis at Schroeder's own laboratory and at approved independent facilities. Tests are conducted without antistatic additive.

Figure 16. E Media Element Efficiencies Per ISO 4572



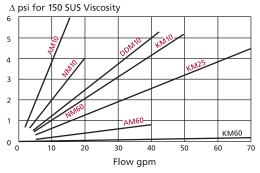
The data shown represents the cumulative results of E media multi-pass tests. Tests are conducted on a regular basis at Schroeder's own laboratory and at approved independent facilities. Tests are conducted without antistatic additive. Schroeder offers a line of metal reusable elements to meet specific application needs. These rugged elements are constructed of high-strength woven stainless steel wire mesh. The wire mesh and center tube are epoxy-bonded to the end caps.

The element design incorporates shallow pleats which provide an efficient flow pattern with optimum pressure drop. In addition, the shallow pleat construction simplifies the cleaning process. These elements may be cleaned using a liquid solution (either Kleenite or Oakite) or by ultrasonics. Request Schroeder's #L-2094 Data Sheet for details regarding recommended cleaning procedures.

Schroeder metal elements are available in a variety of sizes for 10, 25, 60, 150, and 260  $\mu$  filtration and are shown in Table 16. The size and type of wire mesh used for each micron rating are shown in Table 17.

| Table 16. Available Schroeder Metal Elements |                    |  |  |  |  |
|--|--------------------|--|--|--|--|
| Element                                      | Nominal Size       |  |  |  |  |
| AM10, AM25, AM60, AM150                      | 3.0" dia. x 4.5" L |  |  |  |  |
| DDM10  | 2.6" dia. x 9.7" L |  |  |  |  |
| KM10, KM25, KM150, KM260                     | 3.9" dia. x 9.0" L |  |  |  |  |
| NM10, NM60                                   | 1.8" dia. x 5.3" L |  |  |  |  |
| ZM150  | 3.2" dia. x 9.3" L |  |  |  |  |

#### Figure 17. Typical Pressure Drop Performance Data for Schroeder Series M Media Elements



#### M Media Elements (Reusable Metal)



#### Table 17. Micron Ratings and Wire Mesh

| 10 µ  | 200 x 1400 twilled Dutch weave |
|-------|--------------------------------|
| 25 µ  | 165 x 1400 twilled Dutch weave |
| 60 µ  | 50 x 250 plain Dutch weave     |
| 150 µ | 100 x 100 square Dutch weave   |
| 260 µ | 60 x 60 square Dutch weave     |

Today's demand for the use of fire-resistant fluids that assure safe and dependable operation in an electro-hydraulic control system (EHC) demand peak performing media. The change-over to Schroeder "F" Pack media from a traditional, high performance, synthetic media results in lower, clean pressure drop and higher efficiency. Most importantly, the change eliminates cast-off, or shedding of synthetic fibers, which can result in servo valve failure.

Schroeder F-Pack Media elements include the following series: 9021, 9601, 9401, and 9601.

#### Construction

- Total stainless steel, sintered depth style media
- Pleated media
- Welded construction prevents shedding of media
- Outside/in flow

#### Performance

- Extremely efficient: B3=1000 and B10=1000
- Excellent choice for use with phosphate esters and Fyrquel<sup>®</sup> fluids
- Operating temperature -20°F to 250°F with use of Viton<sup>®</sup> seals
- Element collapse rating 3000 psid for use at high differential pressures

#### F-Pack Media



#### W Media Elements (Water Removal)



Water can cause a host of contamination problems in hydraulic and lubrication systems. It can exist in a system in a dissolved state or in a free state. In a dissolved state, the fluid is holding the water. In a free state, the water is above the specific saturation point of the fluid, and thus cannot dissolve or hold more water. A mild discoloration of the fluid generally indicates that a free water condition exists in the system.

Schroeder's uniquely designed water removal elements employ a quick-acting water-absorbent polymer, capable of holding over 400 times its own weight in water. These elements are ideal for in-line use, re-circulating filter systems, or in portable filtration carts.

Water retention is positive, even under high pressure, so there is no downstream unloading. However, water retention capacity is dependent on the type of fluid and additives present in a system, its viscosity and its flow rate. As a result, retention capacity may be diminished by some additives present in the system, by a high viscosity, or a high flow rate.

Table 18 shows water holding capacity and Table 19 shows the pressure drops for select W media elements.

For best results, flow rates through a single KW element should be 10 gpm (38 L/min) or less. The maximum recommended flow rates for Schroeder water removal elements are listed in Table 20.

| Element      | Flow        | Сар  | acity  |
|--------------|-------------|------|--------|
| Model<br>No. | gpm (L/min) | mL   | ounces |
| KW           | 20 (75)     | 150  | 5      |
| KW           | 16 (60)     | 200  | 7      |
| KW           | 10 (38)     | 320  | 11     |
| KW           | 2 (7.5)     | 500  | 17     |
| 6RW          | 20 (75)     | 31   | 1      |
| 6RW          | 2 (7.5)     | 104  | 4      |
| 8TW          | 20 (75)     | 93   | 3      |
| 8TW          | 2 (7.5)     | 311  | 11     |
| 9VW          | 20 (75)     | 81   | 3      |
| 9VW          | 2 (7.5)     | 270  | 9      |
| 14VW         | 20 (75)     | 130  | 4.4    |
| 14VW         | 2 (7.5)     | 435  | 14.7   |
| 16QW         | 60 (225)    | 480  | 16     |
| 16QW         | 10 (38)     | 1350 | 45     |
| 39QW         | 140 (530)   | 1100 | 37     |
| 39QW         | 22 (83)     | 3100 | 105    |
| MW           | 14 (53)     | 100  | 3.5    |
| MW           | 1.5 (6)     | 350  | 12     |

#### Table 19. Pressure Drop

| Element<br>Model No. | Flow<br>gpm (L/min) | ∆P<br>psi (bar) |
|----------------------|---------------------|-----------------|
| KW                   | 20 (75)             | 2.5 (0.17)      |
| 14VW                 | 20 (75)             | 2.5 (0.17)      |
| 16QW                 | 65 (246)            | 2.5 (0.17)      |
| 39QW                 | 150 (570)           | 2.5 (0.17)      |

#### Table 20. Maximum Recommended Flow Rate

| Element   | Maximum Recommended Flow Rat |       |  |  |
|-----------|------------------------------|-------|--|--|
| Model No. | gpm                          | L/min |  |  |
| KW        | 20                           | 75.7  |  |  |
| 6RW       | 4                            | 16    |  |  |
| 8TW       | 12                           | 47    |  |  |
| 9VW       | 11                           | 41    |  |  |
| 14VW      | 20                           | 75    |  |  |
| 16QW      | 60                           | 225   |  |  |
| 39QW      | 140                          | 530   |  |  |
| MW        | 16                           | 6     |  |  |



Schroeder introduces its new Aqua-Excellement<sup>™</sup> filter elements, which excel at removing both water and solid particulates from petroleum-based fluids. The filtering media incorporated into Aqua-Excellement elements is referred to as ZW and includes layers of Schroeder's high efficiency Excellement<sup>®</sup> Z-Media<sup>®</sup> for capturing particulate contaminations in combination with Schroeder's well-established water removal (W) media. The high efficiencies, outstanding beta stabilities, and excellent dirt holding capacities that Excellement<sup>®</sup> customers have become accustomed to are again present in the new ZW media. Paired together, these two types of media make a winning combination and are highly effective at filtering out water and solids simultaneously.

Aqua-Excellement elements are currently available in cartridge (K-size) and 10M size spin-ons. The spin-on style can be used with Schroeder MAF1 and MF2 filters, while the cartridge style ZW elements can be used in any filter housing that takes a standard K-size element as well as Schroeder's various off-line filtration systems. Equipped, with ZW media, Schroeder MFS/AMS series carts can be effectively utilized for on-site flushing applications for cleaning stagnant large volume reservoirs. When used on a kidney loop system installed on power units, the ZW media allows for smaller kidney loop system and lower dimensional clearance and weight. Other applications include mobile filtration systems and bulk transfer systems.

| Element      | DHC    | DHC Water Removal Capacity<br>(g) 2.5 gpm 10 gpm |         | Filtration Ratios (Beta) |           |           |         |         |         |     |     |      |
|--------------|--------|--|---------|--------------------------|-----------|-----------|---------|---------|---------|-----|-----|------|
| Part Number  | (g)    |  |         | ßx ≥ 200                 | ßx ≥ 1000 | ∆P Factor |         |         |         |     |     |      |
| KZW1         | 61     | 197 ml⁄<br>6.66 oz                               |         |                          | <4.0      | <4.0      | 0.43    |         |         |     |     |      |
| KZW3/KKZW3   | 64/128 |  |         | 4.0                      | 4.8       | 0.32      |         |         |         |     |     |      |
| KZW5/KKZW5   | 63/126 |  | 5 1     | 5.1                      | 6.4       | 0.28      |         |         |         |     |     |      |
| KZW10/KKZW10 | 57/114 |  | 0.00 02 | 0.00 02                  | 0.00 02   | 0.00 02   | 0.00 02 | 0.00 02 | 4.55 02 | 6.9 | 8.6 | 0.23 |
| KZW25/KKZW25 | 79/158 |  |         | 15.4                     | 18.5      | 0.14      |         |         |         |     |     |      |

#### Table 21. KZW Cartridge Element Dirt and Water Holding Capacities



#### Aqua-Excellement™ High Efficiency Particulate Water Removal Media

#### Aqua-Excellement™ High Efficiency Particulate Water Removal Media



#### Table 22. ZW Spin-On Element Dirt and Water Holding Capacities

| Element     | DHC | Water Remo        | oval Capacity    | Filtration R      | atios (Beta)       |
|-------------|-----|-------------------|------------------|-------------------|--------------------|
| Part Number | (g) | 2.5 gpm           | 10 gpm           | $\beta x \ge 200$ | $\beta x \ge 1000$ |
| 10MZW10     | 53  | 185 ml/<br>6.3 oz | 126ml/<br>4.3 oz | 6.9               | 8.6                |

Shown below is a breakdown of the layers of the new K-size ZW cartridge element.

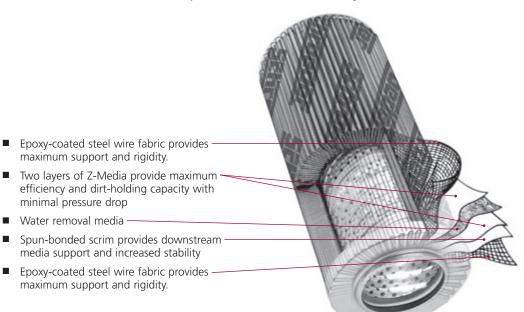
Schroeder Kidney Loop Systems and Mobile Filtration Carts can utilize the KZW cartridge elements



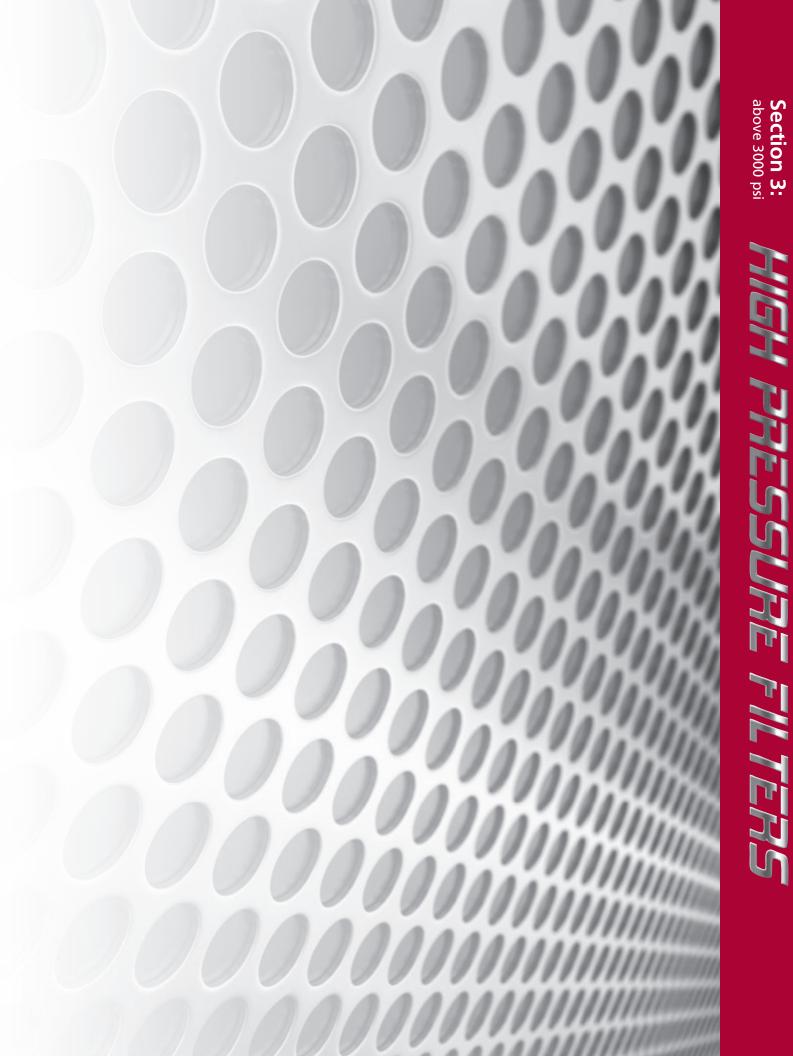
#### ZW Spin-On Elements



NOTE: When using any K-size housing do not exceed 14 gpm



Total water injection flow rate: 2.0 ml/min.



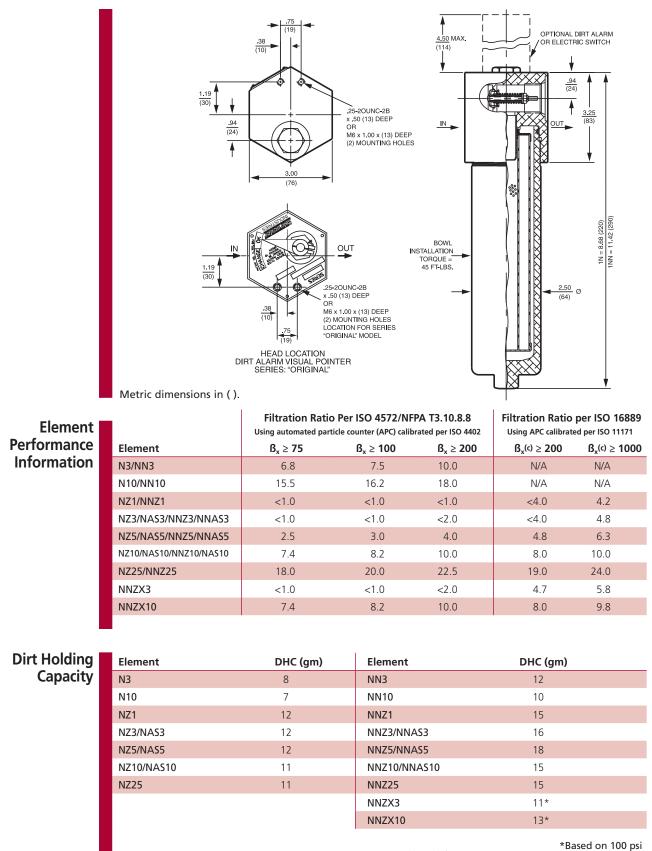
### **Section 3** High Pressure Filters Selection Guide

|               |  | Pressure<br>psi (bar) | Flow<br>gpm (L/min) | Element<br>Length/Size | Page |
|---------------|--|-----------------------|---------------------|------------------------|------|
|               | Top-Ported High Pressure Filters         |                       |                     |                        |      |
|               | NF30                                     | 3000 (210)            | 20 (75)             | N, NN                  | 45   |
|               | NFS30                                    | 3000 (210)            | 20 (75)             | N, NN                  | 49   |
|               | YF30                                     | 3000 (210)            | 25 (100)            | 4Y, 8Y                 | 53   |
|               | CFX30                                    | 3000 (210)            | 30 (115)            | CC, DD                 | 57   |
|               | PLD                                      | 3000 (210)            | 100 (380)           | DV                     | 61   |
|               | DF40                                     | 4000 (275)            | 30 (115)            | C, CC, D, DD           | 65   |
|               | CF40                                     | 4000 (275)            | 45 (170)            | C, CC, D, DD           | 69   |
|               | PF40                                     | 4000 (275)            | 50 (190)            | 5H, 9H                 | 73   |
|               | LC50                                     | 5000 (350)            | 9 (35)              | 5H                     | 77   |
|               | RFS50                                    | 5000 (345)            | 30 (115)            | 8R                     | 81   |
|               | RF60                                     | 6000 (415)            | 30 (115)            | 8R                     | 85   |
|               | CF60                                     | 6 000 (415)           | 50 (190)            | СС                     | 89   |
| osi)          | CTF60                                    | 6000 (415)            | 75 (284)            | 5СТ, 8СТ, 14СТ         | 93   |
| 6500 psi)     | VF60                                     | 6000 (415)            | 70 (265)            | 9V                     | 97   |
| - 65          | LW60                                     | 6000 (415)            | 300 (1135)          | 39ZP                   | 101  |
|               | Base-Ported High Pressure Filters        |                       |                     |                        |      |
| Filters (1500 | KF30                                     | 3000 (210)            | 100/150 (380/570)   | К, КК, 27К             | 105  |
| ters          | TF50                                     | 5000 (345)            | 40 (150)            | A, CC                  | 109  |
| e Fil         | KF50                                     | 5000 (345)            | 100/150 (380/570)   | K, KK, 27K             | 113  |
| sure          | KC50                                     | 5000 (345)            | 100/150 (380/570)   | К, КК, 27К             | 117  |
| res           | MKF50                                    | 5000 (345)            | 200 (760)           | К, КК, 27К             | 121  |
| High Pressure | KC65                                     | 6500 (450)            | 100 (380)           | К, КК, 27К             | 125  |
| Hi            | Servo Protection (Sandwich) Filters DO   | 7, DO3, Moog, Par     | ker & Vickers       |                        |      |
|               | NOF30-05                                 | 3000 (210)            | 12 (45)             | NN                     | 129  |
|               | NOF50-760                                | 5000 (345)            | 15 (57)             | SV                     | 133  |
|               | FOF60-03                                 | 6000 (415)            | 12 (45)             | F                      | 137  |
|               | Manifold Mount Filter Kits (Bowls & Ins  | tallation Drawing     | s)                  |                        |      |
|               | NMF30                                    | 3000 (210)            | 20 (75)             | NN                     | 141  |
|               | RMF60                                    | 6000 (415)            | 30 (115)            | 8R                     | 143  |
|               | Cartridge Elements for use in Manifold   | Applications          |                     |                        |      |
|               | 14-CRZX10                                | 3000 (210)            | 6 (23)              | —                      | 145  |
|               | 20-CRZX10                                | 3000 (210)            | 12 (45)             | _                      | 146  |
|               | Hydrostatic (Bi-Directional) Flow High P |                       |                     |                        |      |
|               | HS60                                     | 6000 (415)            | 100 (380)           | 13HZ                   | 147  |
|               | MHS60                                    | 6000 (415)            | 100 (380)           | 13HZ                   | 151  |
|               | KFH50 (Base-Ported)                      | 5000 (345)            | 70 (265)            | K, KK, 27K             | 155  |

### SAME DAY SHIPMENT MODEL AVAILABLE! Top-Ported Pressure Filter NF30

|  | | 20 gpm<br><u>75 L/min</u><br>3000 psi<br>210 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>LC50<br>RF50<br>RF50<br>CF60 |
|--|--|--|---|
| Model No. of filter in photograph                | is NF301NZ10SD5.   |  |   |
| INDUSTRIAL AUTOMOTIVE<br>MANUFACTURING           | MACHINE<br>TOOL  | Applications                                     | CTF60<br>VF60<br>LW60<br>KF30   |
|  |  |  | <b>TF50</b>   |
| STEEL<br>MAKING                                  | AGRICULTURE MOBILE<br>VEHICLES   |  | KF50<br>KC50<br>MKF50   |
|  |  |  | KC65  |
|  |  |  | NOF30-05  |
|  |  |  | NOF50   |
|  |  |  |   |
| _  | Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids  | Filter<br>Housing                                | FOF60-03  |
| Max. Operating Pressure:<br>Min. Yield Pressure: | 10,000 psi (210 bar), per NFPA T2.6.1  | Specifications                                   | NMF30   |
|  | 2400 psi (165 bar), per NFPA T2.6.1  |  | RMF60   |
|  | -20°F to 225°F (-29°C to 107°C)  |  | Cartridge   |
|  | Cracking: 40 psi (2.8 bar)<br>Full Flow: 85 psi (5.9 bar)<br>Non-bypassing model has a blocked bypass.   |  | Elements  |
| Porting Head:<br>Element Case:                   |  |  | HS60  |
| Weight of NF30-1N:<br>Weight of NF30-1NN:        | 3.4 lbs. (1.5 kg)<br>4.4 lbs. (2.0 kg)   |  | MHS60   |
| Element Change Clearance:                        | 4.50" (115 mm)   |  | KFH50   |

**NF30** Top-Ported Pressure Filter SAME DAY SHIPMENT MODEL AVAILABLE!



Element Collapse Rating:

Flow Direction: Outside In **Element Nominal Dimensions:** 

terminal pressure

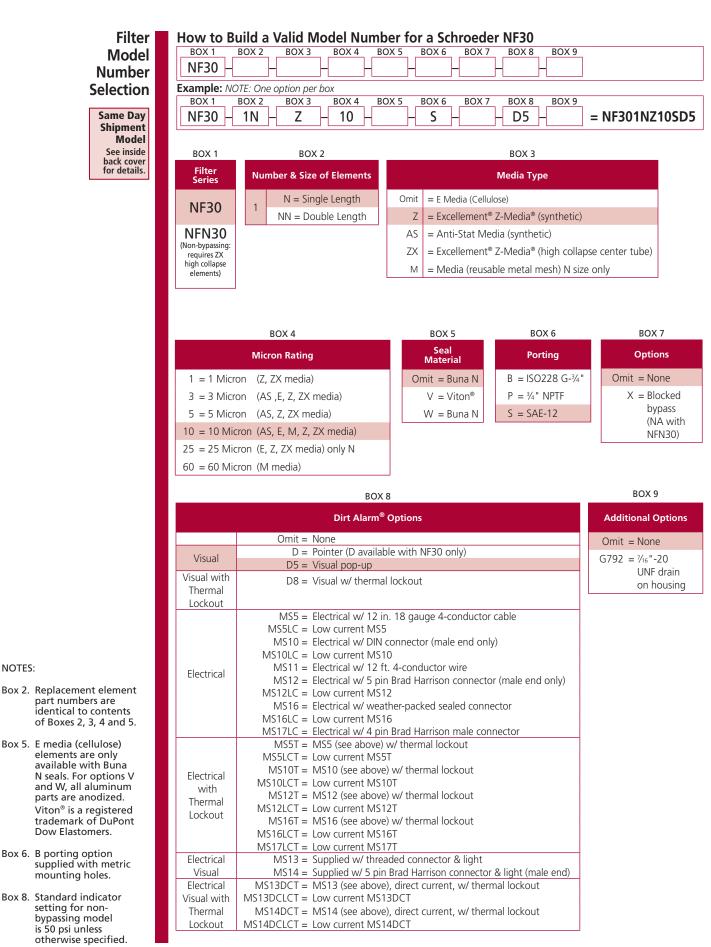
150 psid (10 bar) for standard elements 3000 psid (210 bar) for high collapse (ZX) versions

N:N 1.75" (45 mm) O.D. x 5.25" (135 mm) long NN: 1.75" (45 mm) O.D. x 8.0" (200 mm) long

### SAME DAY SHIPMENT MODEL AVAILABLE! Top-Ported Pressure Filter NF30

|                                  |                          | Type Fluid A                              | ppropriate Sch   | roeder Med  | ia             |                    |                         |                         |                       | Fluid                      | NF30                  |
|----------------------------------|--------------------------|---|------------------|---|----------------|--------------------|-------------------------|-------------------------|-----------------------|----------------------------|-----------------------|
|                                  | Petroleun                | n Based Fluids Al                         |                  |   |                | ® Medi             | ia (syntheti            | c)                      |                       | Compatibility              | NFS30                 |
|                                  |                          | Vater Content Al                          |                  |   |                |                    | .,                      |                         |                       |                            | 11 330                |
|                                  | Inv                      | vert Emulsions 10                         | ) and 25 µ Z-Me  | dia <sup>®</sup> (synthetic)                                    | ), 10 µ AS     | SP® Me             | edia (synthe            | etic)                   |                       |                            | YF30                  |
|                                  |                          | Water Glycols 3,                          | 5, 10 and 25 μ 2 | Z-Media® (synt  | hetic), 3,     | 5, and             | 10 μ ASP                | <sup>®</sup> Media (syı | nthetic)              |                            | CFX30                 |
|                                  |                          | Element                                   | Element sele     | lement selections are predicated on the use of 150 SUS (32 cSt) |                |                    |                         |                         |                       | Element                    | PLD                   |
| Pressure                         | Series                   | Part No.                                  |                  | ased fluid and a 40 psi (2.8 bar) bypass valve.                 |                |                    |                         | Selection               | DE40                  |                            |                       |
|                                  | _                        | N3 & NN3                                  | 1N3              | 3 1NN3 See DF40   |                |                    |                         | DF40                    | Based on<br>Flow Rate | DF40                       |                       |
|                                  | E<br>Media               | N10 & NN10                                |                  | 1N10  |                |                    |                         | 1NN10                   |                       | now nate                   | <b>CF40</b>           |
| τ.                               |                          | N25                                       |                  |   | 1N2            | 5                  |                         |                         |                       |                            | 5540                  |
| To<br>3000 psi                   |                          | NZ1 & NNZ1                                | 1NZ1             |   | 1NNZ1          |                    | See                     | DF40 or Y               | F30                   |                            | PF40                  |
| (210 bar)                        | Z-                       | NZ3 & NNZ3                                |                  | 1NZ3  |                |                    |                         | 1NNZ3                   |                       |                            | LC50                  |
|                                  | Media®                   | NZ5 & NNZ5                                |                  |   | IZ5            |                    | 0                       | 1N                      | NZ5                   |                            |                       |
|                                  |                          | NZ10 & NNZ10                              |                  |   | IZ10 & 1       |                    |                         |                         |                       |                            | RFS50                 |
|                                  |                          | NZ25 & NNZ25                              | 0 5              |   | 10 10 NZ25 & 1 | ININZZ             | -                       | 15                      | 20                    |                            | <b>RF60</b>           |
|                                  | Flow                     | 51  | 0 2              | 5   | 10             |                    | 50                      | 15                      | 75                    |                            | NI OO                 |
| <br>Shown abo                    | ve are the               | elements most corr                        |                  |   |                |                    | 50                      |                         | 15                    |                            | <b>CF60</b>           |
|                                  |                          | regarding use of E<br>e information, refe |                  |   |                |                    |                         |                         | ol                    |                            | CTF60                 |
| , ipprication                    |                          |   |                  |   |                | e i rara           | ., pages <u>-</u>       |                         |                       | -                          | VECO                  |
| $\triangle \mathbf{P}_{housing}$ |                          |   |                  | $\Delta \mathbf{P}_{element}$                                   |                |                    |                         |                         |                       | Pressure                   | <b>VF60</b>           |
|                                  | <sub>sing</sub> for flui | ds with sp gr = 0.86                      | 5:               |   |                |                    |                         | x viscosity f           | actor                 | Drop<br>Information        | LW60                  |
|                                  | EL                       | ow (L/min)                                |                  | El. ∆P facto  |                | 1N                 | 32 (St):                |                         | 1NN                   | Based on                   | KF30                  |
| 12                               | (25)                     | (50)                                      | (75)             | N3  |                | 1.10               | NN3                     |                         | .77                   | Flow Rate<br>and Viscosity |                       |
| 10                               |                          |   | (0.75)           | N10<br>N25  |                | .17<br>.10         | NN10<br>NN25            |                         | .13<br>.07            |                            | <b>TF50</b>           |
| 8                                |                          |   |                  | NZ1   |                | 1.43               | NNZ1                    |                         | 1.23                  |                            | KF50                  |
|                                  |                          |   | (0.50) (ng       | NZ3/NAS   |                | .92                | NNZ3/N                  |                         | .56                   |                            |                       |
| o P psi                          |                          |   | ∆P (k            | NZ5/NAS<br>NZ10/NA  |                | .71<br>.57         | NNZ5/N<br>NNZ10/        |                         | .46<br>.35            |                            | KC50                  |
| 4                                |                          |   | (0.25)           | NZ25  | 510            | .36                | NNZ25                   | NINAS IU                | .20                   |                            | MKF50                 |
| 2                                |                          |   |                  |   |                |                    | NNZX3                   |                         | 1.00                  |                            |                       |
| 0                                | 5                        | 10 15                                     | 20               |   |                |                    | NNZX10                  |                         | .52                   |                            | KC65                  |
|                                  | I                        | Flow gpm                                  |                  | factor by   |                | of ba              | rs & L/min              | , divide ab             | ove                   |                            |                       |
|                                  |                          |   |                  | Viscosity f   | actor: D       | ivide v            | viscosity b             | y 150 SUS (             | 32 cSt).              |                            | NOF30-05              |
| sp gr = spe<br>Sizing of el      |                          | /<br>ould be based on e                   | lement flow inf  | ormation pro  | ovided in      | the E              | lement Se               | election cha            | art above.            |                            | NOF50                 |
|                                  |                          |   |                  | ۸D  | ۸D             | . ^ <b>r</b>       |                         |                         |                       |                            | FOF60-03              |
| Notes                            |                          |   |                  | $\Delta P_{\text{filter}} = $<br>Exercise:                      |                | -                  |                         |                         |                       |                            | NMF30                 |
|                                  |                          |   |                  | Determine<br>NF301NZ2   |                |                    |                         | ) for<br>I4 cSt) fluid  |                       |                            | RMF60                 |
|                                  |                          |   |                  | Solution:   |                |                    |                         |                         |                       |                            |                       |
|                                  |                          |   |                  | $\Delta P_{housing}$<br>$\Delta P_{element}$                    | = 15 :         | psi [.5<br>x .36 x | 0 bar]<br>: (200÷150    | ) = 7.2 psi             |                       |                            | Cartridge<br>Elements |
|                                  |                          |   |                  | ٨D  | -              |                    |                         | 4÷32) = .51             | bar]                  |                            | HS60                  |
|                                  |                          |   |                  | $\Delta P_{total}$  | or             |                    | = 14.2 psi<br>= 1.01 ba | rl                      |                       |                            | MHS60                 |
|                                  |                          |   |                  |   | = [.50         | וכ. די             | – 1.01 Dd               | 1                       |                       |                            |                       |
|                                  |                          |   |                  |   |                |                    |                         |                         |                       |                            | KFH50                 |

### **NF30** Top-Ported Pressure Filter SAME DAY SHIPMENT MODEL AVAILABLE!

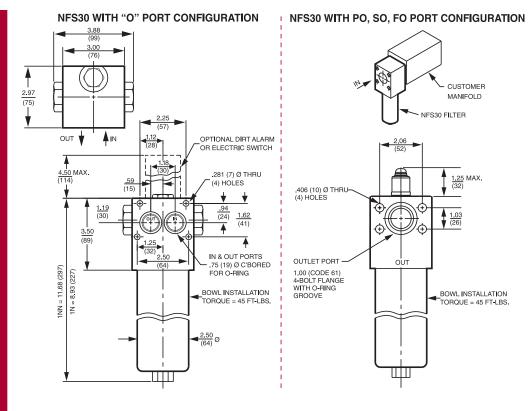


#### 48 SCHROEDER INDUSTRIES

## Manifold Mounted Pressure Filter NFS30

|   | <ul> <li>Features and Benefits</li> <li>Manifold mounted pressure filter</li> <li>Offered in square head conventional subplate porting</li> <li>Direct mounting to inlet port on customer's manifold</li> </ul> | 20 gpm<br><u>75 L/min</u><br>3000 psi<br>210 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>LC50<br>RF550<br>RF60<br>CF60 |
|---|---|--|--|
| Model No. of filter in photograp  | h is NFS301NZ3OD5.  | •  | CTF60  |
| INDUSTRIAL       AUTOMOTIVE<br>MANUFACTURING         STEEL<br>MAKING       PULP & PAPER | AGRICULTURE MOBILE<br>VEHICLES  | Applications                                     | VF60<br>LW60<br>KF30<br>TF50<br>KF50<br>KC50<br>MKF50                                  |
|   |   |  | KC65   |
|   |   |  | NOF30-05   |
|   |   | •  | NOF50  |
| Flow Rating:  | Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids   | Filter   | FOF60-03   |
| Max. Operating Pressure:  | 3000 psi (210 bar)  | Housing  | NMF30  |
| Min. Yield Pressure:  | 10,000 psi (690 bar), per NFPA T2.6.1   | Specifications                                   | RMF60  |
| Rated Fatigue Pressure:   | 2400 psi (165 bar), per NFPA T2.6.1   | _  |  |
| Temp. Range:<br>Bypass Setting:   | -20°F to 225°F (-29°C to 107°C)<br>Cracking: 40 psi (2.8 bar)   |  | Cartridge<br>Elements  |
| Porting Head:   | Full Flow: 85 psi (5.9 bar)<br>Aluminum   |  | HS60   |
| Element Case:<br>Weight of NFS30-1N:  | Aluminum<br>3.6 lbs. (1.6 kg)   |  | MHS60  |
| Weight of NFS30-1NN:  | 4.3 lbs. (2.0 kg)   |  |  |
| Element Change Clearance:   | 4.50" (115 mm)  |  | KFH50  |

### **NFS30** Manifold Mounted Pressure Filter



Metric dimensions in ( ).

| Element<br>Performance<br>Information |                         | 4                | tration Ratio Per<br>572/NFPA T3.10.8<br>article counter (APC) cal | Filtration Ratio<br>per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                        |
|---------------------------------------|-------------------------|------------------|--|---|----------------------|------------------------|
|                                       | Element                 | $\beta_x \ge 75$ | $\beta_x \ge 100$  | $\beta_x \ge 200$   | $\beta_x(c) \ge 200$ | $\beta_x(c) \geq 1000$ |
|                                       | N3/NN3                  | 6.8              | 7.5  | 10.0  | N/A                  | N/A                    |
|                                       | N10/NN10                | 15.5             | 16.2   | 18.0  | N/A                  | N/A                    |
|                                       | NZ1/NNZ1                | <1.0             | <1.0   | <1.0  | <4.0                 | 4.2                    |
|                                       | NZ3/NAS3/NNZ3/NNAS3     | <1.0             | <1.0   | <2.0  | <4.0                 | 4.8                    |
|                                       | NZ5/NAS5/NNZ5/NNAS5     | 2.5              | 3.0  | 4.0   | 4.8                  | 6.3                    |
|                                       | NZ10/NAS10/NNZ10/NNAS10 | 7.4              | 8.2  | 10.0  | 8.0                  | 10.0                   |
|                                       | NZ25/NNZ25              | 18.0             | 20.0   | 22.5  | 19.0                 | 24.0                   |

| Dirt Holding | Element    | DHC (gm)                    | Element  | DHC (gm) |
|--------------|------------|-----------------------------|--|----------|
| Capacity     | N3         | 8                           | NN3  | 12       |
|              | N10        | 7                           | NN10   | 10       |
|              | NZ1        | 12                          | NNZ1   | 15       |
|              | NZ3/NAS3   | 12                          | NNZ3/NNAS3   | 16       |
|              | NZ5/NAS5   | 12                          | NNZ5/NNAS5   | 18       |
|              | NZ10/NAS10 | 11                          | NNZ10/NNAS10   | 15       |
|              | NZ25       | 11                          | NNZ25  | 15       |
|              |            | Element Collapse Rating:    | 150 psid (10 bar) for stan<br>3000 psid (210 bar) for hi |          |
|              |            | Flow Direction:             | Outside In   |          |
|              |            | Element Nominal Dimensions: | N:N 1.75" (45 mm) O.D<br>NN: 1.75" (45 mm) O.D           |          |
| 50           | SCHROEDER  | INDUSTRIES                  |  |          |

# Manifold Mounted Pressure Filter NFS30

|                               | T  | ype Fluid Appro                            | priate Schroede                           | er Media  |  |            |                      |                      | Fluid                      | NF30                  |
|-------------------------------|--|--|---|---|--|------------|----------------------|----------------------|----------------------------|-----------------------|
| Petro                         | leum Bas   | ed Fluids All E M                          | ledia (cellulose), Z-                     | Media <sup>®</sup> and A  | SP <sup>®</sup> Media (sy              | nthetic)   | )                    |                      | Compatibility              | <b>NFS30</b>          |
| Hi                            | gh Water   |  | ledia <sup>®</sup> and ASP <sup>®</sup> N |   |  |            |                      |                      |                            |                       |
|                               |  |  | 25 µ Z-Media <sup>®</sup> (sy             | •   |  |            |                      |                      |                            | YF30                  |
|                               | Wate   | er Glycols 3, 5, 10                        | 0 and 25 μ Z-Med                          | ia <sup>®</sup> (synthetic),  | 3, 5, and 10                           | J ASP®     | Media (synthet       | IC)                  |                            | CFX30                 |
| Pressure                      | Series   | Element<br>Part No.                        |   | ement selections are predicated on the use of 150 SUS (32 cSt)<br>etroleum based fluid and a 40 psi (2.8 bar) bypass valve. |  |            |                      | Element<br>Selection | PLD                        |                       |
| riessuie                      | Series   | N3 & NN3                                   | 1N3                                       |   | 1NN3                                   | 5 Dai)     | 1                    | DF40                 | Based on                   | <b>DF40</b>           |
|                               | E  | N10 & NN10                                 | 1115                                      | 1N10  |  |            | 1NN10                |                      | Flow Rate                  | <b>CF40</b>           |
|                               | Media  | N25 & NN25                                 |   |   | 25 & 1NN25                             |            |                      |                      |                            |                       |
| То                            |  | NZ1 & NNZ1                                 | 1NZ <sup>-</sup>                          | 1   | 1NNZ1                                  |            | See DF4              | 0                    |                            | <b>PF40</b>           |
| 3000 psi<br>(210 bar)         | _  | NZ3 & NNZ3                                 |   | 1NZ3  |  |            | 1NNZ3                |                      |                            | LC50                  |
|                               | Z-<br>Media®   | NZ5 & NNZ5                                 |   | 1N  | Z5                                     |            | 11                   | NNZ5                 |                            | LCJU                  |
|                               |  | NZ10 & NNZ10                               |   | 1NZ   | 10 & 1NNZ1                             | 0          |                      |                      |                            | RFS50                 |
|                               |  | NZ25 & NNZ25                               |   |   | 25 & 1NNZ2                             | 5          |                      |                      |                            | DECO                  |
|                               | Flow   | 51   | 1   | <u></u>   | 10                                     |            | 15                   | 20<br>75             |                            | <b>RF60</b>           |
| Shown abo                     | ve are the   | (L/min) (<br>elements most com             | )<br>Imonly used in th                    | 2 <sup>5</sup><br>nis housing.  |  | 50         |                      | /5                   |                            | <b>CF60</b>           |
|                               |  | regarding use of E<br>re information, refe |   |   |  |            |                      | ol                   |                            | CTF60                 |
| $\Delta \mathbf{P}_{housing}$ |  |  | 1   | $\Delta \mathbf{P}_{element}$   |  |            |                      |                      | Pressure                   | <b>VF60</b>           |
|                               | <sub>using</sub> for flu   | ids with sp gr = 0.86                      | :   |   | low x elemen                           | t ∆P fac   | ctor x viscosity t   | factor               | Drop                       | LW60                  |
|                               | (25)   | Flow (L/min)<br>(50)                       | (75)                                      | El. $\Delta P$ factors  | s @ 150 SUS (<br><b>1N</b>             | ′32 cSt).  | :                    | 1NN                  | Information<br>Based on    | KF30                  |
| 16<br>14                      |  | (30)                                       | (1.00)                                    | N3<br>N10   | 1.10                                   | NN3        |                      | .77<br>.13           | Flow Rate<br>and Viscosity | <b>TF50</b>           |
| 12<br>10                      |  | AND CROR                                   | (0.75)                                    | N25<br>NZ1  | .10<br>1.43                            | NN2<br>NN2 |                      | .07<br>1.23          |                            | KF50                  |
| P psi                         |  | PO: 2<br>FO PORTING                        | (Dar)                                     | NZ3/NAS3<br>NZ5/NAS5  | .92<br>.71                             |            | Z3/NNAS3<br>Z5/NNAS5 | .56<br>.46           |                            | KC50                  |
| 4                             |  | FOR  | (0.25)                                    | NZ10/NAS <sup>2</sup><br>NZ25   | <b>10</b> .57 .36                      | NN2<br>NN2 | Z10/NNAS10<br>Z25    | .35<br>.20           |                            | MKF50                 |
|                               |  | 10 15                                      | 20  |   |  |            | in, divide abov      |                      |                            |                       |
| 0                             | 5  | Flow gpm                                   | 20  | by 54.9.  |  |            | y by 150 SUS (       |                      |                            | KC65                  |
| sp gr = spe                   | -  | -  |   | -   |  |            |                      |                      |                            | NOF30-05              |
| Sizing of el                  | ements sh  | ould be based on e                         | Iement flow info                          | ormation prov   | rided in the E                         | lemen      | t Selection ch       | art above.           |                            | NOF50                 |
| Notes                         |  |  |   |   | $\mathbf{P}_{\text{housing}} + \Delta$ | Pelement   | t                    |                      |                            | FOF60-03              |
|                               |  |  |   |   | ∆P at 10 gpm                           |            |                      |                      |                            | NMF30                 |
|                               |  |  |   |   | 10FOD using                            | 200 S      | US (44 cSt) flu      | id.                  |                            | RMF60                 |
|                               |  |  |   | Solution:<br>$\Delta P_{housing}$<br>$\Delta P_{element}$   | = 3.0 psi [.:<br>= 10 x .35 ><br>or    | -          | 150) = 4.7 psi       |                      |                            | Cartridge<br>Elements |
|                               | $= [38 \times (.35 \div 54.9) \times (44 \div 32) = .33 \text{ bar}]$<br>$\Delta P_{\text{total}} = 3.0 + 4.7 = 7.7 \text{ psi}$ |  |   |   |  |            |                      | HS60                 |                            |                       |
|                               | or<br>= [.25 + .33 = .58 bar] MHS60  |  |   |   |  |            |                      |                      |                            |                       |
|                               |  |  |   |   |  |            |                      |                      |                            | KFH50                 |
|                               |  |  |   |   |  |            |                      |                      |                            |                       |

### **NFS30** Manifold Mounted Pressure Filter

| Filter 📕 He  | ow to Bu                          | iild a Valid Model Num                               | ber for a Schroed                                      | er NFS30  |                           |  |
|--|-----------------------------------|--|--|---|---------------------------|--|
| Model  | вох 1 е<br>NFS30 –                | BOX 2 BOX 3 BOX 4                                    | BOX 5 BOX 6 BOX 7                                      | 7 BOX 8   |                           |  |
|  |                                   | TE: One option per box                               | FF   |   |                           |  |
| Selection  |                                   |  | BOX 5 BOX 6 BOX 3                                      | 7 BOX 8   |                           |  |
| 1  | VFS30 –                           | 1N – Z – 10 –  | – SO –   | – D5 = NFS301N                                  | Z10SOD5                   |  |
|  | BOX 1                             | BOX 2  |  | BOX 3   |                           |  |
|  | Filter<br>Series                  | Number & Size of<br>Elements                         |  | Media Type                                      |                           |  |
|  |                                   | N = Single Length                                    | Omit = E Media (Cellu                                  | ilose)  |                           |  |
|  | NFS30                             | 1 NN = Double Length                                 | Z = Excellement® Z                                     | Z-Media <sup>®</sup> (synthetic)                |                           |  |
|  | IFSN30                            |  | AS = Anti-Stat Med                                     |   |                           |  |
|  | on-bypassing:<br>requires ZX      |  |  | -Media <sup>®</sup> (high collapse center       | tube)                     |  |
|  | nigh collapse<br>elements)        |  | M = Media (reusab                                      | le metal mesh) N size only                      |                           |  |
|  |                                   |  |  |   | BOX 7                     |  |
|  |                                   | BOX 4  | BOX 5<br>Seal  | BOX 6   |                           |  |
|  |                                   | Micron Rating  | Material   | Porting   | Options                   |  |
|  |                                   | on (Z, ZX media)<br>on (AS,E, Z, ZX media)           | Omit = Buna N<br>V = Viton <sup>®</sup>                | SO = SAE-12<br>PO = $\frac{3}{4}$ " NPTF        | Omit = None<br>X = Blocke |  |
|  |                                   | on (AS,E, Z, ZX media)<br>on (AS, Z, ZX media)       | V = Viton <sup>®</sup><br>W = Buna N                   | $PO = \frac{3}{4}$ " NPTF<br>FO = 1" SAE 4-bolt | bypass                    |  |
| 1  |                                   | ron (AS,E,M, Z, ZX media)                            |  | flange Code 61                                  | (N/A<br>with              |  |
| 2  | 25 = 25 Mic                       | ron(E, Z, ZX media)                                  |  | O = Manifold                                    | NFSN3                     |  |
| 6  | 50 = 60 Mic                       | ron (M media)  |  |   |                           |  |
|  |                                   | BO>  | K 8  |   |                           |  |
|  |                                   | Dirt Alarm   | <sup>®</sup> Options                                   |   |                           |  |
|  | Omit = None<br>D = Pointer        |  |  |   |                           |  |
|  | Visual D5 = Visual pop-up         |  |  |   |                           |  |
|  | 'isual with<br>Thermal<br>Lockout | D8 = Visual w/ therm                                 | nal lockout  |   |                           |  |
|  |                                   |  | in. 18 gauge 4-conducto                                | r cable   |                           |  |
|  |                                   | MS5LC = Low current M:<br>MS10 = Electrical w/ DI    | 55<br>N connector (male end or                         | llv)  |                           |  |
|  |                                   | MS10LC = Low current MS                              | S10  |   |                           |  |
|  | Electrical                        | MS11 = Electrical w/ 12<br>MS12 = Electrical w/ 5 p  | tt. 4-conductor wire<br>oin Brad Harrison connecto     | or (male end only)                              |                           |  |
|  |                                   | MS12LC = Low current M                               |  |   |                           |  |
|  |                                   | MS16 = Electrical W/We MS16LC = Low current M:       | eather-packed sealed conr<br>S16                       | lector  |                           |  |
| eplacement element                                     |                                   | MS17LC = Electrical w/ 4 p<br>MS5T = MS5 (see above  |  | nnector   |                           |  |
| entical to contents<br>f Boxes 2, 3, 4 and 5.          |                                   | MS5LCT = Low current M                               |  |   |                           |  |
| media (cellulose)                                      | Electrical                        | MS10T = MS10 (see abo<br>MS10LCT = Low current M:    |  |   |                           |  |
| ements are only<br>vailable with Buna                  | with<br>Thermal                   | MS10LCT = LOW current MMS12T = MS12 (see abo         |  |   |                           |  |
| seals For options V                                    | Lockout                           | MS12LCT = Low current M2                             |  |   |                           |  |
| arts are anodized.                                     |                                   | MS16T = MS16 (see abo<br>MS16LCT = Low current M     |  |   |                           |  |
| iton <sup>®</sup> is a registered<br>ademark of DuPont |                                   | MS17LCT = Low current M                              | S17T   |   |                           |  |
|  | Electrical<br>Visual              |  | readed connector & light<br>in Brad Harrison connector | & light (male end)                              |                           |  |
| ciudeu, lastering                                      | Electrical                        | MS13DCT = MS13 (see abo                              | ve), direct current, w/ the                            |   |                           |  |
| ardware not included.                                  | 'isual with<br>Thermal            | MS13DCLCT = Low current M<br>MS14DCT = MS14 (see abo |  | rmal lockout                                    |                           |  |
|  | Lockout                           | MS14DCLCT = Low current M                            |  |   |                           |  |
| D only   |                                   |  |  |   |                           |  |

Box 5.

Box 6.

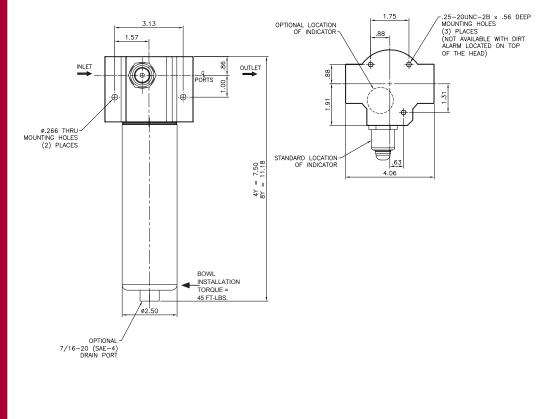
Box 8.

52 SCHROEDER INDUSTRIES

### Top-Ported Pressure Filter **YF30**

|  | | 25 gpm<br><u>100 L/min</u><br>3000 psi<br>210 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>PF40<br>LC50<br>RF550<br>RF60<br>CF60 |
|--|--|---|--|
| Model No. of filter in photograph is Y           | /F308YZ10SD5.  | -   | CTF60  |
|  |  | Applications                                      | <b>VF60</b>  |
|  |  |   | LW60   |
| INDUSTRIAL AUTOMOTIVE                            | MACHINE POWER CONSTRUCTION   |   | KF30   |
| MANUFACTURING                                    | TOOL GENERATION  |   |  |
|  |  |   | <b>TF50</b>  |
|  |  |   | KF50   |
| STEEL PULP & PAPER<br>MAKING                     | AGRICULTURE MOBILE WASTE WATER<br>VEHICLES TREATMENT   |   | KC50   |
| MARING   | VEHICLES IREAIMENT   |   | MKF50  |
|  |  |   | KC65   |
|  |  | N   | IOF30-05   |
|  |  |   | NOF50  |
|  |  | _   | FOF60-03   |
| Flow Rating:                                     | Up to 25 gpm (100 L/min) for 150 SUS (32 cSt) fluids   | Filter<br>Housing                                 | NMF30  |
| Max. Operating Pressure:<br>Min. Yield Pressure: | 3000 psi (210 bar)<br>10,000 psi (690 bar), per NFPA T2.6.1  | Specifications                                    |  |
| Rated Fatigue Pressure:                          | 1800 psi (124 bar), per NFPA T2.6.1-2005   |   | RMF60  |
| Temp. Range:                                     | -20°F to 225°F (-29°C to 107°C)  |   | Cartridge  |
| Bypass Setting:                                  | Cracking: 50 psi (3.4 bar)<br>Non-bypassing model has a blocked bypass.  |   | Elements   |
| Porting Head:<br>Element Case:                   | Aluminum<br>Aluminum   |   | HS60   |
| Weight of YF30-4Y:<br>Weight of YF30-8Y:         | 3.75 lbs. (1.70 kg)<br>4.25 lbs. (1.93 kg)   |   | MHS60  |
| Element Change Clearance:                        | 4.25 lbs. (1.93 kg)<br>4.50" (115 mm)  |   | KFH50  |
|  | SCHROEDER INDUSTRIES   | 53  |  |

#### **Top-Ported Pressure Filter YF30**



Metric dimensions in ( ).

| Element<br>Performance |               |                  | io Per ISO 4572/N<br>rticle counter (APC) cal | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                       |                       |
|------------------------|---------------|------------------|---|--|-----------------------|-----------------------|
| Information            | Element       | $\beta_x \ge 75$ | $\beta_x \ge 100$                             | $\beta_x \ge 200$  | $\beta_x(c) \geq 200$ | $\beta_x(c) \ge 1000$ |
|                        | 4YZ1/8YZ1     | <1.0             | <1.0  | <1.0   | <4.0                  | 4.2                   |
|                        | 4YZ3/8YZ3     | <1.0             | <1.0  | <2.0   | <4.0                  | 4.8                   |
|                        | 4YZ5/8YZ5     | 2.5              | 3.0   | 4.0  | 4.8                   | 6.3                   |
|                        | 4YZ10/8YZ10   | 7.4              | 8.2   | 10.0   | 8.0                   | 10.0                  |
|                        | 4YZ25/8YZ25   | 18.0             | 20.0  | 22.5   | 19.0                  | 24.0                  |
|                        | 4YZX5/8YZX5   | 2.5              | 3.0   | 4.0  | 5.6                   | 7.2                   |
|                        | 4YZX10/8YZX10 | 7.4              | 8.2   | 10.0   | 8.0                   | 9.8                   |

**Dirt Holdi** Capac

| ing 🛛 | Element | DHC (gm) | Element | DHC (gm) |
|-------|---------|----------|---------|----------|
| city  | 4YZ1    | 6.3      | 8YZ1    | 12.1     |
|       | 4YZ3    | 5.1      | 8YZ3    | 9.9      |
|       | 4YZ5    | 6.4      | 8YZ5    | 12.4     |
|       | 4YZ10   | 5.4      | 8YZ10   | 10.5     |
|       | 4YZ25   | 4.9      | 8YZ25   | 9.4      |
|       | 4YZX5   | 4.3      | 8YZX5   | 8.9      |
|       | 4YZX10  | 4.3      | 8YZX10  | 8.9      |
|       |         |          |         |          |

Flow Direction: Outside In

Element Collapse Rating: 150 psid (10 bar) for standard elements 3000 psid (210 bar) for high collapse (ZX) versions

Element Nominal Dimensions: 4Y: N 1.77" (45 mm) O.D. x 4.50" (114 mm) long 8Y: 1.77" (45 mm) O.D. x 8.21" (209 mm) long

## Top-Ported Pressure Filter **YF30**

| Р  |               |                         |   |  | te Schroeder Media  |   |   |   |                            | NF3  |
|--|---------------|-------------------------|---|--|---|---|---|---|----------------------------|--|
|  |               |                         | All E media (cellulose)   |  | l <sup>®</sup> (synthetic)  |   |   |   | Compatibility              | NFS3   |
|  | -             |                         | All Z-Media <sup>®</sup> (syntheti<br>10 and 25 μ Z-Media <sup>®</sup>  |  |   |   |   |   |                            | YF3  |
|  |               |                         |   | 2-Media® (synthetic)<br>25 μ Z-Media® (synthetic)  |   |   |   |   |                            |  |
|  | v             |                         | 5, 5, 10 απα 25 μ 2 π   | icula (Synthe  |   |   |   |   |                            | CFX3   |
|  |               |                         |   |  |   |   |   |   |                            | PLI  |
| Pressure   | E<br>Series   | lement<br>Part No.      | Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 50 psi (3.4 bar) bypass valve. |  |   |   | Element<br>Selection  | DF4   |                            |  |
| Tressure   | Jenes         | 4YZ1/8YZ1               | 4YZ1  |  | 8YZ1  |   | ee DF40 or  | CF40  | Selection<br>Based on      |  |
| То   |               | 4YZ3/8YZ3               | 4YZ3  |  | 8YZ3  |   | See DF40  | or CF40   | Flow Rate                  | DE4  |
| 3000 psi   | Z-<br>Media®  | 4YZ5/8YZ5               | 4YZ5  |  | 8Y  |   | Z5  |   |                            | PF4  |
| (210 bar)  | Wiedła        | 4YZ10/8YZ10             |   | 4YZ10  | 4YZ10 8YZ   |   | 8YZ10   |   |                            | LC5  |
|  |               | 4YZ25/8YZ25             |   | 4YZ25  | 5 & 8YZ25   |   |   |   |                            | DECE   |
|  | Flow          | 90                      |   | 10   | 15  | 2   | 0   | 25  |                            | RFS5   |
| hown abo   | ve are the    | (3)                     | ommonly used in this  | s housing.   | 50  | 75  |   | 95  |                            | RF6  |
| ote: Conta   | act factory   | regarding use of        | E Media in High Wa<br>fer to Fluid Compati  | ater Content   | , Invert Emulsi<br>esistant Fluids  | on and N  | Nater Glyco<br>21 and 22  | I   |                            | CF6  |
|  |               |                         |   |  |   | pages   |   |   |                            | CTF6   |
| Phousing   |               |                         |   | $\Delta P_{element}$   |   |   |   |   | Pressure<br>Drop           | VF6  |
| YF30 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:   |               |                         |   | $\frac{\Delta P_{element}}{El. \Delta P \text{ factors } @ 150 \text{ SUS } (32 \text{ cSt}):}$  |   |   |   |   | Information<br>Based on    | LW6  |
| 10   | Fl<br>(25)    | ow (L/min)<br>(50) (75) |   | <b>AV71</b> 2.69 <b>OV71</b> 1.29  |   |   |   |   | Flow Rate<br>and Viscosity | KF3  |
| 16   |               |                         |   |  | 2.13  |   |   |   | and viscosity              |  |
|  |               |                         |   |  | 2.15  |   | 8YZ3  | 1.10  |                            |  |
| 12   |               |                         |   | 4YZ5   | 1.44  |   | 8YZ3<br>8YZ5  | 0.74  |                            | TF5  |
|  |               |                         |   | 4YZ10  | 1.44<br>0.74  |   | 8YZ5<br>8YZ10   | 0.74<br>0.38  |                            |  |
| .isd 8   |               |                         | (0.75) ()<br>(0.75) ()<br>(0.50) (-)  | 4YZ10<br>4YZ25   | 1.44<br>0.74<br>0.43  |   | 8YZ5<br>8YZ10<br>8YZ25  | 0.74<br>0.38<br>0.22  |                            |  |
|  |               |                         | (0.75) (Leg<br>(0.50) d   | 4YZ10<br>4YZ25<br>4YZX5  | 1.44<br>0.74<br>0.43<br>1.65  |   | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5   | 0.74<br>0.38<br>0.22<br>0.92                                  |                            | KF5  |
| 10<br>10<br>8<br>4<br>7<br>6   |               |                         | (0.75) (Lag)<br>(0.50) d  | 4YZ10<br>4YZ25   | 1.44<br>0.74<br>0.43  |   | 8YZ5<br>8YZ10<br>8YZ25  | 0.74<br>0.38<br>0.22  |                            | TF5<br>KF5<br>KC5<br>MKF5  |
| 10<br>8<br>6<br>6  | 5 10          |                         | (0.75) (prod<br>(0.50) d√<br>(0.25)<br>25   | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in   | 1.44<br>0.74<br>0.43<br>1.65  | & L/min,  | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10   | 0.74<br>0.38<br>0.22<br>0.92<br>0.63                          |                            | KF5<br>KC5<br>MKF5   |
| isd a  |               | 0 15 20<br>Flow gpm     | (0.75) (req)<br>(0.50) d⊲<br>(0.25)<br>25   | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.   | 1.44<br>0.74<br>0.43<br>1.65<br>1.15  |   | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abov  | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor             |                            | KF5<br>KC5<br>MKF5<br>KC6  |
| $rac{10}{a}$ $rac$ | cific gravity | 0 15 20<br>Flow gpm     | (0.75) (reg)<br>(0.50) d√<br>(0.25)<br>25   | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.<br>Viscosity fac  | 1.44<br>0.74<br>0.43<br>1.65<br>1.15<br>n units of bars   | scosity b   | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abov<br>y 150 SUS (3  | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor<br>22 cSt). |                            | KF5<br>KC5<br>MKF5   |
| $rac{10}{d}$ $rac$ | cific gravity | 0 15 20<br>Flow gpm     | (0.75) (req)<br>(0.50) d⊲<br>(0.25)<br>25   | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.<br>Viscosity fac  | 1.44<br>0.74<br>0.43<br>1.65<br>1.15<br>n units of bars   | scosity b   | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abov<br>y 150 SUS (3  | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor<br>22 cSt). |                            | KF5<br>KC5<br>MKF5<br>KC6  |
| rightarrow 10<br>rightarrow 10<br>righ   | cific gravity | 0 15 20<br>Flow gpm     | (0.75) (reg)<br>(0.50) A<br>(0.25)<br>25  | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.<br>Viscosity fac  | 1.44<br>0.74<br>0.43<br>1.65<br>1.15<br>n units of bars   | scosity b<br>ement Se   | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abov<br>y 150 SUS (3  | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor<br>22 cSt). |                            | KF5<br>KC5<br>MKF5<br>KC6<br>NOF30-0   |
| $rac{10}{4}$   | cific gravity | 0 15 20<br>Flow gpm     | (0.75)<br>(0.50) a<br>(0.25)<br>25  | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.<br>Viscosity factor<br>mation prov<br>$\Delta P_{filter} = \Delta$<br>Exercise:   | 1.44<br>0.74<br>0.43<br>1.65<br>1.15<br>n units of bars<br><i>ctor:</i> Divide vi<br>ided in the Ele<br>Phousing + ΔP   | scosity b<br>ement Se<br>element  | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abox<br>y 150 SUS (3<br>election cha  | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor<br>22 cSt). |                            | KF5<br>KC5<br>MKF5<br>KC6<br>NOF30-0<br>NOF5<br>F0F60-0  |
| $rac{10}{a}$ $rac{8}{6}$ $rac{4}{2}$ $rac{10}{0}$ $rac{10}{a}$ $rac{1$ | cific gravity | 0 15 20<br>Flow gpm     | (0.75)<br>(0.50) a<br>(0.25)<br>25  | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.<br>Viscosity factor<br>mation prov<br>$\Delta P_{filter} = \Delta$<br>Exercise:<br>Determine $\Delta$   | 1.44<br>0.74<br>0.43<br>1.65<br>1.15<br>n units of bars<br>ctor: Divide vi  | ement Se<br>element<br>57 L/min   | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abox<br>y 150 SUS (3<br>election cha  | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor<br>22 cSt). |                            | KF5<br>KC5<br>MKF5<br>KC6<br>NOF30-0<br>NOF5   |
| $rac{10}{4}$   | cific gravity | 0 15 20<br>Flow gpm     | (0.75) (reg)<br>(0.50) A<br>(0.25)<br>25  | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.<br>Viscosity factor<br>mation prov<br>$\Delta P_{filter} = \Delta$<br>Exercise:<br>Determine $\Delta$<br>YF308YZ103<br>Solution:  | 1.44<br>0.74<br>0.43<br>1.65<br>1.15<br>n units of bars<br><i>ctor:</i> Divide vi<br>ided in the Ele<br>Phousing + ΔΡ<br>ΔP at 15 gpm (<br>5D5 using 200  | ement Se<br>element<br>57 L/min<br>SUS (44  | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abox<br>y 150 SUS (3<br>election cha  | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor<br>22 cSt). |                            | KF5<br>KC5<br>MKF5<br>KC6<br>NOF30-0<br>NOF5<br>FOF60-0<br>NMF3<br>RMF6                        |
| rightarrow 10<br>rightarrow 10<br>righ   | cific gravity | 0 15 20<br>Flow gpm     | (0.75) (reg<br>(0.50) Q<br>(0.25)<br>25   | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.<br>Viscosity factor<br>mation prov<br>$\Delta P_{filter} = \Delta$<br>Exercise:<br>Determine $\Delta$<br>YF308YZ105   | 1.44<br>0.74<br>0.43<br>1.65<br>1.15<br>n units of bars<br><i>itor:</i> Divide vi<br>ided in the Ele<br>Phousing + ΔP<br>ΔP at 15 gpm (<br>5D5 using 200<br>= 7.0 psi [.48<br>= 15 x .38 x (      | ement Se<br>element<br>57 L/min<br>SUS (44<br>bar]                                      | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abox<br>y 150 SUS (3<br>election cha  | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor<br>22 cSt). |                            | KF5<br>KC5<br>MKF5<br>KC6<br>NOF30-0<br>NOF30-0<br>NOF5<br>FOF60-0<br>NMF3<br>RMF6<br>Cartridg |
| $rac{10}{4}$   | cific gravity | 0 15 20<br>Flow gpm     | (0.75) (reg)<br>(0.50) A<br>(0.25)<br>25  | 4YZ10<br>4YZ25<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.<br>Viscosity factor<br>mation prov<br>$\Delta P_{filter} = \Delta$<br>Exercise:<br>Determine $\Delta$<br>YF308YZ109<br>Solution:<br>$\Delta P_{housing}$<br>$\Delta P_{element}$ | 1.44<br>0.74<br>0.43<br>1.65<br>1.15<br>n units of bars<br>ided in the Ele<br>Phousing + $\Delta P$<br>AP at 15 gpm (<br>5D5 using 200<br>= 7.0 psi [.48<br>= 15 x .38 x (<br>or<br>= [57 x (.38÷ | ement Se<br>element<br>57 L/min<br>SUS (44<br>bar]<br>200÷150<br>54.9) x (4             | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abov<br>y 150 SUS (3<br>election cha<br>) for<br>cSt) fluid.<br>)) = 7.6 psi<br>4÷32) = .54 | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor<br>2 cSt).  |                            | KF5<br>KC5<br>MKF5<br>KC6<br>NOF30-0<br>NOF5<br>FOF60-0<br>NMF3<br>RMF6<br>Cartridg<br>Element |
| $\frac{10}{4}$   | cific gravity | 0 15 20<br>Flow gpm     | (0.75) (reg)<br>(0.50) A<br>(0.25)<br>25  | 4YZ10<br>4YZ25<br>4YZX5<br>4YZX10<br>If working in<br>by 54.9.<br>Viscosity factor<br>mation prov<br>$\Delta P_{filter} = \Delta$<br>Exercise:<br>Determine Δ<br>YF308YZ105<br>Solution:<br>$\Delta P_{housing}$   | 1.44<br>0.74<br>0.43<br>1.65<br>1.15<br>in units of bars<br>ided in the Ele<br>Phousing + $\Delta P$<br>AP at 15 gpm (<br>5D5 using 200<br>= 7.0 psi [.48<br>= 15 x .38 x (<br>or                 | ement Se<br>element<br>57 L/min<br>SUS (44<br>bar]<br>200÷150<br>54.9) x (4<br>14.6 psi | 8YZ5<br>8YZ10<br>8YZ25<br>8YZX5<br>8YZX10<br>divide abox<br>y 150 SUS (3<br>election cha<br>) for<br>cSt) fluid.<br>) = 7.6 psi<br>4÷32) = .54  | 0.74<br>0.38<br>0.22<br>0.92<br>0.63<br>re factor<br>2 cSt).  |                            | KF5<br>KC5<br>MKF5<br>KC6<br>NOF30-0<br>NOF5<br>FOF60-0<br>NMF3                                |

### YF30 Top-Ported Pressure Filter

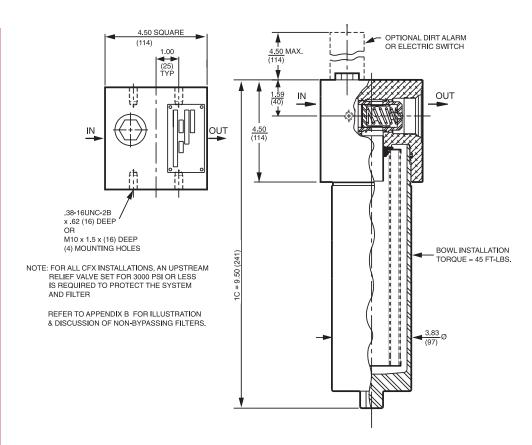
| Filter   |  |  | for a Schroeder YF30:   |                              |                      |
|--|--|--|---|------------------------------|----------------------|
| Model  | BOX 1 BOX 2 BOX<br>YF30                          | 3 BOX 4 BOX 5                                  | BOX 6 BOX 7 BOX 8   |                              |                      |
| Number   | Example: NOTE: One option p                      |  |   |                              |                      |
| Selection  | BOX 1 BOX 2 BOX                                  |  | BOX 6 BOX 7 BOX 8   |                              |                      |
|  | YF30 - 4 - YZ1                                   | 0 – W – S                                      | – – DR – D5   | =YF304YZ10V                  | VSDRD5               |
|  | BOX 1 BOX 2                                      |  | BOX 3   | BOX 4                        | BOX 5                |
|  | Filter Element<br>Series (in)                    | Element  | Size and Media  | Seal<br>Material             | Inlet Port           |
|  |  | YZ1 = Y size 1 µ Exce                          | llement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | Omit = Buna N                | S = SAE-12           |
|  | 8  | YZ3 = Y size 3 µ Exce                          | llement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | W = Buna N                   | O = Subplate         |
|  | YEN30  |  | llement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | V = Viton®                   | (contact<br>factory) |
|  | (Non-Y   |  | ellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  |                              |                      |
|  | requires ZX                                      | ZZS = Y size ZS µ Exc<br>ZXS = Y size 5 µ Exce | ellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  |                              |                      |
|  | elements)  | (high collapse of                              |   |                              |                      |
|  | YZ   | X10 = Y size 10 µ Exc                          |   |                              |                      |
|  |  | (high collapse o                               | center tube)  |                              |                      |
|  | BOX 6 BOX  |  | BOX 8   |                              |                      |
|  | Dirt Alarm <sup>®</sup> Optio<br>Location Bowl D |  | Dirt Alarm <sup>®</sup> O   | ptions                       |                      |
|  | Omit = Side of Omit = N                          | L  | Omit = None   |                              |                      |
|  | filter d<br>head DR = D                          | drain Visual<br>Drain Visual                   | D5 = Visual pop-up  |                              |                      |
|  | T = Top of                                       | with   | D8 = Visual w/ thern  |                              |                      |
|  | filter<br>head                                   | Thermal<br>Lockout                             |   |                              |                      |
|  | nead   | LOCKOUT  | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5  |                              |                      |
|  |  |  | MS10 = Electrical w/ DIN connector<br>(male end only)   |                              |                      |
|  |  |  | MS10LC = Low current M  |                              |                      |
|  |  | Electrical                                     | $MS11 = Electrical w/ 12 ft. 4-conductor wire$ $MS12 = \frac{Electrical w/ 5 pin Brad Harrison connector}{(male end only)}$ |                              |                      |
|  |  |  | MS12 = (male end only   | )                            | Intector             |
|  |  |  | MS12LC = Low current M  |                              |                      |
|  |  |  | MS16 = Electrical w/ we<br>MS16LC = Low current M   |                              | l connector          |
|  |  |  | MS17LC = Electrical w/ 4  |                              | ale connector        |
|  |  |  | MS5T = MS5 (see abov  | e) w/ thermal lockou         | t                    |
|  |  |  | MS5LCT = Low current M  |                              |                      |
|  |  | Electrical                                     | MS10T = MS10 (see abo<br>MS10LCT = Low current M  |                              | ut                   |
| NOTES:   |  | with   | MS12T = MS12 (see abo   |                              | out                  |
|  |  | Thermal<br>Lockout                             | MS12LCT = Low current M   | S12T                         |                      |
| Box 2. Replacement element<br>part numbers are a                                 |  |  | MS16T = MS16 (see abo   |                              | out                  |
| combination of Boxes 2, 3, and 4.  |  |  | MS16LCT = Low current M   |                              |                      |
| Example: 4YZ10V  |  |  | MS17LCT = Low current M<br>MS13 = Supplied w/ th  |                              | light                |
| Box 4. For options V and W,<br>all aluminum parts are                            |  | Electrical<br>Visual                           | $MS14 = \frac{\text{Supplied W/ 11}}{(\text{male end})}$  |                              |                      |
| anodized. Viton <sup>®</sup> is a registered trademark of DuPont Dow Elastomers. |  | Electrical                                     |   | ve), direct current,         |                      |
| Box 8. Standard indicator  |  | Visual<br>with                                 | MS13DCLCT = Low current M   | S13DCT                       |                      |
| setting for non-<br>bypassing model  |  | Thermal  | MS14DCT = MS14 (see abo<br>w/ thermal lock  | ve), direct current,<br>cout |                      |
| is 50 psi unless<br>otherwise specified.   |  | Lockout  | MS14DCLCT = Low current M   | S14DCT                       |                      |

# Non-Bypassing Pressure Filter **CFX30**

| Model No. of filter in photograph is CFX3   | <ul> <li>Features and Benefits</li> <li>Top-ported non-bypassing pressure filter</li> <li>Unique valve eliminates need for high collapse elements</li> <li>Offered in pipe, SAE straight thread and ISO 228 porting</li> <li>Integral inlet and outlet female test points option available</li> </ul> | NF30<br>30 gpm<br>115 L/min<br>3000 psi<br>210 bar<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30<br>CFX30 |
|---|---|--|
|   | AGHIR       BIL         BIL       BIL   | CTF60<br>Applications VF60<br>LW60<br>KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03   |
| Flow Rating:<br>Max. Operating Pressure:<br>Min. Yield Pressure:<br>Rated Fatigue Pressure:<br>Temp. Range:<br>Bypass Setting:<br>Porting Head:<br>Element Case:<br>Weight of CFX30-1CC:<br>Element Change Clearance: | Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids<br>3000 psi (210 bar)<br>12,000 psi (828 bar), per NFPA T2.6.1<br>1800 psi (125 bar), per NFPA T2.6.1-2005<br>-20°F to 225°F (-29°C to 107°C)<br>Non-Bypassing<br>Aluminum<br>Steel<br>19.5 lbs. (8.9 kg)<br>4.00" (100 mm)                      | Filter<br>Housing<br>SpecificationsRMF30RMF60<br>Cartridge<br>ElementsMHS60<br>KFH50   |



### **CFX30** Non-Bypassing Pressure Filter



Metric dimensions in ( ).

| Element<br>Performance<br>Information |                    | 4                | Itration Ratio Per I<br>1572/NFPA T3.10.8<br>article counter (APC) cal | Filtration Ratio<br>per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                        |
|---------------------------------------|--------------------|------------------|--|---|----------------------|------------------------|
|                                       | Element            | $\beta_x \ge 75$ | $\beta_x \ge 100$  | $\beta_x \ge 200$   | $\beta_x(c) \ge 200$ | $\beta_x(c) \geq 1000$ |
|                                       | CC3                | 6.8              | 7.5  | 10.0  | N/A                  | N/A                    |
|                                       | CC10               | 15.5             | 16.2   | 18.0  | N/A                  | N/A                    |
|                                       | CCZ1               | <1.0             | <1.0   | <1.0  | <4.0                 | 4.2                    |
|                                       | CCZ3/CAS3/CCAS3    | <1.0             | <1.0   | <2.0  | <4.0                 | 4.8                    |
|                                       | CCZ5/CAS5/CCAS5    | 2.5              | 3.0  | 4.0   | 4.8                  | 6.3                    |
|                                       | CCZ10/CAS10/CCAS10 | 7.4              | 8.2  | 10.0  | 8.0                  | 10.0                   |
|                                       | CCZ25              | 18.0             | 20.0   | 22.5  | 19.0                 | 24.0                   |

| Dirt Holding | Element              | DHC (gm)  |
|--------------|----------------------|---|
| Capacity     | CC3                  | 30  |
|              | CC10                 | 25  |
|              | CCZ1                 | 57  |
|              | CCZ3/CAS3/CCAS3      | 58  |
|              | CCZ5/CAS5/CCAS5      | 63  |
|              | CCZ10/CAS10/CCAS10   | 62  |
|              | CCZ25                | 63  |
|              | Flow Direction: 0    | 150 psid (10 bar) for standard elements<br>Dutside In<br>CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long |
| 58           | SCHROEDER INDUSTRIES | 5   |

### Non-Bypassing Pressure Filter **CFX30**

|  | T            | ype Fluid  | Appropriate Schroeder Media   |  | Fluid  | NF30        |  |  |
|--|--------------|------------|---|--|--|-------------|--|--|
| Pet  | roleum Ba    | sed Fluids | All E Media (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthet   | All E Media (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic) |  |             |  |  |
| High Water Content All Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic) |              |            |   |  |  | FS30        |  |  |
| Invert Emulsions   |              |            | 10 and 25 $\mu$ Z-Media® (synthetic), 10 $\mu$ ASP® Media (synthetic)   | netic)   |  | YF30        |  |  |
|  | Wat          | er Glycols | 3, 5, 10 and 25 $\mu$ Z-Media (synthetic), 3, 5 and 10 $\mu$ ASP $^{\! @}$  | Media (synthetic)  |  | rv 20       |  |  |
|  | Phosph       | ate Esters | All Z-Media® and ASP® Media (synthetic) with H (EPR) seal   | designation  |  | FX30        |  |  |
|  |              | Skydrol®   | 3, 5, 10 and 25 $\mu$ Z-Media® (synthetic) with H.5 seal desig stainless steel wire mesh in element, and light oil coating $\sigma$ |  | Skydrol <sup>®</sup> is a registered trademark of Solutia Inc. | PLD         |  |  |
|  | Flor         | nent       |   |  | Element  | DF40        |  |  |
| Pressure   | Series       | Part No.   | Element selections are predicated on the use of 15 petroleum based fluid. Non bypass with standard                                  |  | Selection  | <b>CF40</b> |  |  |
|  | _            | CC3        | 1CC3  | See CFN or I   |  |             |  |  |
|  | E<br>Media   | CC10       | 1CC10   |  |  | PF40        |  |  |
|  | Wiedła       | CC25       | 1CC25   |  |  | LC50        |  |  |
| To<br>3000 psi   |              | CCZ1       | 1CCZ1   | See CFN or KF  |  |             |  |  |
| (210 bar)  | -            | CCZ3       | 1CCZ3   |  | R  | FS50        |  |  |
|  | Z-<br>Media® | CCZ5       | 1CCZ5   |  |  |             |  |  |
|  | Wiedla       | CCZ10      | 1CCZ10  |  |  | RF60        |  |  |
|  |              | CCZ25      | 1CCZ25  |  |  | CF60        |  |  |
|  | Flow         | gpm        | 0 5 10 15 20  | 25 30  |  | Cruu        |  |  |
|  | TIOW         | (L/min)    | 0 25 50 75  | 100 115  |  | TF60        |  |  |
| shown abov   | ve are the e | lements mo | st commonly used in this housing.   |  |  |             |  |  |
|  |              |            |   |  |  |             |  |  |

Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

| \P <sub>housing</sub>  | ΔP <sub>element</sub>   | Pressure  |   |
|--|---|---|---|
| FX30 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86: | $\Delta P_{element} = flow x element \Delta P factor x visco$   |   | KF30  |
|  | El. ΔP factors @ 150 SUS (32 cSt):  | Information   | TF50  |
| Flow (L/min)<br>(25) (50) (75) (100)                           | 1CC   | Based on  | IFSU  |
|  | CC3 .22   | Flow Rate<br>and Viscosity  | KF50  |
|  | <b>CC10</b> .13   |   |   |
| 10 (0.75)  | <b>CC25</b> .03   |   | KC50  |
|  | <b>CCZ1</b> .35   |   |   |
|  | CCZ3/CAS3/CCAS3 .20   |   | <b>MKF50</b>                                    |
| 4<br>2<br>   | CCZ5/CAS5/CCAS5 .19   |   |   |
|  | CCZ10/CAS10/CCAS10 .10<br>CCZ25 .05   |   | KC65  |
| 0 5 10 15 20 25 30<br>Flow gpm                                 | If working in units of bars & L/min, divid  | de above  | <b>DF30-05</b>                                  |
| p gr = specific gravity  | factor by 54.9.<br>Viscosity factor: Divide viscosity by 150  |   |   |
|  |   |   |   |
|  |   |   | NOF50   |
| Sizing of elements should be based on element flow in          |   | n chart above.  | NOF50<br>DF60-03                                |
| Sizing of elements should be based on element flow in          | nformation provided in the Element Selection<br>$\Delta P_{filter} = \Delta P_{housing} + \Delta P_{element}$ The ΔP housing curve labeled "Eleme   | n chart above.<br>Fent Sizing"  |   |
| Sizing of elements should be based on element flow in          | nformation provided in the Element Selection<br>ΔP <sub>filter</sub> = ΔP <sub>housing</sub> + ΔP <sub>element</sub>  | n chart above.<br>Fent Sizing"<br>et and<br>e and                             | DF60-03   |
| Sizing of elements should be based on element flow in          | hformation provided in the Element Selection<br>$\Delta P_{filter} = \Delta P_{housing} + \Delta P_{element}$ The ΔP housing curve labeled "Element<br>is the pressure drop between the inle<br>outlet areas of the filter's bypass value   | n chart above.<br>Fent Sizing"<br>et and<br>e and<br>ugh<br>lement<br>overall | DF60-03<br>NMF30                                |
| Sizing of elements should be based on element flow in          | hformation provided in the Element Selection<br>$\Delta P_{filter} = \Delta P_{housing} + \Delta P_{element}$ The ΔP housing curve labeled "Element<br>is the pressure drop between the inle<br>outlet areas of the filter's bypass valve<br>should be used for filter sizing. Altho<br>"Port to Port" ΔP is not a factor in El<br>Selection, it should be considered for | n chart above.<br>Fent Sizing"<br>et and<br>e and<br>ugh<br>lement<br>overall | DF60-03<br>NMF30<br>RMF60<br>artridge           |
| Sizing of elements should be based on element flow in          | hformation provided in the Element Selection<br>$\Delta P_{filter} = \Delta P_{housing} + \Delta P_{element}$ The ΔP housing curve labeled "Element<br>is the pressure drop between the inle<br>outlet areas of the filter's bypass valve<br>should be used for filter sizing. Altho<br>"Port to Port" ΔP is not a factor in El<br>Selection, it should be considered for | n chart above.<br>Fent Sizing"<br>et and<br>e and<br>ugh<br>lement<br>overall | DF60-03<br>NMF30<br>RMF60<br>artridge<br>ements |

### **CFX30** Non-Bypassing Pressure Filter

| Filter   | How to Build a Valid I<br>BOX 1 BOX 2 BOX 3 |                        | mber for a Schroeder CFX30:<br>BOX 5 BOX 6 BOX 7 BOX 8  |  |  |  |
|--|---|------------------------|---|--|--|--|
| Model<br>Number                                  | CFX30                                       |                        |   |  |  |  |
| Selection  | Example: NOTE: One option pe                | er box                 |   |  |  |  |
| Sciection  | BOX 1 BOX 2 BOX 3                           | BOX 4                  | BOX 5 BOX 6 BOX 7 BOX 8   |  |  |  |
|  | CFX30 – 1C – Z                              | - 5 -                  |   |  |  |  |
|  | BOX 1 BO                                    | OX 2                   | BOX 3   |  |  |  |
|  | Filter<br>Series Number & Size              | of Elements            | Media Type  |  |  |  |
|  | C = Sinc                                    | gle Length             | Omit = E Media (cellulose)  |  |  |  |
|  | CFX30 1 CC = Dou                            | uble Length            | Z = Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)                                     |  |  |  |
|  |   |                        | AS = Anti-Stat Media (synthetic)  |  |  |  |
|  |   |                        | M = Media (reusable metal mesh) D size only   |  |  |  |
|  | BOX 4                                       |                        | BOX 5 BOX 6   |  |  |  |
|  | Micron Rating                               | 9                      | Seal Porting<br>Material  |  |  |  |
|  | 1 = 1 Micron (Z-Media <sup>®</sup> )        |                        | Omit = Buna N S = SAE-20  |  |  |  |
|  | 3 = 3 Micron (E, Z, AS M                    | edia)                  | V = Viton <sup>®</sup> P = 1¼" NPTF   |  |  |  |
|  | 5 = 5 Micron (Z, AS Med                     | ia)                    | W = Buna N B = ISO 228 G-1¼"  |  |  |  |
|  | 10 = 10 Micron (E, M, Z, AS                 | 5 Media)               | H = EPR   |  |  |  |
|  | 25 = 25 Micron (E & Z-Med                   | ia®)                   | H.5 = Skydrol®  |  |  |  |
|  |   |                        | compatibility   |  |  |  |
|  | BOX 7                                       |                        | BOX 8   |  |  |  |
|  | Options                                     |                        | Dirt Alarm <sup>®</sup> Options   |  |  |  |
|  | Omit = None                                 |                        | Omit = None   |  |  |  |
|  | L = Two 1/4" NPTF                           | Visual                 | D5 = Visual pop-up  |  |  |  |
|  | inlet and outlet                            | Visual with<br>Thermal | D8 = Visual w/ thermal lockout  |  |  |  |
|  | female test ports<br>U = Schroeder Check    | Lockout                |   |  |  |  |
|  | 7/16"-20 UNF Test                           |                        | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5                  |  |  |  |
|  | Point installation                          |                        | MS10 = Electrical w/ DIN connector (male end only)  |  |  |  |
|  | in cap (upstream)                           |                        | MS10LC = Low current MS10   |  |  |  |
|  |   | El actual              | MS11 = Electrical w/ 12 ft. 4-conductor wire  |  |  |  |
|  |   | Electrical             | MS12 = Electrical w/ 5 pin Brad Harrison connector<br>(male end only)                             |  |  |  |
|  |   |                        | MS12LC = Low current MS12   |  |  |  |
| ement element                                    |   |                        | MS16 = Electrical w/ weather-packed sealed connector  |  |  |  |
| umbers are<br>cal to contents                    |   |                        | MS16LC = Low current MS16<br>MS17LC = Electrical w/ 4 pin Brad Harrison male connector            |  |  |  |
| es 2, 3, 4 and 5.                                |   |                        | MST/EC = Electrical W/4 pin blod namod name connector   |  |  |  |
| ia (cellulose)<br>nts are only                   |   |                        | MS5LCT = Low current MS5T   |  |  |  |
| ole with<br>N seals.                             |   | Electrical             | MS10T = MS10 (see above) w/ thermal lockout   |  |  |  |
| v sedis.   |   | with                   | MS10LCT = Low current MS10T<br>MS12T = MS12 (see above) w/ thermal lockout                        |  |  |  |
| tions H, V, W, and<br>I aluminum parts           |   | Thermal<br>Lockout     | MS12LCT = Low current MS12T   |  |  |  |
| odized. H.5 seal                                 |   | LOCKOUL                | MS16T = MS16 (see above) w/ thermal lockout   |  |  |  |
| ation includes<br>llowing: EPR seals,            |   |                        | MS16LCT = Low current MS16T<br>MS17LCT = Low current MS17T  |  |  |  |
| ss steel wire mesh<br>ments, and light           |   | Electrical             | MS13 = Supplied w/ threaded connector & light   |  |  |  |
| ting on housing                                  |   | Visual                 | MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male                                    |  |  |  |
| or. Viton <sup>®</sup> is a<br>ered trademark of |   | Electrical             | MS13DCT = MS13 (see above), direct current, w/ thermal lockout                                    |  |  |  |
| nt Dow Elastomers.                               |   | Visual with<br>Thermal | MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current, w/ thermal lockout |  |  |  |
| ol® is a registered<br>mark of Solutia Inc.      |   | Lockout                | MS14DCLCT = Low current MS14DCT   |  |  |  |
| ting option                                      |   |                        |   |  |  |  |

#### NOTES:

- Box 2. Repl part of Bo E me elem availa Buna
- Box 5. For or H.5, a are a desig the f stain on el oil co exte regis DuPo Skydı trade
- Box 6. B porting option supplied with metric mounting holes.

### High Pressure Filter PLD



| <ul> <li>Features and Benefits</li> <li>Durable carbon steel construction</li> <li>Filter housings are designed to withstand pressure surges as well as high static</li> </ul> | 100 gpm<br><u>380 L/min</u><br>3000 psi | NF30<br>NFS30<br>YF30 |
|--|---|-----------------------|
| pressure loads   | 205 bar                                 | CFX30                 |
| <ul> <li>Screw-in bowl allows the filter element to be<br/>easily removed for replacement or cleaning</li> </ul>   |   | PLD                   |
| <ul> <li>Standard model supplied with drain plugs</li> <li>Standard Viton<sup>®</sup> seal on filter housing</li> </ul>  |   | <b>DF40</b>           |
| <ul> <li>Filter contains an integrated equalization valve</li> </ul>   |   | <b>CF40</b>           |
| Pressure is equalized between filters by raising<br>the change-over lever prior to switching it to   |   | PF40                  |
| the relevant filter side   |   | LC50                  |
|  |   | RFS50                 |
|  |   | <b>RF60</b>           |
|  |   | <b>CF60</b>           |
| 3VF24VM.   |   | CTF60                 |
|  |   | VF60                  |
|  | Applications                            |                       |
| 56   |   | LW60                  |
| MINING   |   | KF30                  |
| TECHNOLOGY   |   | <b>TF50</b>           |
|  |   | KF50                  |
|  |   | KC50                  |
| PULP & PAPER   |   | <b>MKF50</b>          |
|  | -                                       | KC65                  |
|  | N                                       | IOF30-05              |
|  |   | NOF50                 |
| m (380 L/min) for 150 SUS (32 cSt) fluids  | Filter                                  | OF60-03               |
| 7 bar)   | Housing                                 | NMF30                 |
| 30 bar)<br>7 bar)  | Specifications                          | RMF60                 |
| 2F (-30°C to 121°C)  |   | Cartridge             |
| r)   |   | Elements              |
| kg)  |   | HS60                  |

Model No. of filter in photograph is PLD10DVZ3VF24VM.





AUTOMOTIVE



STEEL

MAKING



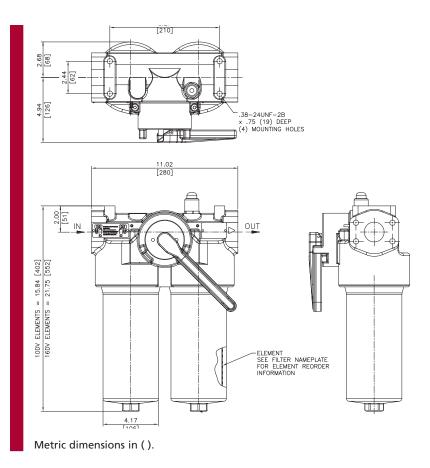
POWER GENERATION



MACHINE TOOL

| Flow Rating:                               | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids | Filter         | FOF60-03  |
|--|---|----------------|-----------|
| Max. Operating Pressure:                   | 3000 psi (207 bar)                                    | Housing        | NMF30     |
| Min. Yield Pressure:                       | 10,600 psi (730 bar)                                  | Specifications |           |
| Rated Fatigue Pressure:                    | 3000 psi (207 bar)                                    |                | RMF60     |
| Temp. Range:                               | -22°F to 250°F (-30°C to 121°C)                       |                |           |
| Bypass Setting:                            | 102 psi (7 bar)                                       |                | Cartridge |
| Porting Head:<br>Element Case:             | Ductile Iron<br>Steel                                 |                | Elements  |
| Weight of PLD-10DV:<br>Weight of PLD-16DV: | 97 lbs. (43.9 kg)<br>100 lbs. (45.3 kg)               |                | HS60      |
| Element Change Clearance:                  | 10DV: 3.5" (89 mm)<br>16DV: 3.5" (89 mm)              |                | MHS60     |
|  |   |                |           |

### PLD High Pressure Filter



| Element<br>Performance |            |                  | io Per ISO 4572/NF<br>rticle counter (APC) calib | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|------------|------------------|--|--|----------------------|-----------------------|
| Information            | Element    | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 10/16DVZ1  | <1.0             | <1.0   | <1.0   | <4.0                 | 4.2                   |
|                        | 10/16DVZ3  | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | 10/16DVZ5  | 2.5              | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | 10/16DVZ10 | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | 10/16DVZ25 | 18.0             | 20.0   | 22.5   | 19.0                 | 24.0                  |

Dirt Holding Capacity

| olding | Element | DHC (gm)                    | Element                  | DHC (gm)        |
|--------|---------|-----------------------------|--------------------------|-----------------|
| pacity | 10DVZ1  | 57                          | 16DVZ1                   | 110             |
|        | 10DVZ3  | 59                          | 16DVZ3                   | 114             |
|        | 10DVZ5  | 64                          | 16DVZ5                   | 124             |
|        | 10DVZ10 | 62                          | 16DVZ10                  | 112             |
|        | 10DVZ25 | 63                          | 16DVZ25                  | 102             |
|        |         | Element Collapse Rating:    | 290 psid (20 bar)        |                 |
|        |         | Flow Direction:             | Outside In               |                 |
|        |         | Element Nominal Dimensions: | 3.0" (75 mm) O.D. x 14.5 | " (370 mm) long |
|        |         |                             |                          |                 |
|        |         |                             |                          |                 |
|        |         |                             |                          |                 |
|        |         |                             |                          |                 |

### High Pressure Filter **PLD**

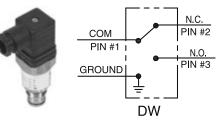
|   |   | Type Fluid  | Арр      | ropriate Schro                          | eder Media  |  |  |   |   |              | Fluid                                  | NF30  |
|---|---|---|----------|---|---|--|--|---|---|--------------|--|---|
| Petroleum Based Fluids         All Z-Media <sup>®</sup> (syntheti           Invert Emulsions         10 and 25 μ Z-Media <sup>®</sup> |   |   |          |   |   |  |  |   | Compatibility                             | NFS30        |  |   |
|   |   |   |          |   |   |  |  |   |   | _            |  | VED   |
|   |   | Water Glycols   | 3, 6,    | 10 and 25 µ Z-N                         | /ledia <sup>®</sup> (synthetio  | c)   |  |   |   |              |  | YF30  |
|   |   |   |          |   |   |  |  |   |   |              |  | CFX30   |
|   |   |   |          |   |   |  |  |   |   |              |  | PLD   |
|   |   | Element   | Гіана    | ant coloctions                          |   | d an tha   | of 150 CI  | 16 (22 -64)   |   |              | Element                                | DF40  |
| ressure   | Series  |   |          |   | are predicated<br>uid and a 102   |  |  |   | )   |              | Selection                              | CF40  |
|   |   | 10DVZ1 & 16DVZ1   |          | 1                                       | 0DVZ1   |  | 16DVZ1   | Contact F   | actor                                     | /            | Based on<br>Flow Rate                  | DE40  |
| То  |   | 10DVZ3 & 16DVZ3   |          |   | 10DVZ3 or 16D\  | VZ3  |  | Contac  |   |              |  | PF40  |
| 350 psi   | Z-<br>Media <sup>®</sup>  | 10DVZ5 & 16DVZ5   |          |   | 10DVZ5  |  |  | 16DVZ5  |   | tact<br>tory |  | LC50  |
| 24 bar)   |   | 10DVZ10 & 16DVZ10   |          |   | 10DVZ   | 210  |  |   | 16DVZ10                                   | C.F.         |  | RFS50   |
|   |   | 10DVZ25 & 16DVZ25   | <u> </u> |   |   | VZ25   |  |   |   | 16DVZ25      |  | DECO  |
|   |   | Flow gpm  | Ó        | 20                                      | 40  | 60   |  | 80  |   | 100          |  | RF60  |
| Showr   | n above   | (L/min)<br>e are the elements m                           | -        | 50 10<br>nmonly used in                 |   | 25   | U  |   |   | 380          |  | CF60  |
|   |   |   |          | ,                                       | 5   |  |  |   |   |              | -                                      | CTF60   |
|   |   |   |          |   |   |  |  |   |   |              |  |   |
|   |   |   |          |   |   |  |  |   |   |              |  | <b>VF60</b>   |
|   |   |   |          |   |   |  |  |   |   | _            |  | LW60  |
| <b>P</b> housi  | -   |   |          |   | ∆ <b>P</b> <sub>element</sub>   | <u>(</u>   |  |   | <u> </u>                                  |              | Pressure<br>Drop                       | KF30  |
| LD AP <sub>r</sub>  | nousing f   | For fluids with sp $gr = 0$                               |          |   |   | flow x eleme   |  | r x viscosity   | facto                                     | or           | Information                            | KI SU   |
|   | 40  | Flow (L/min)  |          |   | EI. ΔF Tacio  |  |  |   |   |              |  |   |
|   | 40  | (95) (189) (2   | 284) (   | 378) 2.75                               | 4001/74   |  | 5 (32 cSt):  | DV/74   | 22  |              | Based on<br>Flow Rate                  | TF50  |
|   | 35  |   | 284) (.  | 2.75                                    | 10DVZ1<br>10DVZ3  | .35<br>.22   | 16   | DVZ1<br>DVZ3  | .23<br>.18                                |              | Based on<br>Flow Rate<br>and Viscosity | TF50<br>KF50  |
|   | 35<br>30<br>25<br>20  |   |          | 2.06<br>1.375                           | 10DVZ3<br>10DVZ5<br>10DVZ10   | .35<br>.22<br>.13<br>.11   | 16<br>16<br>16<br>16   | DVZ3<br>DVZ5<br>DVZ10   | .18<br>.10<br>.09                         |              | Flow Rate                              |   |
| 0   | 35       30       25       20       15       10   |   |          | 2 2.06                                  | 10DVZ3<br>10DVZ5<br>10DVZ10<br>10DVZ125   | .35<br>.22<br>.13<br>.11<br>.06  | 16<br>16<br>16<br>16   | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25  | .18<br>.10<br>.09<br>.05                  | or           | Flow Rate                              | KF50<br>KC50  |
| 0   | 35       30       25       20       15       10       5       0   |   |          | 2.06<br>(Leg<br>1.375 €)<br>a<br>0.6875 | 10DVZ3<br>10DVZ5<br>10DVZ10<br>10DVZ125<br>If working<br>by 54.9.   | .35<br>.22<br>.13<br>.11   | 16<br>16<br>16<br>16<br>s & L/min, c   | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>livide above  | .18<br>.10<br>.09<br>.05<br>e facto       | or           | Flow Rate                              | KF50<br>KC50<br>MKF50   |
| 0   | 35       30       25       20       15       10   |   |          | 2.06<br>(July 1.375 dy dy               | 10DVZ3<br>10DVZ5<br>10DVZ10<br>10DVZ125<br>If working<br>by 54.9.   | .35<br>.22<br>.13<br>.11<br>.06<br>in units of bar   | 16<br>16<br>16<br>16<br>s & L/min, c   | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>livide above  | .18<br>.10<br>.09<br>.05<br>e facto       | pr           | Flow Rate                              | KF50<br>KC50  |
| ΔP p  | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0   | 20 40 60<br>Flow gpm                                      |          | 2.06<br>(Leg<br>1.375 €)<br>a<br>0.6875 | 10DVZ3<br>10DVZ5<br>10DVZ10<br>10DVZ125<br>If working<br>by 54.9.   | .35<br>.22<br>.13<br>.11<br>.06<br>in units of bar   | 16<br>16<br>16<br>16<br>s & L/min, c   | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>livide above  | .18<br>.10<br>.09<br>.05<br>e facto       | Dr           | Flow Rate                              | KF50<br>KC50<br>MKF50   |
| p gr =  | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | 10DVZ3<br>10DVZ5<br>10DVZ10<br>10DVZ125<br>If working<br>by 54.9.<br><i>Viscosity fa</i>  | .35<br>.22<br>.13<br>.11<br>.06<br>in units of bar   | 16<br>16<br>16<br>16<br>s & L/min, c   | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>livide above  | .18<br>.10<br>.09<br>.05<br>e facto       | Dr           | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05   |
| p gr =<br>izing<br>hart a   | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>5<br>0<br>0<br>0<br>0<br>15<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>15<br>10<br>0<br>15<br>10<br>0<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10                   | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | 10DVZ3<br>10DVZ5<br>10DVZ10<br>10DVZ125<br>If working<br>by 54.9.<br>Viscosity fa   | .35<br>.22<br>.13<br>.11<br>in units of bar<br>actor: Divide vis   | 16<br>16<br>16<br>16<br>s & L/min, c<br>scosity by 150<br>the Elem   | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>livide above  | .18<br>.10<br>.09<br>.05<br>e facto       | pr           | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50  |
| p gr =  | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>5<br>0<br>0<br>0<br>0<br>15<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>15<br>10<br>0<br>15<br>10<br>0<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10                   | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | $\frac{10DVZ3}{10DVZ5}$ $\frac{10DVZ10}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$  | .35<br>.22<br>.13<br>.11<br>in units of bar<br>actor: Divide vis<br>provided in<br>Phousing + Δ  | 16<br>16<br>16<br>s & L/min, c<br>scosity by 15<br>the Elem<br>Pelement  | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>livide above  | .18<br>.10<br>.09<br>.05<br>e facto       | br           | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05   |
| p gr =<br>izing<br>hart a   | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>5<br>0<br>0<br>0<br>0<br>15<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>15<br>10<br>0<br>15<br>10<br>0<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10                   | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | $\frac{10DVZ3}{10DVZ5}$ $\frac{10DVZ10}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{100VZ125}{10DVZ125}$ $\frac{100VZ125}{10DVZ125}$ $\frac{100VZ125}{10DVZ125}$ $\frac{100VZ125}{10DVZ125}$  | .35<br>.22<br>.13<br>.11<br>5 .06<br>in units of bar<br>actor: Divide vis<br>provided in<br><b>P</b> housing + ΔI<br><b>LD16DVZ3F</b><br>AP at 75 gpm (  | 16<br>16<br>16<br>5 & L/min, c<br>accosity by 150<br>the Elem<br>Pelement<br>24VM  | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>iivide above<br>0 SUS (32 cSt)<br>ent Select  | .18<br>.10<br>.09<br>.05<br>e facto       |              | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50  |
| p gr =<br>izing<br>hart a   | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>5<br>0<br>0<br>0<br>0<br>15<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>15<br>10<br>0<br>15<br>10<br>0<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10                   | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | $\frac{100VZ3}{100VZ5}$ $\frac{100VZ10}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$  | .35<br>.22<br>.13<br>.11<br>5 .06<br>in units of bar<br>actor: Divide vis<br>provided in<br><b>P</b> housing + ΔI<br><b>LD16DVZ3F</b><br>AP at 75 gpm (  | 16<br>16<br>16<br>5 & L/min, c<br>accosity by 150<br>the Elem<br>Pelement<br>24VM  | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>iivide above<br>0 SUS (32 cSt)<br>ent Select  | .18<br>.10<br>.09<br>.05<br>e facto       |              | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03  |
| p gr =<br>izing<br>hart a   | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>5<br>0<br>0<br>0<br>0<br>15<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>15<br>10<br>0<br>15<br>10<br>0<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10                   | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | $\frac{10DVZ3}{10DVZ5}$ $\frac{10DVZ10}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ}$ $\frac{100VZ125}{100VZ}$ $\frac{100VZ125}{100VZ}$ $\frac{100VZ125}{100VZ}$ $\frac{100VZ125}{100VZ}$ $\frac{100VZ125}{100VZ}$ $\frac{100VZ125}{100VZ}$ $\frac{100VZ}{100VZ}$ | .35<br>.22<br>.13<br>.11<br>5 .06<br>in units of bar<br>actor: Divide vis<br>provided in<br><b>P</b> housing + ΔI<br><b>LD16DVZ3F</b><br>P at 75 gpm (<br>. cSt) fluid.  | 16<br>16<br>16<br>5 & L/min, c<br>5 cosity by 15<br>the Elem<br>Pelement<br>24 VM<br>(284 L/min)   | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>iivide above<br>0 SUS (32 cSt)<br>ent Select  | .18<br>.10<br>.09<br>.05<br>e facto       |              | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60                          |
| p gr =<br>izing<br>hart a   | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>5<br>0<br>0<br>0<br>0<br>15<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>15<br>10<br>0<br>15<br>10<br>0<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10                   | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | $\frac{100VZ3}{100VZ5}$ $\frac{100VZ10}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$ $\frac{100VZ125}{100VZ125}$  | .35<br>.22<br>.13<br>.11<br>5 .06<br>in units of bar<br>actor: Divide vis<br>provided in<br><b>P</b> housing + Δi<br><b>LD16DVZ3F</b><br>P at 75 gpm (<br>. cSt) fluid.<br>= 20 psi [1.<br>= 75 x .18 >  | 16<br>16<br>16<br>16<br>s & L/min, c<br>scosity by 150<br>the Elem<br>Pelement<br>24VM<br>(284 L/min)<br>38 bar]   | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>iivide above<br>0 SUS (32 cSt)<br>ent Select  | .18<br>.10<br>.09<br>.05<br>e facto       |              | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60<br>Cartridge             |
| p gr =<br>izing<br>hart a   | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>5<br>0<br>0<br>0<br>0<br>15<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>15<br>10<br>0<br>15<br>10<br>0<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>10<br>15<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10 | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | $\frac{10DVZ3}{10DVZ5}$ $\frac{10DVZ10}{10DVZ1025}$ If working by 54.9.<br><i>Viscosity fa</i><br><i>v</i> information<br>$\frac{\Delta P_{filter} = \Delta}{Exercise: PI}$ Determine $\Delta$<br>200 SUS (44)<br><u>Solution:</u><br>$\Delta P_{housing}$  | .35<br>.22<br>.13<br>.11<br>5 .06<br>in units of bar<br>actor: Divide vis<br>provided in<br><b>P</b> housing + ΔI<br><b>LD16DVZ3F</b><br>.P at 75 gpm (<br>. cSt) fluid.   | 16<br>16<br>16<br>16<br>s & L/min, c<br>cosity by 15<br>the Elem<br>Pelement<br>24VM<br>(284 L/min)<br>(284 L/min)<br>(284 L/min)<br>(200÷150<br>8÷54.9) x (   | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>livide above<br>0 SUS (32 cSt)<br>ent Select  | .18<br>.10<br>.09<br>.05<br>e facto<br>). | ıg           | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60                          |
| p gr =  | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>5<br>0<br>0<br>0<br>0<br>15<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>15<br>10<br>0<br>15<br>10<br>0<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>10<br>15<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10 | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | $\frac{10\text{DVZ3}}{10\text{DVZ5}}$ $\frac{10\text{DVZ10}}{10\text{DVZ125}}$ If working<br>by 54.9.<br><i>Viscosity fa</i><br><i>v</i> information<br>$\frac{\Delta P_{\text{filter}} = \Delta}{\text{Exercise: PI}}$ Determine $\Delta$<br>200 SUS (44<br><b>Solution:</b><br>$\Delta P_{\text{housing}}$<br>$\Delta P_{\text{element}}$   | .35<br>.22<br>.13<br>.11<br>5 .06<br>in units of bar<br>actor: Divide vis<br>provided in<br><b>Phousing +</b> $\Delta I$<br><b>LD16DVZ3F</b><br>P at 75 gpm (<br>c cSt) fluid.<br>= 20 psi [1.<br>= 75 x .18 ><br>or<br>= [284 x (.1]<br>= 20 + 18 =<br>or | 16<br>16<br>16<br>16<br>s & L/min, c<br>cosity by 150<br>the Elem<br>Pelement<br>24VM<br>(284 L/min)<br>(284 | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>iivide above<br>0 SUS (32 cSt)<br>ent Select<br>for 16DVZ<br>) = 18 psi<br>44÷32) = 1 | .18<br>.10<br>.09<br>.05<br>e facto<br>). | ıg           | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60<br>Cartridge<br>Elements |
| p gr =  | 35<br>30<br>25<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>5<br>0<br>0<br>0<br>0<br>15<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>0<br>15<br>10<br>0<br>0<br>15<br>10<br>0<br>15<br>10<br>0<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>15<br>10<br>10<br>15<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10 | 20 40 60<br>Flow gpm<br>fic gravity<br>ments should be ba | 80       | 2.06<br>1.375 9 4<br>0.6875<br>200      | $\frac{10\text{DVZ3}}{10\text{DVZ5}}$ $\frac{10\text{DVZ10}}{10\text{DVZ125}}$ If working<br>by 54.9.<br><i>Viscosity fa</i><br><i>v</i> information<br>$\frac{\Delta P_{\text{filter}} = \Delta}{\text{Exercise: PI}}$ Determine $\Delta$<br>200 SUS (44<br><b>Solution:</b><br>$\Delta P_{\text{housing}}$<br>$\Delta P_{\text{element}}$   | .35<br>.22<br>.13<br>.11<br>5 .06<br>in units of bar<br>actor: Divide vis<br>provided in<br><b>Phousing +</b> $\Delta I$<br><b>LD16DVZ3F</b><br>P at 75 gpm (<br>. cSt) fluid.<br>= 20 psi [1.<br>= 75 x .18 ><br>or<br>= [284 x (.1<br>= 20 + 18 =        | 16<br>16<br>16<br>16<br>s & L/min, c<br>cosity by 150<br>the Elem<br>Pelement<br>24VM<br>(284 L/min)<br>(284 | DVZ3<br>DVZ5<br>DVZ10<br>DVZ25<br>iivide above<br>0 SUS (32 cSt)<br>ent Select<br>for 16DVZ<br>) = 18 psi<br>44÷32) = 1 | .18<br>.10<br>.09<br>.05<br>e facto<br>). | ıg           | Flow Rate                              | KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60<br>Cartridge<br>Elements |

### PLD High Pressure Filter

| lumber<br>election<br>BOX 1<br>PLD |                    | BOX 3 BC            | DX 4 BOX 5<br>V - F24 - | BOX 6<br>VM = PLD10DVZ1VF24V             | VM            |
|------------------------------------|--------------------|---------------------|-------------------------|--|---------------|
| вох                                | 1 BC               | OX 2                |                         | BOX 3                                    | BOX 4         |
| Filter Se                          | eries Len<br>Eleme | gth of<br>ents (in) | El                      | ement Size and Media                     | Seal Materia  |
|                                    |                    | 10                  | DVZ1 =                  | DV size 1 $\mu$ synthetic media          | Omit = Buna N |
| PLC                                |                    | 16                  | DVZ3 =                  | DV size 3 $\mu$ synthetic media          | V = Viton®    |
|                                    |                    |                     | DVZ5 =                  | DV size 5 $\mu$ synthetic media          |               |
|                                    |                    |                     | DVZ10 =                 | DV size 10 $\mu$ synthetic media         |               |
|                                    |                    |                     | DVZ25 =                 | DV size 25 $\mu$ synthetic media         |               |
|                                    |                    |                     |                         |  |               |
|                                    | BOX 5              |                     |                         | BOX 6                                    |               |
|                                    | BOX 5<br>Porting   |                     |                         | BOX 6<br>Dirt Alarm <sup>®</sup> Options |               |
| F24 = 1%                           |                    | ge Code 61          |                         |  |               |
|                                    | Porting            | ge Code 61          | Visual                  | Dirt Alarm <sup>®</sup> Options          |               |



VM = Manual Reset



DW = AC/DC 3-wire (NO or NC)

NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4. Example: 16DVZ10
- Box 4. Filter housings are supplied with standard Viton seals. Seal designation in Box 4 applies to element only. Viton is a registered trademark of DuPont Dow Elastomers.

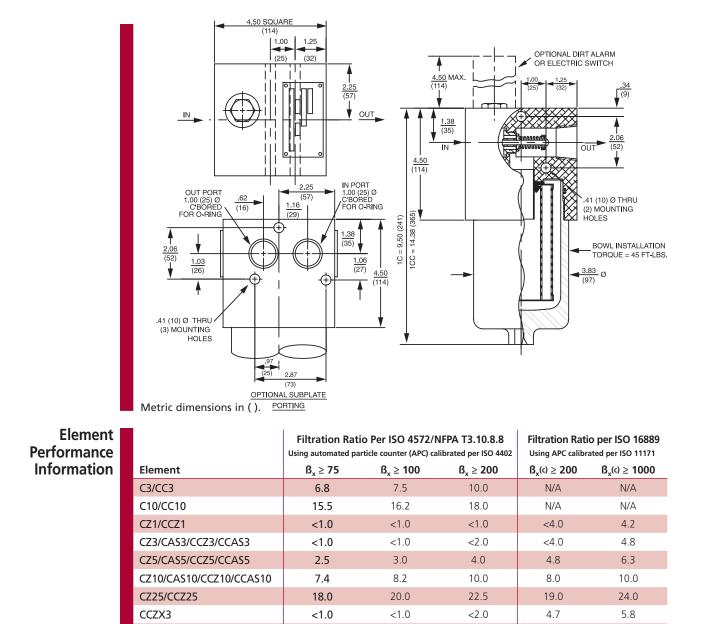
### SAME DAY SHIPMENT MODEL AVAILABLE!

### Top-Ported Pressure Filter **DF40**

| Nodel No. of filter in photograph as         Filter         Filter     < |                                       | 30 gpm<br><u>115 L/min</u><br>4000 psi<br>275 bar | YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>PF40<br>LC50<br>RF550<br>RF60<br>CF60<br>CF60<br>VF60<br>LW60<br>KF30 |
|--|---|---|---|
| MOBILE         VEHICLES  | AGRICULTURE   |   | TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05   |
|  |   |   | NOF50   |
| Flow Rating:   | Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids  | Filter  | FOF60-03  |
| Max. Operating Pressure:   |   | Housing   | NMF30   |
|  | 12,000 psi (828 bar), per NFPA T2.6.1   | Specifications                                    | INIVIFOU  |
|  | 1800 psi (125 bar), per NFPA T2.6.1-2005  |   | RMF60   |
|  | -20°F to 225°F (-29°C to 107°C)<br>Cracking: 40 psi (2.8 bar)<br>Full Flow: 57 psi (3.9 bar)<br>Non-bypassing model has a blocked bypass. |   | Cartridge<br>Elements   |
| Porting Head:  |   |   | HS60  |
| Element Case:<br>Weight of DF40-1C:<br>Weight of DF40-1CC:   | 14.0 lbs. (6.4 kg)  |   | MHS60   |
| Element Change Clearance:  | 4.0" (100 mm)   |   | KFH50   |
|  |   |   |   |



**DF40 Top-Ported Pressure Filter** SAME DAY SHIPMENT MODEL AVAILABLE!



Dirt Holding

CCZX10

Element DHC (gm) DHC (gm) Element Capacity 14 C3 CC3 30 CC10 25 C10 12 CCZ1 57 CZ1 25 CZ3/CAS3 CCZ3/CCAS3 58 26 30 CZ5/CAS5 CCZ5/CCAS5 63 CZ10/CAS10 28 CCZ10/CCAS10 62 CZ25 63 28 CCZ25 CCZX3 26\* 28\* CCZX10

8.2

10.0

8.0

Element Collapse Rating:

7.4

Flow Direction: **Element Nominal Dimensions:**  \*Based on 100 psi

9.8

terminal pressure 150 psid (10 bar) for standard elements 3000 psid (210 bar) for high collapse (ZX) versions

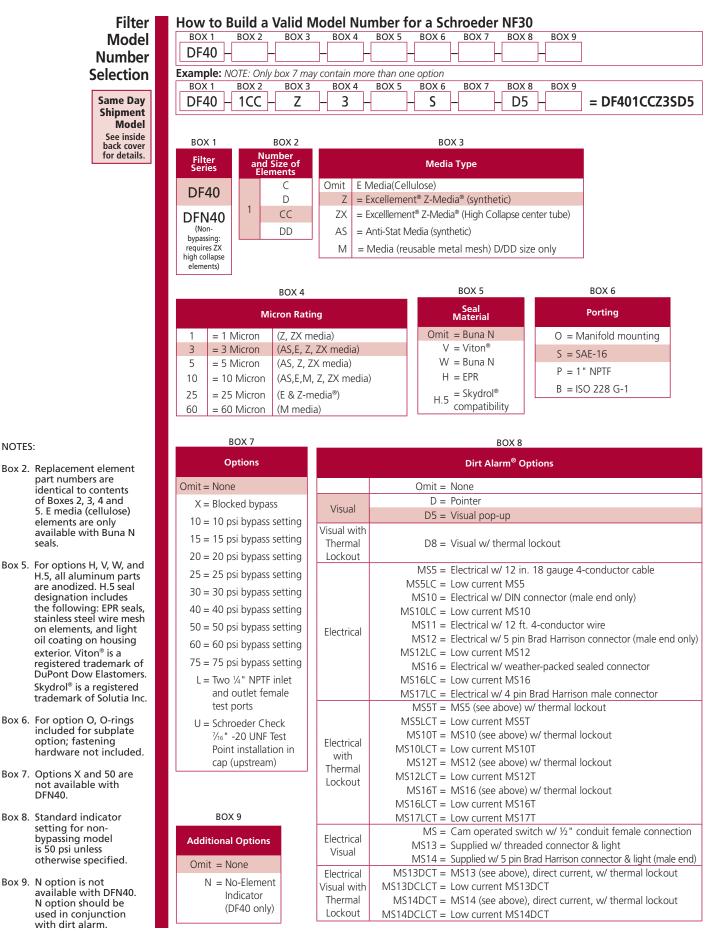
Outside In

C:C 3.0" (75 mm) O.D. x 4.75" (120 mm) long CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long

### SAME DAY SHIPMENT MODEL AVAILABLE! Top-Ported Pressure Filter DF40

|  | Тур   | e Fluid Appro             | opriate Schroed  | er Media   |  |  |   | Fluid   | NF30  |
|--|---|---------------------------|--|--|--|--|---|---|---|
| Цia  | Petroleum Based Fluids All E Media (cell            |                           |  | (cellulose), Z-Media® and ASP® Media (synthetic)   |  |  | Compatibility   | NFS30   |   |
| 5  |   |                           | ledia <sup>®</sup> and ASP <sup>®</sup>  | a <sup>®</sup> and ASP <sup>®</sup> Media (synthetic)  |  |  |   |   |   |
|  |   |                           | (synthetic), 10 $\mu$ ASP <sup>®</sup> Media (synthetic)   |  |  |  |   | YF30  |   |
|  |   |                           | dia® (synthetic) and all ASP® Media (synthetic)  |  |  |  |   | CFX30   |   |
| •  |   |                           | Media (synthetic) with H (EPR) seal designation<br>Jia® (synthetic) and all ASP® Media (synthetic) with H.5 seal |  |  |  |   |   |   |
|  | 2k  | design                    |  |  |  | ledia (synthetic) with<br>element, and light (   |   | Skydrol <sup>®</sup> is a registere<br>trademark of Solutia | Inc   |
|  |   | Iement                    | 1  |  |  |  |   | Element   | DF40  |
| Pressure   | Series  | Part No.                  |  |  |  | the use of 150 SU:<br>8 bar) bypass valv   |   | Selection   | CF40  |
|  |   | C3 & CC3                  | petieteania  | 1C3  | <u> </u>   | 1CC3   |   | <ul> <li>Based on</li> <li>Flow Rate</li> </ul>             | DE 40   |
|  | E<br>Media  | C10 & CC10                |  | 1C10   |  | 1CC10  |   |   | PF40  |
|  | IVIEUIA   | C25 & CC25                |  |  | 1C25   |  |   |   | LC50  |
| To<br>4000 psi   |   | CZ1 & CCZ1                | 10   | 21   |  | 1CCZ1  |   |   |   |
| (275 bar)  | 7   | CZ3 & CCZ3                |  | 1CZ3   |  | 1CCZ3  |   |   | RFS50   |
|  | Z-<br>Media®  | CZ5 & CCZ5                |  |  | Z5 & 1CCZ  |  |   |   | RF60  |
|  |   | CZ10 & CCZ10              |  |  | 10 & 1CCZ  |  |   |   |   |
|  |   | CZ25 & CCZ25              |  |  | 25 & 1CCZ  | _  |   |   | <b>CF60</b>   |
|  | Flow  | gpm<br>(L/min)            | 0 25   | 50   | 15   | 20 25<br>75 100  | 30<br>) 115   |   | CTF60   |
| shown abov   | ve are the e  | lements most co           |  |  |  |  |   |   | VF60  |
|  |   |                           |  |  |  | lsion and Water Gly<br>ls, pages 21 and 22   |   |   | LW60  |
| ∆P <sub>housing</sub>  |   |                           |  | $\Delta P_{element}$   |  |  |   | Pressure  |   |
| <br>DF40 ∆P <sub>hous</sub>  | <sub>sing</sub> for fluid                           | ls with sp gr = 0.8       | 36:  | $\Delta P_{element} = fl$  | ow x eleme   | ent $\Delta P$ factor x visco  | sity factor   | Drop  | KF30  |
|  | 5   |                           |  | El. $\Delta P$ factors   | @ 150 SUS  | 5 (32 cSt):  |   | Information<br>Based on                                     | TF50  |
| 42   | Flow<br>(25) (50                                    | / (L/min)<br>) (75) (100) |  | C3   | <u>    1C</u><br>.50   | CC3  | <u>1CC</u><br>.22   | Flow Rate   | IFOU  |
| 12   |   |                           | (0.75)   | C10  | .19  | CC5  |   | and Viscosity   |   |
| 8  |   |                           |  |  |  | CC10   | .13   | and viscosity   | KF50  |
|  |   |                           | -  | C25  | .09  | CC25   | .03   | and viscosity   |   |
| <u>~</u> 6 —   | $\downarrow$ $\downarrow$ $\downarrow$ $\downarrow$ |                           | (0.50) (ja<br>g  | CZ3<br>CZ1<br>CZ3/CAS3   | .09<br>.70<br>.50  |  |   | und viscosky  | KF50<br>KC50  |
| isd 6<br>4   |   |                           | (0.50) (µaq)<br>d√<br>(0.25)   | CZ1  | .70  | CC25<br>CCZ1   | .03<br>.35  |   | KC50  |
|  |   |                           | (0.50) (he<br>q)<br>d⊽<br>(0.25)   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10  | .70<br>.50<br>.32<br>.25   | CC25<br>CCZ1<br>CCZ3/CCAS3<br>CCZ5/CCAS5<br>CCZ10/CCAS   | .03<br>.35<br>.20<br>.19<br><b>10</b> .10   |   |   |
|  |   |                           | (0.25)   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5  | .70<br>.50<br>.32  | CC25<br>CCZ1<br>CCZ3/CCAS3<br>CCZ5/CCAS5<br>CCZ10/CCAS<br>CCZ25  | .03<br>.35<br>.20<br>.19<br><b>10</b> .10<br>.05  |   | KC50  |
|  | 10<br>Flo   | 20<br>w gpm               | (0.25)   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10  | .70<br>.50<br>.32<br>.25   | CC25<br>CCZ1<br>CCZ3/CCAS3<br>CCZ5/CCAS5<br>CCZ10/CCAS   | .03<br>.35<br>.20<br>.19<br><b>10</b> .10   |   | КС50<br>МКF50<br>КС65   |
|  |   |                           | (0.25)   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10<br>CZ25  | .70<br>.50<br>.32<br>.25<br>.14  | CC25<br>CCZ1<br>CCZ3/CCAS3<br>CCZ5/CCAS5<br>CCZ10/CCAS<br>CCZ25<br>CCZ25<br>CCZX3  | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26   |   | KC50<br>MKF50   |
| p  gr = spec   | Flo   | w gpm                     | (0.25)<br>30   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10<br>CZ25<br>If working in<br>by 54.9.<br>Viscosity fact   | .70<br>.50<br>.32<br>) .25<br>.14<br>units of bar  | CC25<br>CCZ1<br>CCZ3/CCAS3<br>CC25/CCAS5<br>CCZ10/CCAS5<br>CCZ25<br>CCZX3<br>CCZX10<br>rs & L/min, divide ab   | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26<br>ove factor                               |   | КС50<br>МКF50<br>КС65   |
| p  gr = spec   | Flo   | w gpm                     | (0.25)<br>30   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10<br>CZ25<br>If working in<br>by 54.9.<br>Viscosity fact   | .70<br>.50<br>.32<br>.25<br>.14<br>units of bar  | CC25<br>CCZ1<br>CCZ3/CCAS3<br>CC25/CCAS5<br>CCZ10/CCAS5<br>CCZ25<br>CCZ25<br>CCZX3<br>CCZX10<br>s & L/min, divide ab   | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26<br>ove factor                               |   | KC50<br>MKF50<br>KC65<br>NOF30-05   |
| $a = \frac{4}{2} = \frac{2}{0} = \frac{1}{0}$  | Flo   | w gpm                     | (0.25)<br>30   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10<br>CZ25<br>If working in<br>by 54.9.<br>Viscosity fact<br>formation provice<br>$\Delta P_{filter} = \Delta P$<br>Exercise:   | .70<br>.50<br>.32<br>) .25<br>.14<br>units of bar<br>tor: Divide<br>ded in the E<br><u>housing + L</u>   | CC25<br>CCZ1<br>CCZ3/CCAS3<br>CC25/CCAS5<br>CCZ10/CCAS5<br>CCZ25<br>CCZX3<br>CCZX10<br>rs & L/min, divide ab<br>viscosity by 150 SUS<br>Element Selection co<br>Pelement   | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26<br>ove factor                               |   | KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03  |
| p  gr = spec   | Flo   | w gpm                     | (0.25)<br>30   | $\begin{array}{c} CZ1\\ CZ3/CAS3\\ CZ5/CAS5\\ CZ10/CAS10\\ CZ25\\\\ \end{array}$ If working in by 54.9.<br><i>Viscosity fact</i><br>formation provide<br>$\begin{array}{c} \Delta P_{filter} = \Delta P\\ \hline \mathbf{Exercise:}\\ \hline \text{Determine } \Delta I \end{array}$ | .70<br>.50<br>.32<br>.25<br>.14<br>units of bar<br>tor: Divide<br>ded in the E<br><u>Phousing + 2</u><br>2 at 20 gpm   | CC25<br>CCZ1<br>CCZ3/CCAS3<br>CC25/CCAS5<br>CCZ10/CCAS5<br>CCZ25<br>CCZ25<br>CCZX3<br>CCZX10<br>s & L/min, divide ab   | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26<br>ove factor<br>5 (32 cSt).<br>hart above. |   | KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30   |
| p  gr = spec   | Flo   | w gpm                     | (0.25)<br>30   | $\begin{array}{c} CZ1\\ CZ3/CAS3\\ CZ5/CAS5\\ CZ10/CAS10\\ CZ25\\\\ \end{array}$ If working in by 54.9.<br><i>Viscosity fact</i><br>formation provide<br>$\begin{array}{c} \Delta P_{filter} = \Delta P\\ \hline \mathbf{Exercise:}\\ \hline \text{Determine } \Delta I \end{array}$ | .70<br>.50<br>.32<br>.25<br>.14<br>units of bar<br>tor: Divide<br>ded in the E<br><u>Phousing + 2</u><br>2 at 20 gpm   | CC25<br>CC21<br>CC23/CCAS3<br>CC25/CCAS5<br>CC210/CCAS5<br>CC225<br>CC225<br>CC2X3<br>CC2X10<br>rs & L/min, divide ab<br>viscosity by 150 SUS<br>Element Selection c<br>SPelement  | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26<br>ove factor<br>5 (32 cSt).<br>hart above. |   | KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03  |
| p  gr = spec   | Flo   | w gpm                     | (0.25)<br>30   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10<br>CZ25<br>If working in<br>by 54.9.<br>Viscosity fact<br>formation provide<br>$\Delta P_{filter} = \Delta P$<br>Exercise:<br>Determine $\Delta I$<br>DF401CZ10P   | .70<br>.50<br>.32<br>.25<br>.14<br>units of bar<br>tor: Divide<br>ded in the E<br>Phousing + <i>L</i><br>Phousing 2<br>= 5.0 psi [.3<br>= 20 x .25 x   | CC25<br>CC21<br>CCZ3/CCAS3<br>CC25/CCAS5<br>CC210/CCAS5<br>CC225<br>CCZ25<br>CCZX3<br>CCZX10<br>rs & L/min, divide ab<br>viscosity by 150 SUS<br>Element Selection c<br>CAPelement<br>a (75 L/min) for<br>00 SUS (44 cSt) fluid  | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26<br>ove factor<br>5 (32 cSt).<br>hart above. |   | KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30   |
| p  gr = spec   | Flo   | w gpm                     | (0.25)<br>30   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10<br>CZ25<br>If working in<br>by 54.9.<br>Viscosity fact<br>formation provid<br>$\Delta P_{filter} = \Delta P$<br>Exercise:<br>Determine $\Delta I$<br>DF401CZ10P<br>Solution:<br>$\Delta P_{housing}$<br>$\Delta P_{element}$               | .70<br>.50<br>.32<br>.25<br>.14<br>units of bar<br>tor: Divide<br>ded in the E<br><u>housing + 2</u><br>at 20 gpm<br>MS using 20<br>= 5.0 psi [.3<br>= 20 x .25 x<br>or                                | CC25<br>CC21<br>CC23/CCAS3<br>CC25/CCAS5<br>CC210/CCAS5<br>CC225<br>CC225<br>CC2X3<br>CC2X10<br>rs & L/min, divide ab<br>viscosity by 150 SUS<br>Element Selection c<br>$\Delta P_{element}$<br>a (75 L/min) for<br>00 SUS (44 cSt) fluid<br>(200÷150) = 6.6 ps<br>÷54.9) x (44÷32) = .  | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26<br>ove factor<br>5 (32 cSt).<br>hart above. |   | KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60<br>Cartridge                     |
| $a_{1}^{2}$ $a_{2}^{0}$ $a_{3}^{0}$ $a_{3$ | Flo   | w gpm                     | (0.25)<br>30   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10<br>CZ25<br>If working in<br>by 54.9.<br>Viscosity fact<br>formation provid<br>$\Delta P_{filter} = \Delta P$<br>Exercise:<br>Determine $\Delta I$<br>DF401CZ10P<br>Solution:<br>$\Delta P_{housing}$                                       | .70<br>.50<br>.32<br>.25<br>.14<br>units of bar<br>tor: Divide<br>ded in the E<br>housing + 2<br>Dat 20 gpm<br>MS using 20<br>= 5.0 psi [.3<br>= 20 x .25 x<br>or<br>= [75 x (.25<br>= 5.0 + 6.6<br>or | CC25<br>CC21<br>CC23/CCAS3<br>CC25/CCAS5<br>CC210/CCAS5<br>CC225<br>CC225<br>CC2X3<br>CC2X10<br>rs & L/min, divide ab<br>viscosity by 150 SUS<br>Element Selection c<br>$\Delta P_{element}$<br>a (75 L/min) for<br>00 SUS (44 cSt) fluid<br>(200÷150) = 6.6 ps<br>÷54.9) x (44÷32) = .  | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26<br>ove factor<br>5 (32 cSt).<br>hart above. |   | KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60<br>Cartridge<br>Elements         |
| r = spec   | Flo   | w gpm                     | (0.25)<br>30   | CZ1<br>CZ3/CAS3<br>CZ5/CAS5<br>CZ10/CAS10<br>CZ25<br>If working in<br>by 54.9.<br>Viscosity fact<br>formation provid<br>$\Delta P_{filter} = \Delta P$<br>Exercise:<br>Determine $\Delta I$<br>DF401CZ10P<br>Solution:<br>$\Delta P_{housing}$<br>$\Delta P_{element}$               | .70<br>.50<br>.32<br>.25<br>.14<br>units of bar<br>tor: Divide<br>ded in the E<br>housing + 2<br>Dat 20 gpm<br>MS using 20<br>= 5.0 psi [.3<br>= 20 x .25 x<br>or<br>= [75 x (.25<br>= 5.0 + 6.6<br>or | CC25<br>CC21<br>CC23/CCAS3<br>CC25/CCAS5<br>CC210/CCAS5<br>CC225<br>CC225<br>CC2X3<br>CC2X10<br>as & L/min, divide ab<br>viscosity by 150 SUS<br>Element Selection of<br>Pelement<br>(75 L/min) for<br>00 SUS (44 cSt) fluid<br>(200÷150) = 6.6 ps<br>÷54.9) x (44÷32) = .<br>= 11.6 psi | .03<br>.35<br>.20<br>.19<br>10 .10<br>.05<br>.29<br>.26<br>ove factor<br>5 (32 cSt).<br>hart above. |   | KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60<br>Cartridge<br>Elements<br>HS60 |

### **DF40** Top-Ported Pressure Filter SAME DAY SHIPMENT MODEL AVAILABLE!



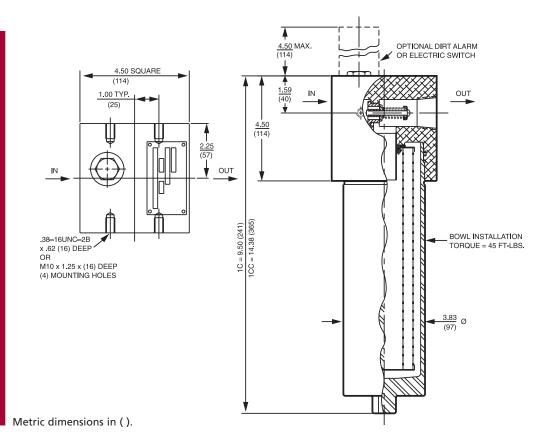
#### NOTES:

- Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. E media (cellulose) elements are only available with Buna N seals.
- H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 6. For option O, O-rings included for subplate option: fastening hardware not included.
- Box 7. Options X and 50 are not available with DFN40.
- Box 8. Standard indicator setting for nonbypassing model is 50 psi unless otherwise specified.
- Box 9. N option is not available with DFN40. N option should be used in conjunction with dirt alarm.

### Top-Ported Pressure Filter **CF40**

| Wodel No. of filter in photograph is            | <ul> <li>Features and Benefits</li> <li>Top-ported pressure filter</li> <li>Available with non-bypass option with high collapse element</li> <li>Offered in pipe, SAE straight thread and ISO 228 porting</li> <li>Integral inlet and outlet female test points option available</li> <li>No-Element indicator option available</li> </ul> | NF30<br>45 gpm<br>170 L/min<br>4000 psi<br>275 bar<br>CFX30<br>PLD<br>DF40<br>CF40<br>PF40<br>LC50<br>RF550<br>RF60<br>CF60 |
|---|--|---|
| INDUSTRIAL AUTOMOTIVE<br>MANUFACTURING          | MACHINE<br>TOOL STEEL<br>MAKING  | CTF60<br>Applications VF60<br>LW60<br>KF30  |
| MOBILE<br>VEHICLES                              | AGRICULTURE  | ТF50<br>КF50<br>КС50<br>МКF50   |
|   |  | KC65<br>NOF30-05<br>NOF50   |
| Flow Rating:                                    | Up to 45 gpm (170 L/min) for 150 SUS (32 cSt) fluids   | Filter<br>Housing FOF60-03  |
| Max. Operating Pressure:                        | 4000 psi (275 bar)   | Tiousing  |
| Min. Yield Pressure:<br>Rated Fatigue Pressure: | 12,000 psi (828 bar), per NFPA T2.6.1<br>1800 psi (125 bar), per NFPA T2.6.1-2005  | Specifications NMF30  |
| Temp. Range:                                    | -20°F to 225°F (-29°C to 107°C)  | RMF60   |
| Bypass Setting:                                 | Cracking: 40 psi (2.8 bar)<br>Full Flow: 72 psi (5.0 bar)<br>Non-bypassing model has a blocked bypass.   | Cartridge<br>Elements   |
| Porting Head:<br>Element Case:                  | Aluminum<br>Steel  | HS60  |
| Weight of CF40-1C:<br>Weight of CF40-1CC:       | 14.0 lbs. (6.4 kg)<br>19.5 lbs. (8.9 kg)   | MHS60   |
| Element Change Clearance:                       | 4.00" (100 mm) for C elements<br>8.75" (219 mm) for CC elements  | KFH50   |

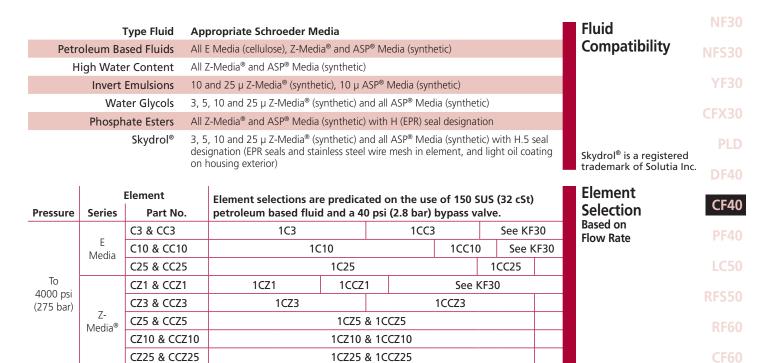




| Element<br>Performance |                         | Filtration Ratio Per ISO 4572/NFPA T3.10.8.8<br>Using automated particle counter (APC) calibrated per ISO 4402 |                   |                   | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                       |
|------------------------|-------------------------|--|-------------------|-------------------|--|-----------------------|
| Information            | Element                 | $\beta_x \ge 75$   | $\beta_x \ge 100$ | $\beta_x \ge 200$ | $\beta_x(c) \ge 200$   | $\beta_x(c) \ge 1000$ |
|                        | C3/CC3                  | 6.8  | 7.5               | 10.0              | N/A  | N/A                   |
|                        | C10/CC10                | 15.5   | 16.2              | 18.0              | N/A  | N/A                   |
|                        | CZ1/CCZ1                | <1.0   | <1.0              | <1.0              | <4.0   | 4.2                   |
|                        | CZ3/CCZ3/CAS3/CCAS3     | <1.0   | <1.0              | <2.0              | <4.0   | 4.8                   |
|                        | CZ5/CCZ5/CAS5/CCAS5     | 2.5  | 3.0               | 4.0               | 4.8  | 6.3                   |
|                        | CZ10/CCZ10/CAS10/CCAS10 | 7.4  | 8.2               | 10.0              | 8.0  | 10.0                  |
|                        | CZ25/CCZ25              | 18.0   | 20.0              | 22.5              | 19.0   | 24.0                  |
|                        | CCZX3                   | <1.0   | <1.0              | <2.0              | 4.7  | 5.8                   |
|                        | CCZX10                  | 7.4  | 8.2               | 10.0              | 8.0  | 9.8                   |
|                        | CZ25/CCZ25<br>CCZX3     | 18.0<br><1.0   | 20.0<br><1.0      | 22.5<br><2.0      | 19.0<br>4.7  | 24.0<br>5.8           |

| Dirt Holding | Element                                     | DHC (gm)        | Element  | DHC (gm)  |  |
|--------------|---|-----------------|--|---|--|
| Capacity     | C3  | 14              | CC3  | 30  |  |
|              | C10   | 12              | CC10   | 25  |  |
|              | CZ1   | 25              | CCZ1   | 57  |  |
|              | CZ3/CAS3                                    | 26              | CCZ3/CCAS3   | 58  |  |
|              | CZ5/CAS5                                    | 30              | CCZ5/CCAS5   | 63  |  |
|              | CZ10/CAS5                                   | 28              | CCZ10/CCAS10   | 62  |  |
|              | CZ25  | 28              | CCZ25  | 63  |  |
|              |   |                 | CCZX3  | 26*   |  |
|              |   |                 | CCZX10   | 28*   |  |
|              | Element Collapse Rating:<br>Flow Direction: |                 | 150 psid (10 bar) for standard elements<br>3000 psid (210 bar) for high collapse (ZX) versions |   | *Based on 100 psi<br>terminal pressure |
|              |   |                 | Outside In   |   |  |
|              | Element Nomir                               | nal Dimensions: |  | D. x 4.75" (120 mm) long<br>D. x 9.5" (240 mm) long |  |

### Top-Ported Pressure Filter **CF40**



20

30

100

35

40

150

45

170

(L/min) 0 50 Shown above are the elements most commonly used in this housing.

0

gpm

Flow

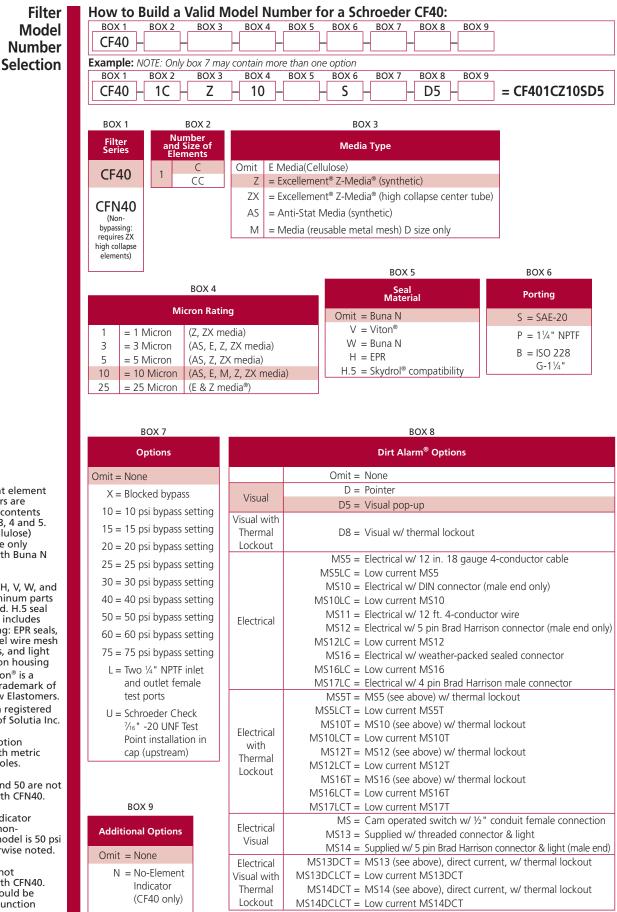
Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

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Pressure  $\Delta P_{housing}$  $\Delta P_{element}$ Drop  $\Delta P_{element} = flow x element \Delta P factor x viscosity factor$ CF40  $\Delta P_{\text{housing}}$  for fluids with sp gr = 0.86: Information El. ΔP factors @ 150 SUS (32 cSt): Flow (L/min) Based on (150) (50)(100) 1C **1CC** 12 Flow Rate C3 .50 CC3 .22 (0.75)and Viscosity 10 C10 .19 CC10 .13 C25 09 CC25 .03 .70 .35 CZ1 CCZ1 (0.50) (par) psi .50 .20 CZ3/CAS3 CCZ3/CCAS3 4 4 CZ5/CAS5 .32 CCZ5/CCAS5 .19 (0.25) CZ10/CAS10 .25 CCZ10/CCAS10 .10 C725 .14 CC725 05 .29 **CC7X3** 0 40 45 0 10 20 30 CCZX10 .26 Flow gpm If working in units of bars & L/min, divide above factor by 54.9. Viscosity factor: Divide viscosity by 150 SUS (32 cSt). sp gr = specific gravity Sizing of elements should be based on element flow information provided in the Element Selection chart above. Notes  $\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$ Exercise: Determine  $\Delta P$  at 35 gpm (132 L/min) for CF401CC10SD5 using 200 SUS (44 cSt) fluid. Solution: = 8.0 psi [.50 bar] **∆P**<sub>housina</sub>  $\Delta P_{element}$ = 35 x .13 x (200÷150) = 6.0 psi or  $= [132 \times (.13 \div 54.9) \times (44 \div 32) = .42 \text{ bar}]$  $\Delta P_{total}$ = 8.0 + 6.0 = 14.0 psi or

= [.50 + .42 = .92 bar]

### CF40 Top-Ported Pressure Filter



#### NOTES:

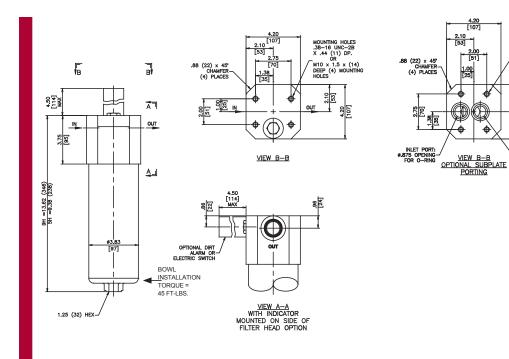
- Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. E media (cellulose) elements are only available with Buna N seals.
- Box 5. For options H, V, W, and H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 6. B porting option supplied with metric mounting holes.
- Box 7. Options X and 50 are not available with CFN40.
- Box 8. Standard indicator setting for nonbypassing model is 50 psi unless otherwise noted.
- Box 9. N option is not available with CFN40. N option should be used in conjunction with dirt alarm.

## Top-Ported Pressure Filter **PF40**

|   | <ul> <li>Features and Benefits</li> <li>Top-ported pressure filter</li> <li>All steel housing offers unparalleled fatigue rating</li> <li>Available with non-bypass option with high collapse element</li> <li>Two bowl lengths provide optimal sizing for the application</li> <li>Offered in conventional sub-plate, SAE straight thread, and ISO 228 porting</li> <li>Same day shipment model available</li> </ul> | 50 gpm<br><u>190 L/min</u><br>4000 psi<br>275 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>LC50<br>RFS50 |
|---|---|---|--|
| Model No. of filter in photograph is PF409F | IZ10.   |   | RF60<br>CF60   |
|   |   |   | CTF60  |
|   |   | Applications                                      |  |
|   |   | Applications                                      | <b>VF60</b>  |
|   |   |   | LW60   |
|   | ACHINE MOBILE<br>OOL VEHICLES   |   | KF30   |
|   |   |   | <b>TF50</b>  |
|   |   |   | KF50   |
|   |   |   | КС50   |
|   |   |   |  |
|   |   |   | MKF50  |
|   |   |   | KC65   |
|   |   | NC  | <b>DF30-05</b>   |
|   |   | -   | NOF50  |
|   |   | FC  | <b>DF60-03</b>   |
| Flow Rating:<br>Max. Operating Pressure:    | Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids<br>4000 psi (275 bar)  | Filter<br>Housing                                 | NMF30  |
| Min. Yield Pressure:                        | 12,000 psi (828 bar), per NFPA T2.6.1   | Specifications                                    |  |
| Rated Fatigue Pressure:                     | 2500 psi (173 bar), per NFPA T2.6.1-R1-2005   |   | RMF60  |
| Temp. Range:                                | -20°F to 225°F (-29°C to 107°C)   | Ca  | artridge   |
| Bypass Setting:                             | Cracking: 40 psi (2.8 bar)<br>Full Flow: 75 psi (5.2 bar)   | El  | ements   |
| Porting Head:<br>Element Case:              | Steel<br>Steel  |   | HS60   |
| Weight of PF40-5H:<br>Weight of PF40-9H:    | 21.8 lbs. (9.9 kg)  |   | MHS60  |
| Element Change Clearance:                   | 25.5 lbs. (11.6 kg)<br>3.25" (83 mm)  |   | KFH50  |
|   | SCHROEDER INDUST  | RIES 73   |  |



#### **PF40** Top-Ported Pressure Filter



MOUNTING HOLES .38-16 UNC-28 X .44 (11) DP. OR M10 × 1.5 × (14) DEEP (4) MOUNTING HOLES

107

OUTLET PORT: Ø.875 OPENING

210

Metric dimensions in ( ).

| Element<br>Performance |               | -              |                       | Per ISO 4572/NFPA T3.10.8.8<br>e counter (APC) calibrated per ISO 4402 |  |                      | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                       |  |
|------------------------|---------------|----------------|-----------------------|--|--|----------------------|--|-----------------------|--|
| Information            | Element       | ß <sub>x</sub> | ≥ 75 ß <sub>x</sub> ≧ | $\beta_{x} \ge 200$  |  | $\beta_x(c) \ge 200$ |  | $\beta_x(c) \ge 1000$ |  |
|                        | 5HZ1/9HZ1     | <1             | .0 <                  | .0   | <1.0   |                      | <4.0   | 4.2                   |  |
|                        | 5HZ3/9HZ3     | <1             | .0 <                  | .0   | <2.0   |                      | <1.0   | 4.8                   |  |
|                        | 5HZ5/9HZ5     | 2              | 2.5 3                 | 3.0  | 4.0  |                      | 4.8  | 6.3                   |  |
|                        | 5HZ10/9HZ10   | 7              | 7.4 8                 | 3.2  | 10.0   |                      | 8.0  | 10.0                  |  |
|                        | 5HZ25/9HZ25   | 18             | 3.0 20                | ).0  | 22.5   |                      | 19.0   | 24.0                  |  |
|                        | 5HZX1/9HZX1   | <1             | .0 <                  | .0   | <1.0   |                      | <4.0   | 4.2                   |  |
|                        | 5HZX3/9HZX3   | <1             | .0 <                  | .0   | <2.0   |                      | <1.0   | 4.8                   |  |
|                        | 5HZX5/9HZX5   | Ź              | 2.5                   | 3.0  | 4.0  |                      | 4.8  | 6.3                   |  |
|                        | 5HZX10/9HZX10 | 7              | 7.4 8                 | 3.2 10.0   |  |                      | 8.0  | 10.0                  |  |
|                        | 5HZX25/9HZX25 | 18             | 3.0 20                | 20.0 22.5  |  |                      | 19.0   | 24.0                  |  |
|                        |               |                |                       |  |  |                      |  |                       |  |
| Dirt Holding           | -             | DHC            | -                     | DHC  |  | DHC                  |  | DHC                   |  |
| Capacity               | Element       | (gm)           | Element               | (gm)   |  | gm)                  | Element  | (gm)                  |  |
|                        | 5HZ1          | 26             | 9HZ1                  | 51   | 5HZX1  | 14                   | 9HZX1  | 29                    |  |
|                        | 5HZ3          | 28             | 9HZ3                  | 42   | 5HZX3  | 14                   | 9HZX3  | 29                    |  |
|                        | 5HZ5          | 39             | 9HZ5                  | 59   | 5HZX5  | 15                   | 9HZX5  | 31                    |  |
|                        | 5HZ10         | 31             | 9HZ10                 | 47   | 5HZX10   | 15                   | 9HZX10   | 31                    |  |
|                        | 5HZ25         | 32             | 9HZ25                 | 48   | 5HZX25   | 16                   | 9HZX25   | 33                    |  |
|                        |               | Element        | t Collapse Rating:    |  | id (10 bar) for standa<br>sid (210 bar) for high |                      |  |                       |  |
|                        |               |                | Flow Direction:       | Outside  | e In   |                      |  |                       |  |
|                        | Elem          | ent Non        | ninal Dimensions:     |  | 5" (100 mm) O.D. x 5<br>5" (100 mm) O.D. x 9     | ,                    | , 5  |                       |  |

# Top-Ported Pressure Filter **PF40**

|                             |                | Type Fluid             | Appropriate Sc                             | hroeder Media                       |                       |                             |                 | Fluid                   | NF30        |
|-----------------------------|----------------|------------------------|--|-------------------------------------|-----------------------|-----------------------------|-----------------|-------------------------|-------------|
| Pet                         |                | ased Fluids            |  | ose) and Z-Media <sup>®</sup> (s    | synthetic)            |                             |                 | Compatibility           | NFS30       |
|                             | High Wat       | er Content             | All Z-Media <sup>®</sup> (syn <sup>-</sup> |                                     |                       |                             |                 |                         |             |
|                             |                | Emulsions              | 10 and 25 µ Z-Me                           | -                                   |                       |                             |                 |                         | YF30        |
|                             |                | iter Glycols           |  | Z-Media <sup>®</sup> (synthetic)    |                       | ation                       |                 |                         | CFX30       |
|                             | Phosp          | hate Esters            | All Z-IVIEUIa" (Syr                        | thetic) with H (EPR) s              | seal design           | alion                       |                 |                         | PLD         |
|                             |                |                        |  |                                     |                       |                             |                 |                         | PLD         |
|                             | Ele            | ment                   |  | ns are predicated                   |                       |                             | cSt)            | Element                 | <b>DF40</b> |
| Pressure                    | Series         | Part No.<br>Z1         | -  | I fluid and a 40 ps                 | i (2.8 bar)           | bypass valve.               |                 | Selection<br>Based on   | <b>CF40</b> |
| -                           |                | Z1<br>Z3               | 5HZ1                                       | 9HZ1<br>5HZ3                        |                       | 9HZ3                        |                 | Flow Rate               |             |
| To<br>4000 psi              | Z-<br>Media®   | Z5                     |  | 5HZ5                                |                       | 9HZ5                        |                 |                         | PF40        |
| (275 bar)                   | IVIEDIa®       | Z10                    |  | 5HZ10                               |                       |                             | 9HZ10           |                         | LC50        |
|                             |                | Z25                    |  | 5HZ2                                | 5                     |                             | 9HZ25           |                         |             |
|                             | Flow           | gpm                    | 0 10                                       | 20                                  | 30                    | 40                          | 50              |                         | RFS50       |
|                             |                | (=)                    |  | 50 100                              |                       | 150                         | 190             |                         | <b>RF60</b> |
| hown abov                   | ve are the     | elements mo            | ost commonly used                          | in this housing.                    |                       |                             |                 | •                       | <b>CF60</b> |
| ∆P <sub>housing</sub>       |                |                        |  | ΔP <sub>element</sub>               |                       |                             |                 | Pressure                | CTF60       |
| F40 ∆P <sub>housi</sub>     | ing for fluids | s with sp gr =         | = 0.86:                                    |                                     |                       | ment ∆P factor x v          | iscosity factor | Drop                    | <b>VF60</b> |
| nousi                       |                |                        |  | El. ΔP facto                        | ors @ 150             | SUS (32 cSt):               |                 | Information<br>Based on | 100         |
|                             |                |                        |  |                                     | 5H                    | 9H                          |                 | Flow Rate               | LW60        |
|                             |                | w (L/min)<br>(100)  (1 | 50) (190)                                  | Z1                                  | 2.01                  | 1.07                        |                 | and Viscosity           | KF30        |
| 14                          |                |                        |  | Z3<br>Z5                            | 0.77<br>0.65          | 0.41<br>0.35                |                 |                         | KI JU       |
| 12                          |                |                        | (0.75)                                     | Z3<br>Z10                           | 0.05                  | 0.33                        |                 |                         | <b>TF50</b> |
| . <u>s</u> 8                | +              |                        | ar)  | Z25                                 | 0.29                  | 0.15                        |                 |                         | KF50        |
| d⊲ 6                        |                |                        | ∆P (bar)                                   | ZX3                                 | 1.17                  | 0.62                        |                 |                         | KFJU        |
| 4                           | ++             |                        | • • • • • • (0.25)                         | ZX10                                | 0.50                  | 0.26                        |                 |                         | KC50        |
| 2                           |                |                        |  | ZX25                                | 0.27                  | 0.14<br>of bars & L/min, di | vide elecue     |                         | MKF50       |
| 0                           | 10 20<br>F     | 30<br>low gpm          | 40 50                                      | factor by 5                         | 54.9.                 |                             |                 |                         | Ινικγου     |
|                             |                | 51                     |  | Viscosity fa                        | actor: Divi           | de viscosity by 150         | ) SUS (32 cSt). |                         | KC65        |
|                             | ific arouit    |                        |  |                                     |                       |                             |                 |                         | NOF30-05    |
| p gr = spec<br>izing of eld |                |                        | ed on element flow                         | information provid                  | led in the            | Flement Selectio            | n chart above.  |                         |             |
|                             |                |                        |  |                                     |                       | Liement Scietto             | in churc above. |                         | NOF50       |
|                             |                |                        |  |                                     |                       |                             |                 |                         | FOF60-03    |
| Notes                       |                |                        |  | ΔP <sub>filter</sub> =<br>Exercise: | ΔP <sub>housing</sub> | + $\Delta P_{element}$      |                 |                         | 10100 05    |
|                             |                |                        |  |                                     | ∆P at 20              | gpm (76 L/min) fo           | r               |                         | NMF30       |
|                             |                |                        |  | PF405HZ1                            | 0D5 using             | 200 SUS (44 cSt)            | fluid.          |                         | RMF60       |
|                             |                |                        |  | Solution:                           |                       |                             |                 |                         |             |
|                             |                |                        |  | ΔP <sub>housing</sub>               |                       | osi [.17 bar]               | 11.7 pci        |                         | Cartridge   |
|                             |                |                        |  | $\Delta P_{element}$                | or                    | .44 x (200÷150) =           |                 |                         | Elements    |
|                             |                |                        |  | ٨D                                  | -                     | (.44÷54.9) x (44÷3          | 32) = .84 bar]  |                         | HS60        |
|                             |                |                        |  | $\Delta P_{total}$                  | or                    | · 11.7 = 14.2 psi           |                 |                         | MUCCO       |
|                             |                |                        |  |                                     | =[.17 -               | + .84 = 1.01 bar]           |                 |                         | MHS60       |
|                             |                |                        |  |                                     |                       |                             |                 |                         | KFH50       |
|                             |                |                        |  |                                     |                       |                             |                 | -                       |             |

#### **PF40 Top-Ported Pressure Filter**

| Filter                           | How to B                   | uild a Valid Mo                  | odel Number for a S  | chroeder PF40:   |                                    |
|----------------------------------|----------------------------|----------------------------------|--|--|------------------------------------|
| Model                            | вох 1<br>РF40 —            | BOX 2 BOX 3                      | BOX 4 BOX 5 BOX  | 6 BOX 7 BOX 8 BOX 9  |                                    |
| Number                           |                            |                                  |  |  |                                    |
| Selection                        | BOX 1                      | BOX 2 BOX 3                      | contain more than one option<br>BOX 4 BOX 5 BOX                  |  |                                    |
|                                  | PF40 -                     | 5 – HZ3 -                        | - <u> </u>   | – D5 – S –   | = PF405HZ3SD5S                     |
|                                  |                            |                                  |  |  | ]                                  |
|                                  | BOX 1<br>Filter            | BOX 2<br>Element                 |  | BOX 3  |                                    |
|                                  | Series                     | Length (in)                      |  | Element Part Number  |                                    |
|                                  | PF40                       | 5                                |  | ment® Z-Media® (synthetic)<br>ment® Z-Media® (synthetic)         |                                    |
|                                  | PFN40                      |                                  |  | ment <sup>®</sup> Z-Media <sup>®</sup> (synthetic)               |                                    |
|                                  | bypassing:<br>requires ZX  |                                  |  | lement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)             |                                    |
|                                  | high collapse<br>elements) |                                  |  | lement® Z-Media® (synthetic)<br>•ment® Z-Media® (high collapse « | contor tubo)                       |
|                                  |                            | ]                                |  | lement® Z-Media® (high collapse                                  |                                    |
|                                  |                            |                                  |  | lement <sup>®</sup> Z-Media <sup>®</sup> (high collapse          |                                    |
|                                  |                            |                                  |  |  |                                    |
|                                  |                            | BOX 4                            | BOX 5  | BOX  |                                    |
|                                  | Se                         | eal Material                     | Porting  | Optio  | ons                                |
|                                  | Omit = Bu                  | ina N                            | O = Manifold<br>Mounting   | Omit = None  |                                    |
|                                  | H = EP                     | R                                | (Contact   | L = Two <sup>1</sup> / <sub>4</sub> " NPTF inlet                 | & outlet female                    |
|                                  |                            | . @                              | factory)   | test ports<br>U = Schroeder Check <sup>7</sup> ⁄1                | 6"-20 UNF test point               |
|                                  | V = Vit                    | lon                              | S = SAE-16   | installation in head   |                                    |
|                                  | H.5 = Sk                   | ydrol <sup>®</sup> compatibility | B = ISO 228 G-1"   |  |                                    |
|                                  |                            |                                  |  | I  |                                    |
|                                  |                            |                                  | BOX 7  |  | BOX 8                              |
|                                  |                            |                                  | Dirt Alarm <sup>®</sup> Options                                  |  | Dirt Alarm <sup>®</sup> Location   |
|                                  | Visual                     | Omit = N<br>D5 = V               | one<br>isual pop-up  |  | Omit = Top mounted                 |
|                                  | Visual with                |                                  | isual w/ thermal lockout   |  | S = Side mounted                   |
|                                  | Thermal<br>Lockout         |                                  |  |  | BOX 9                              |
|                                  | LOCKOUT                    |                                  | lectrical w/ 12 in. 18 gauge                                     | 4-conductor cable  | Bowl Drain Options                 |
|                                  |                            |                                  | ow current MS5<br>lectrical w/ DIN connector (r                  | male end only)   |                                    |
|                                  |                            | MS10LC = Lo                      | ow current MS10  |  | Omit = None<br>DR = Drain 7/16"-20 |
|                                  | Electrical                 |                                  | lectrical w/ 12 ft. 4-conduct<br>lectrical w/ 5 pin Brad Harrise | or wire<br>on connector (male end only)                          |                                    |
| ant alamant                      |                            | MS12LC = Lo                      | ow current MS12  |  |                                    |
| ent element<br>pers are a        |                            |                                  | lectrical w/ weather-packed<br>ow current MS16                   | sealed connector   |                                    |
| on of Boxes                      |                            |                                  | lectrical w/ 4 pin Brad Harris                                   | on male connector  |                                    |
| 5HZ10V                           |                            |                                  | 1S5 (see above) w/ thermal ow current MS5T                       | lockout  |                                    |
| ns H, V, and                     |                            |                                  | 1S10 (see above) w/ therma                                       | l lockout  |                                    |
| uminum parts<br>zed. H.5 seal    | Electrical<br>with         |                                  | ow current MS10T   |  |                                    |
| on includes<br>/ing: EPR seals,  | Thermal                    |                                  | 1S12 (see above) w/ therma<br>ow current MS12T                   | l lockout  |                                    |
| teel wire mesh                   | Lockout                    |                                  | 1S16 (see above) w/ therma                                       | l lockout  |                                    |
| nts, and light<br>g on housing   |                            |                                  | ow current MS16T   |  |                                    |
| /iton <sup>®</sup> is a          | Cleaterian!                |                                  | ow current MS17T   | tor 9 light  |                                    |
| l trademark of<br>ow Elastomers. | Electrical<br>Visual       |                                  | upplied w/ threaded connec<br>upplied w/ 5 pin Brad Harrison     | 5  |                                    |
| s a registered                   | Electrical                 |                                  | 1S13 (see above), direct curi                                    |  |                                    |
| c of Solutia Inc.                | Visual with                |                                  | ow current MS13DCT   |  |                                    |
| option<br>vith metric            | Thermal<br>Lockout         |                                  | 1S14 (see above), direct cur                                     | rent, w/ thermal lockout   |                                    |
|                                  |                            | $I MS14DCICT = I_0$              | ow current MS14DCT   |  |                                    |

#### NOTES:

Box 2. Replacement part numbe combinatio 2, 3 and 4. Example: 5

Box 4. For options H.5, all alur are anodize designation the followin stainless ste on element oil coating exterior. Vit registered DuPont Do Skydrol<sup>®</sup> is trademark

Box 5. B porting of supplied with metric mounting holes.

#### 76 SCHROEDER INDUSTRIES

In-Line Filter LC50



LC50

**KF30** 

**KF50** 

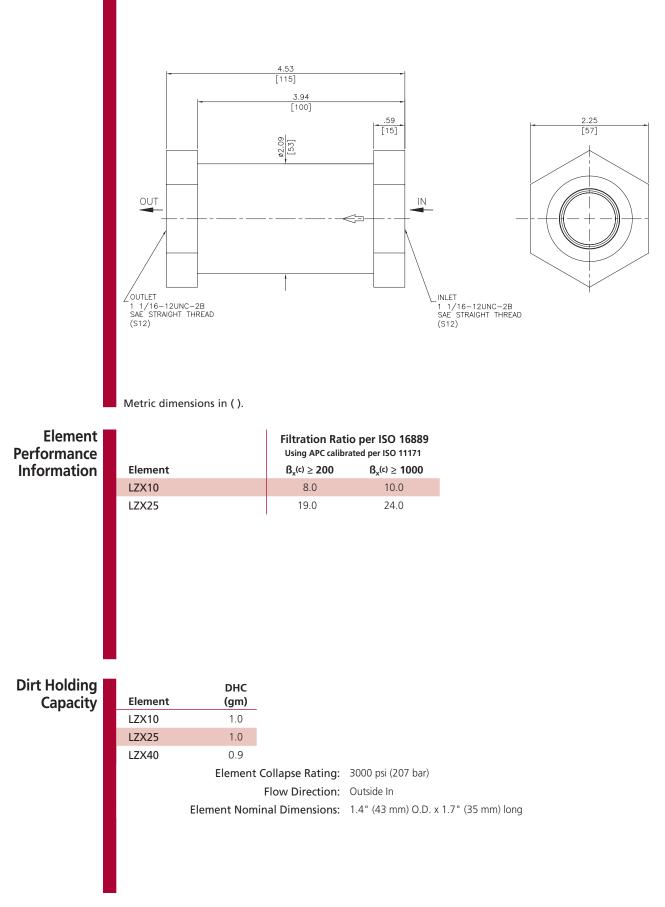
**KC50** 

**KFH50** 

|             |  | <ul> <li>Features and Benefits</li> <li>Compact design allows for in-line installation on hose reels</li> <li>High quality synthetic ZX-Media high collapse elements ensure all fluid is filtered</li> <li>Available with SAE or NPT threading</li> <li>Convenient 2 ¼ " Hex for easy service</li> </ul> | 9 gpm<br><u>35 L/min</u><br>5000 psi<br><u>350 bar</u> |
|-------------|--|--|--|
| LC501LZ     | No. of filter in photograph is<br>2X10S. |  |  |
| AGRICULTURE | INDUSTRIAL CONST                         |  | Applications   |
| DEFENSE     |  | EMICAL<br>CESSING MOBILE<br>VEHICLES   |  |
|             | Flow Rating:                             | Up to 9 gpm (35 L/min) for 150 SUS (32 cSt) fluids   | Filter   |
|             | Max. Operating Pressure:                 | 5000 psi (350 bar)   | Housing  |
|             | Min. Yield Pressure:                     | 15,000 psi (1050 bar)  | Specifications   |
|             | Rated Fatigue Pressure:                  | 5000 psi (350 bar), per NFPA T2.6.1-R1-2005  |  |
|             | Temp. Range:                             | -20°F to 225°F (-29°C to 107°C)  |  |
|             | Body and Cap:                            | Steel  |  |
|             | Element Case:                            | Steel  |  |
|             | Weight of LC50:                          | 3.63 lbs. (1.65 kg)  |  |
|             | Element Change Clearance:                | 3.25" (83 mm)  |  |



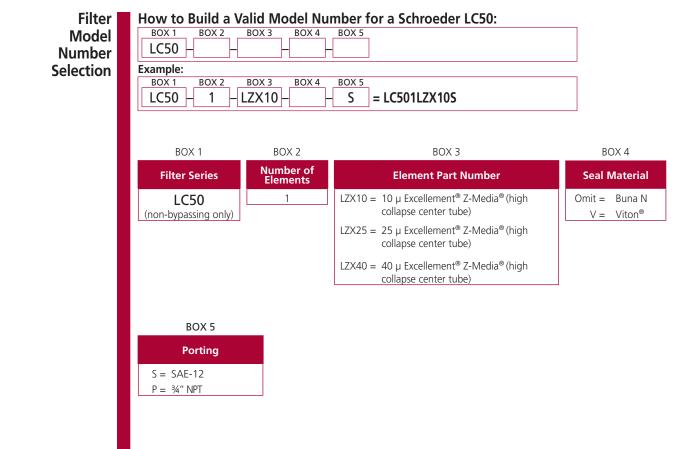
#### LC50 In-Line Filter



# In-Line Filter LC50

|                       |                                   | Type Fluid              | Appropriate Schroe   | der Media                                      |   | Fluid                   | NF30                  |
|-----------------------|-----------------------------------|-------------------------|--|--|---|-------------------------|-----------------------|
|                       |                                   | ased Fluids             | All Z-Media <sup>®</sup> (synthetic  |  |   | Compatibility           | NFS30                 |
|                       | -                                 | er Content<br>Emulsions | All Z-Media <sup>®</sup> (synthetic  |  |   |                         | YF30                  |
|                       |                                   | ater Glycols            | 10 and 25 μ Z-Media <sup>®</sup><br>10 and 25 μ Z-Media <sup>®</sup>   |  |   |                         |                       |
|                       |                                   | , <b>,</b>              | ·  |  |   |                         | CFX30                 |
|                       |                                   |                         |  |  |   |                         | PLD                   |
|                       | Fle                               | ment                    |  |  |   | Element                 | DF40                  |
| Pressure              | Series                            | Part No.                | petroleum based fluid  |  | n the use of 150 SUS (32 cSt)                           | Selection               |                       |
| То                    | Z-                                | Z10                     | LZX10  |  |   | Based on<br>Flow Rate   | <b>CF40</b>           |
| 5000 psi<br>(350 bar) | Media®                            | Z25                     |  | LZ>  |   | _                       | <b>PF40</b>           |
| ()                    |                                   | Z40<br>gpm              | 0  | LZ>  |   |                         | LC50                  |
|                       | Flow                              | (L/min)                 | 0  |  | 7.5 35  |                         |                       |
| Shown abov            | e are the                         | elements mo             | est commonly used in thi   | s housing.                                     |   |                         | RFS50                 |
|                       |                                   |                         |  |  |   |                         | <b>RF60</b>           |
|                       |                                   |                         |  |  |   | -                       | <b>CF60</b>           |
| ΔP <sub>housing</sub> |                                   |                         |  | ∆P <sub>element</sub>                          |   | Pressure                | CTF60                 |
|                       | <sub>ing</sub> for fluid          | ls with sp gr =         | = 0.86:  |  | flow x element $\Delta P$ factor x viscosity factor     | Drop                    | <b>VF60</b>           |
|                       | 5                                 | Flow (L/min             |  | El. ∆P facto                                   | rs @ 150 SUS (32 cSt):                                  | Information<br>Based on |                       |
| 8                     |                                   |                         | (30) (35) (40)   | LZX10  | Flow Rate<br>and Viscosity                              | LW60                    |                       |
| 7                     | <u>-+-++</u>                      |                         | (.45)  | LZX25 3.0                                      |   |                         | KF30                  |
| - is 5                | - h - h d<br>- <del>h</del> - h d |                         | (.35) L<br>(.30) C   | LZX40  | 3.0   |                         | <b>TF50</b>           |
| isd d∆                | -++                               |                         | + (.20) d  |  |   |                         |                       |
| 2                     |                                   | <u></u>                 | $-\frac{1}{1} - \frac{1}{1} - 1$ |  |   |                         | KF50                  |
| 0 K                   |                                   |                         | (.05)  |  |   |                         | KC50                  |
| 0                     | 2<br>                             | 4 6<br>Flow gpm         | 8 10   | lf working i                                   | in units of bars & L/min, divide above                  |                         | MKF50                 |
|                       |                                   |                         |  | factor by 54                                   | 1.9.  | -                       |                       |
|                       |                                   |                         |  | Viscosity fac                                  | <i>ctor:</i> Divide viscosity by 150 SUS (32 cSt).      |                         | KC65                  |
| sp gr = spec          | ific gravit                       | у                       |  |  |   |                         | NOF30-05              |
| Sizing of el          | ements sh                         | ould be base            | d on element flow infor  | mation provide                                 | ed in the Element Selection chart above                 |                         | NOF50                 |
|                       |                                   |                         |  |  |   |                         |                       |
| Notes                 |                                   |                         |  |  | $\Delta P_{\text{housing}} + \Delta P_{\text{element}}$ | -                       | FOF60-03              |
|                       |                                   |                         |  | Exercise:<br>Determine                         | ∆P at 5 gpm (19 L/min) for                              |                         | NMF30                 |
|                       |                                   |                         |  |  | 0S using 200 SUS (44 cSt) fluid.                        |                         | RMF60                 |
|                       |                                   |                         |  | Solution:                                      | _   |                         |                       |
|                       |                                   |                         |  | ∆P <sub>housing</sub><br>∆P <sub>element</sub> | = 3.5 psi [.24 bar]<br>= 5 x 5.0 x (200÷150) = 33.3 psi |                         | Cartridge<br>Elements |
|                       |                                   |                         |  |  | or<br>= [19 x (5÷54.9) x (44÷32) = 2.38 bar]            |                         |                       |
|                       |                                   |                         |  | $\Delta P_{total}$                             | = 3.5 + 33.3 = 36.8 psi                                 |                         | HS60                  |
|                       |                                   |                         |  |  | or<br>= [.24 + 2.38 = 2.62 bar]                         |                         | MHS60                 |
|                       |                                   |                         |  |  |   |                         | KFH50                 |
|                       |                                   |                         |  |  |   |                         |                       |





NOTES:

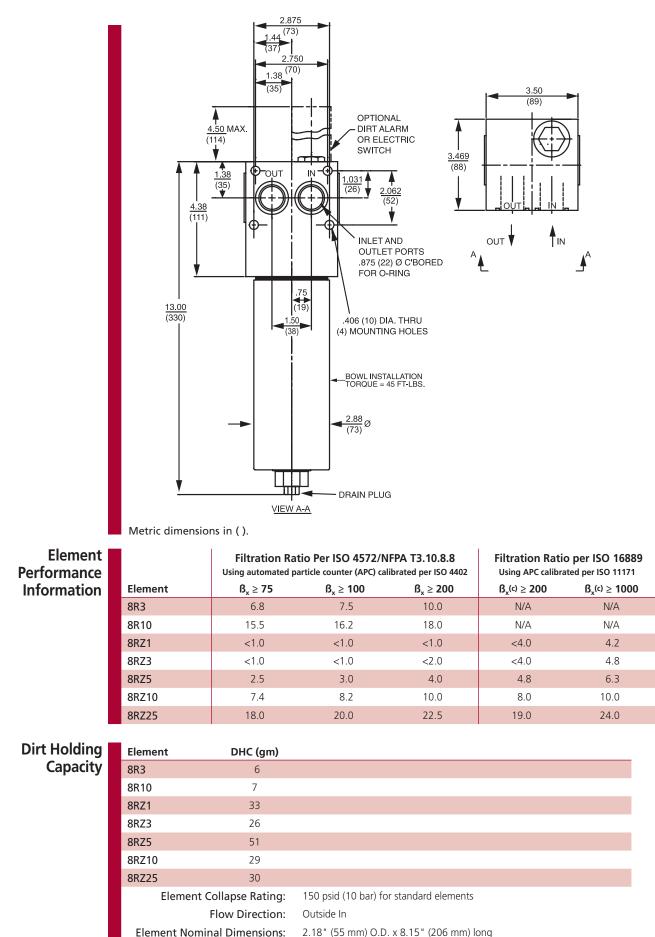
Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

# Manifold Mounted Pressure Filter RFS50

|   | <ul> <li>Features and Benefits</li> <li>Manifold mounted high pressure filter</li> <li>Offered in square head conventional<br/>subplate porting</li> <li>Direct mounting to customer's manifold</li> <li>Standard drain plug in bowl for easy<br/>servicing</li> <li>Various dirt alarm options available</li> </ul> | 30 gpm<br><u>115 L/min</u><br>5000 psi<br>345 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>CF40<br>LC50<br>RF550<br>RF60 |
|---|--|---|--|
| Model No. of filter in photograph is RFS5 | 08R10O.  |   | <b>CF60</b>  |
|   |  |   | CTF60  |
|   |  | Applications                                      | <b>VF60</b>  |
| 00  |  |   | LW60   |
| MINING AGRICULTURE                        | STEEL MOBILE   |   |  |
|   | MAKING VEHICLES  |   | KF30   |
|   |  |   | <b>TF50</b>  |
|   |  |   | KF50   |
|   |  |   | KC50   |
|   |  |   |  |
|   |  |   | MKF50  |
|   |  |   | KC65   |
|   |  | Ν   | IOF30-05   |
|   |  |   | NOF50  |
|   |  |   | OF60-03  |
|   |  | Filter  |  |
| Flow Rating:<br>Max. Operating Pressure:  | Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids   | Housing   | NMF30  |
| . –                                       | 15,500 psi (1070 bar), per NFPA T2.6.1   | Specifications                                    | RMF60  |
| Rated Fatigue Pressure:                   |  |   | Cartridge  |
|   | -20°F to 225°F (-29°C to 107°C)  |   | Elements   |
| Bypass Setting:                           | Cracking: 40 psi (2.8 bar)<br>Full Flow: 56 psi (3.9 bar)  |   | HS60   |
| Porting Head:                             | Steel  |   |  |
| Element Case:<br>Weight of RFS50-8R:      |  |   | MHS60  |
| Element Change Clearance:                 |  |   | KFH50  |
|   |  | -   |  |



#### **RFS50** Manifold Mounted Pressure Filter



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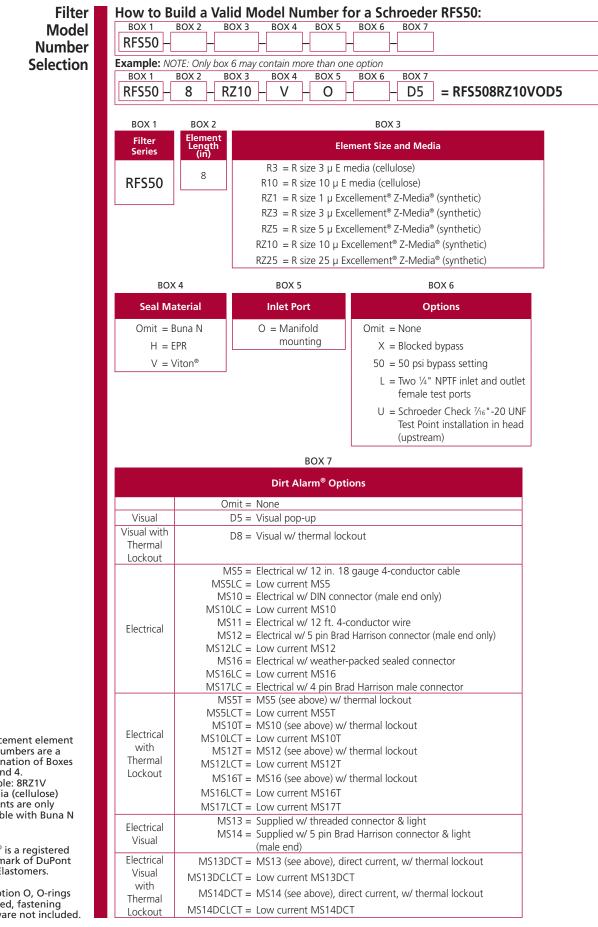
SCHROEDER INDUSTRIES

### Manifold Mounted Pressure Filter RFS50



|                               | 1                           | Type Fluid                 | Appropriate Schroe  | der Media                                |                                      |                             |                                    | Fluid  | NF30        |
|-------------------------------|-----------------------------|----------------------------|---|--|--------------------------------------|-----------------------------|------------------------------------|--|-------------|
| Pet                           | roleum Ba                   | sed Fluids                 | All E media (cellulose)                                       | and Z-Media <sup>®</sup> (sy             | nthetic)                             |                             |                                    | Compatibility  | NFS30       |
|                               | High Wate                   | r Content                  | All Z-Media <sup>®</sup> (synthetic                           | <u>;</u> )                               |                                      |                             |                                    |  |             |
|                               |                             | Emulsions                  | 10 and 25 μ Z-Media <sup>®</sup>                              |  |                                      |                             |                                    |  | YF30        |
|                               |                             | er Glycols                 | 3, 5, 10 and 25 μ Z-M   |  |                                      |                             |                                    |  | CFX30       |
|                               | Phosph                      | ate Esters<br>Skydrol®     | All Z-Media <sup>®</sup> (synthetic<br>3, 5, 10 and 25 μ Z-Me |  | -                                    |                             | PR coals and                       |  |             |
|                               |                             | экуштог                    | stainless steel wire me                                       |  |                                      |                             |                                    | Skydrol <sup>®</sup> is a registered trademark of Solutia In | PLD         |
|                               | Elo                         | ment                       | I   |  |                                      |                             |                                    | Element  | <b>DF40</b> |
| Pressure                      | Series                      | Part No.                   | Element selections a<br>petroleum based flu                   |  |                                      |                             | 32 cSt)                            | Selection  | CF40        |
|                               | E                           | 8R3                        |   | 8R3                                      |                                      |                             |                                    | Based on<br>Flow Rate  | Cr io       |
|                               | Media                       | 8R10                       |   | 8R10                                     |                                      |                             |                                    |  | <b>PF40</b> |
| То                            |                             | 8RZ1                       | 8RZ1  |  |                                      |                             |                                    |  | LC50        |
| 5000 psi<br>(345 bar)         | Z-                          | 8RZ3                       | 8R2   |  |                                      | 1                           |                                    |  |             |
|                               | Media®                      | 8RZ5                       |   | 8RZ5                                     |                                      |                             |                                    |  | RFS50       |
|                               |                             | 8RZ10<br>8RZ25             |   | 8RZ10                                    |                                      |                             |                                    |  | <b>RF60</b> |
|                               |                             |                            | 0 10  |  | 20                                   | 25                          | 30                                 |  |             |
|                               | Flow                        | 51                         | 0 50  | 7  |                                      | 100                         | 115                                |  | <b>CF60</b> |
| Shown abov                    | ve are the e                | lements mo                 | st commonly used in th  | is housing.                              |                                      |                             |                                    |  | CTF60       |
| Note: Conta<br>Application:   | ct factory r<br>s. For more | egarding us<br>information | e of E Media in High W<br>n, refer to Fluid Compan            | ′ater Content, Ir<br>tibility: Fire Resi | nvert Emulsio<br>stant Fluids, j     | n and Water<br>pages 21 and | Glycol<br>22.                      |  | <b>VF60</b> |
| ΔP <sub>housing</sub>         |                             |                            |   | $\Delta P_{element}$                     |                                      |                             |                                    | Pressure   | LW60        |
| RFS50 ΔP <sub>hou</sub>       | for fluid                   | s with sp. ar -            | - 0.86  |  | flow x elemen                        | t ∆P factor x vi            | iscosity factor                    | Drop   | VEDO        |
| NI 330 Δr <sub>hou</sub>      | 5                           | Flow (L/min)               | - 0.80.   |  | rs @ 150 SUS (                       |                             |                                    | Information  | KF30        |
| 16                            | (25)                        | (50) (75                   |   | 8R3                                      | .35                                  |                             |                                    | Based on<br>Flow Rate  | <b>TF50</b> |
| 14                            |                             |                            | (1.0)   | 8R10                                     | .30                                  |                             |                                    | and Viscosity  | KF50        |
| 12<br>10                      |                             |                            | (0.75)  | 8RZ1                                     | .87                                  |                             |                                    |  | KI JU       |
| AP psi                        |                             |                            | (par)   | 8RZ3<br>8RZ5                             | .43<br>.39                           |                             |                                    |  | KC50        |
| ₹ 6                           |                             |                            | (0.50)  | 8RZ10                                    | .36                                  |                             |                                    |  | MKF50       |
| 4                             |                             |                            |   | 8RZ25                                    | .11                                  |                             |                                    |  |             |
|                               | 5 10                        | 15 20                      | ) 25 30   | If working<br>factor by 54               |                                      | rs & L/min, d               | ivide above                        |  | KC65        |
| 0                             | 5 10                        | 15 20<br>Flow gpm          | ) 25 30   |  |                                      | iscosity by 15              | 0 SUS (32 cSt).                    | N  | OF30-05     |
| sp gr = spec<br>Sizing of ele |                             | uld be base                | d on element flow info  | rmation provide                          | ed in the Eler                       | nent Selectio               | on chart above.                    |  | NOF50       |
| _                             |                             |                            |   |  |                                      |                             |                                    | F  | OF60-03     |
| Notes                         |                             |                            |   | Exercise:                                | Phousing + Z                         | <sup>or</sup> element       |                                    |  |             |
|                               |                             |                            |   |  | P at 15 gpm                          |                             | <i>(</i> 1 ) 1                     |  | NMF30       |
|                               |                             |                            |   |  | D5 using 200                         | ) SUS (44 cSt)              | fluid.                             |  | RMF60       |
|                               |                             |                            |   | Solution:<br>$\Delta P_{housing}$        | = 5.0 psi [.3                        | 8 harl                      |                                    |  | artridge    |
|                               |                             |                            |   | $\Delta P_{element}$                     |                                      | (200÷150) =                 | 6.0 psi                            |  | Elements    |
|                               |                             |                            |   |  | or<br>= [57 x ( 30                   | ÷54 9) x (44÷               | 32) = .41 bar]                     |  |             |
|                               |                             |                            |   | $\Delta P_{total}$                       | $= [57 \times (.50)]$<br>= 5.0 + 6.0 |                             | <i>52)</i> – . <del>T</del> T Dalj |  | HS60        |
|                               |                             |                            |   |  | or<br>= [.38 + .41                   | = .79 barl                  |                                    |  | MHS60       |
|                               |                             |                            |   |  |                                      |                             |                                    |  | KFH50       |
| 1                             |                             |                            |   |  |                                      |                             |                                    |  |             |

#### **Manifold Mounted Pressure Filter -550**



NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 8RZ1V E media (cellulose) elements are only available with Buna N seals.

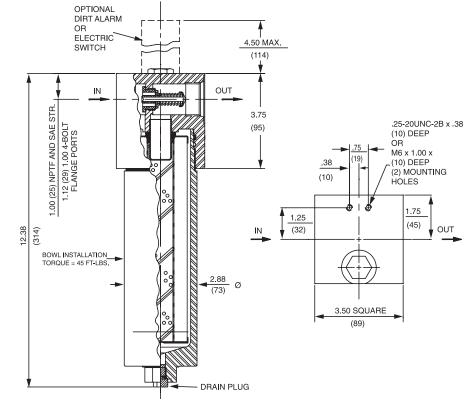
Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

Box 5. For option O, O-rings included, fastening hardware not included.

## Top-Ported Pressure Filter **RF60**

|                                  | <ul> <li>Features and Benefits</li> <li>Top-ported high pressure filter</li> <li>Offered in pipe, SAE straight thread, flanged and ISO 228 porting</li> <li>Available with non-bypass option with high collapse element</li> <li>Standard drain plug in bowl for easy servicing</li> <li>Various dirt alarm options available</li> </ul> | 30 gpm<br><u>115 L/min</u><br>6000 psi<br>415 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>PF40<br>LC50<br>RF550<br>RF550 |
|----------------------------------|--|---|---|
| Model No. of filter in photograp | h is RF608R10P.  |   | CF60  |
|                                  |  | Applications                                      | CTF60   |
|                                  |  | Applications                                      | <b>VF60</b>   |
|                                  |  |   | LW60  |
| MINING AGRICULTURE<br>TECHNOLOGY | STEEL MOBILE CONSTRUCTION<br>MAKING VEHICLES   |   | KF30  |
|                                  |  |   | <b>TF50</b>   |
|                                  |  |   | KF50  |
|                                  |  |   | KC50  |
|                                  |  |   | MKF50   |
|                                  |  |   | KC65  |
|                                  |  |   |   |
|                                  |  | NC  | )F30-05   |
|                                  |  |   | NOF50   |
| Flow Rating:                     | Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids   | FC  | )F60-03   |
| Max. Operating Pressure:         |  | Housing   | NMF30   |
|                                  | 18,000 psi (1241 bar), per NFPA T2.6.1   | Specifications                                    | RMF60   |
| _                                | 2300 psi (159 bar), per NFPA T2.6.1-2005   |   |   |
|                                  | -20°F to 225°F (-29°C to 107°C)<br>Cracking: 40 psi (2.8 bar)  |   | rtridge<br>ements   |
|                                  | Full Flow: 56 psi (3.9 bar)<br>Non-bypassing model has a blocked bypass.   |   | HS60  |
| Porting Head:<br>Element Case:   |  |   | MHS60   |
| Weight of RF60-8R:               |  |   |   |
| Element Change Clearance:        | 3.0" (75 mm)   |   | KFH50   |





Metric dimensions in ( ).

| Element<br>Performance |         |                  | tio Per ISO 4572/N<br>article counter (APC) cal | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                        |
|------------------------|---------|------------------|---|--|----------------------|------------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                               | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \geq 1000$ |
|                        | 8R3     | 6.8              | 7.5   | 10.0   | N/A                  | N/A                    |
|                        | 8R10    | 15.5             | 16.2  | 18.0   | N/A                  | N/A                    |
|                        | 8RZ1    | <1.0             | <1.0  | <1.0   | <4.0                 | 4.2                    |
|                        | 8RZ3    | <1.0             | <1.0  | <2.0   | <4.0                 | 4.8                    |
|                        | 8RZ5    | 2.5              | 3.0   | 4.0  | 4.8                  | 6.3                    |
|                        | 8RZ10   | 7.4              | 8.2   | 10.0   | 8.0                  | 10.0                   |
|                        | 8RZ25   | 18.0             | 20.0  | 22.5   | 19.0                 | 24.0                   |
|                        | 8RZX3   | <1.0             | <1.0  | <2.0   | 4.7                  | 5.8                    |
|                        | 8RZX10  | 7.4              | 8.2   | 10.0   | 8.0                  | 9.8                    |

Dirt H C

| Holding  | Element | t DHC (gm)               |  |
|----------|---------|--------------------------|--|
| Capacity | 8R3     | 6                        |  |
|          | 8R10    | 7                        |  |
|          | 8RZ1    | 33                       |  |
|          | 8RZ3    | 26                       |  |
|          | 8RZ5    | 51                       |  |
|          | 8RZ10   | 29                       |  |
|          | 8RZ25   | 30                       |  |
|          | 8RZX3   | N/A                      |  |
|          | 8RZX10  | N/A                      |  |
|          |         | Element Collapse Rating: | 150 psid (10 bar) for standard elements<br>3000 psid (210 bar) for high collapse (ZX) versions |
|          |         | Flow Direction:          | Outside In   |
|          | Eler    | nent Nominal Dimensions: | 2.18" (55 mm) O.D. x 8.15" (206 mm) long   |

# Top-Ported Pressure Filter **RF60**

|                             |                    | Type Fluid                | Appropriate Schroe                                 | der Media  |   |   |                             | Fluid   | NF30  |
|-----------------------------|--------------------|---------------------------|--|--|---|---|-----------------------------|---|---|
| Pe                          | etroleum B         | ased Fluids               | All E media (cellulose) a                          | and Z-Media® (sy   | nthetic)  |   |                             | Compatibility   | NFS30   |
|                             | High Wat           | er Content                | All Z-Media <sup>®</sup> (synthetic                | )  |   |   |                             |   |   |
|                             | Inver              | t Emulsions               | 10 and 25 $\mu$ Z-Media®                           | (synthetic)  |   |   |                             |   | YF30  |
|                             |                    | ,                         | 3, 5, 10 and 25 µ Z-Me                             |  |   |   |                             |   | CFX30   |
|                             | Phosp              |                           | All Z-Media <sup>®</sup> (synthetic                |  | -   |   |                             |   | CiAbo   |
|                             |                    | Skydrol®                  | 3, 5, 10 and 25 µ Z-Me<br>stainless steel wire mes |  |   |   |                             | Skydrol <sup>®</sup> is a registered<br>trademark of Solutia II |   |
|                             | Fle                | ment                      |  |  |   | 6 450 6116  | (22.5.1)                    | Element   | <b>DF40</b>   |
| Pressure                    | Series             | Part No.                  | Element selections a<br>petroleum based flu        |  |   |   |                             | Selection   | <b>CF40</b>   |
|                             | E                  | 8R3                       | 8R3  |  |   | See C   | .F60                        | Based on<br>Flow Rate   |   |
|                             | Media              | 8R10                      | 1  | 8R10   |   | S   | ee CF60                     | FIOW Rate   | <b>PF40</b>   |
| То                          |                    | 8RZ1                      | 8RZ1   |  |   | See CF60  |                             |   | LC50  |
| 6000 psi                    | Z-                 | 8RZ3                      | 8RZ3   | 3  |   | See C   | F60                         |   | LCJU  |
| (415 bar)                   | Media <sup>®</sup> | 8RZ5                      | 8R   | Z5   |   | See   | e CF60                      |   | RFS50   |
|                             |                    | 8RZ10                     |  | 8RZ1   | -   |   |                             |   | DECO  |
|                             |                    | 8RZ25                     |  | 8RZ2   |   |   |                             |   | RF60  |
|                             | Flow               | 51                        | 0 10<br>0 50                                       | 1'5  |   | 25  | 30<br>115                   |   | <b>CF60</b>   |
| Shown abov                  | ve are the e       | . ,                       | st commonly used in th                             |  |   | 100   | 115                         |   | CTF60   |
|                             |                    |                           | e of E Media in High W<br>n, refer to Fluid Compat |  |   |   |                             |   | VF60  |
| ΔP <sub>housing</sub>       |                    |                           |  | ΔP <sub>element</sub>  |   |   |                             | Pressure  | LW60  |
| RF60 ΔP <sub>housin</sub>   | for fluids         | with sp. ar –             | 0.86   |  | flow x eleme  | nt $\Delta P$ factor x  | viscosity factor            | Drop  |   |
| NI OO Δr housi              | ing for fiulds     | with sp gr =              | 0.00.  | El. $\Delta P$ factor  |   |   |                             | Information   | KF30  |
|                             | (25)               | Flow (L/min)<br>(50) (75) | (100)  | 8R3  | .35   | 1   |                             | Based on<br>Flow Rate   | <b>TF50</b>   |
| <sup>16</sup>               |                    | ·                         | (1.0)  | 8R10   | .30   |   |                             | and Viscosity   | 1150  |
| 14                          |                    |                           |  | 8RZ1   | .87   |   |                             |   | KF50  |
| 10                          |                    |                           | (0.75)   | 8RZ3<br>8RZ5   | .43<br>.39  |   |                             |   | KCEO  |
| AP psi                      |                    |                           | (Dar)  | 8RZ10  | .36   |   |                             |   | KC50  |
| 6     6                     |                    |                           | (0.50) A   | 8RZ25  | .11   |   |                             |   | MKF50   |
| 4                           |                    |                           | (0.25)   | 8RZX3<br>8RZX10  | NA<br>NA  |   |                             |   |   |
|                             |                    |                           |  |  |   | ars & L/min, d  | livide above                |   | KC65  |
| 0                           | 5 10               | 15 20<br>Flow gpm         | ) 25 30  | factor by 54   | 4.9.  |   | 50 SUS (32 cSt).            | Ν   | IOF30-05  |
| $c_{\rm D}$ ar $-c_{\rm D}$ | ific gravity       |                           |  | VISCOSILY IAC  | LIOI. DIVIUE  | viscosity by 1.   | 50 505 (52 651).            |   |   |
|                             |                    |                           |  |  |   |   |                             |   |   |
|                             | ements sho         | uld be based              | d on element flow info                             | rmation provid   | ed in the El  | ement Selecti   | on chart above.             |   | NOF50   |
|                             | ements sho         | uld be based              | d on element flow info                             | rmation provid $\Delta P_{\text{filter}} = \Delta$   |   |   | on chart above.             |   | NOF50<br>FOF60-03   |
| Sizing of ele               | ements sho         | uld be based              | d on element flow info                             | $\Delta P_{\text{filter}} = \Delta$ Exercise:  | Phousing +  | ΔP <sub>element</sub>   |                             |   |   |
| Sizing of ele               | ements sho         | uld be based              | d on element flow info                             | $\Delta P_{\text{filter}} = \Delta$ <b>Exercise:</b> Determine   | <b>\P<sub>housing</sub> +</b><br>∆P at 15 gpi   |   | or                          |   | FOF60-03<br>NMF30   |
| Sizing of ele               | ements sho         | uld be based              | d on element flow info                             | $\Delta P_{filter} = \Delta$<br>Exercise:<br>Determine A<br>RF608R10S  | <b>\P<sub>housing</sub> +</b><br>∆P at 15 gpi   | <b>ΔP<sub>element</sub></b><br>m (57 L/min) f   | or                          |   | FOF60-03  |
| Sizing of ele               | ements sho         | uld be based              | d on element flow info                             | $\Delta P_{\text{filter}} = \Delta$ <b>Exercise:</b> Determine   | <b>\P<sub>housing</sub> +</b><br>∆P at 15 gpi   | <b>ΔP<sub>element</sub></b><br>n (57 L/min) fr<br>0 SUS (44 cSt)  | or                          |   | FOF60-03<br>NMF30   |
| Sizing of ele               | ements sho         | uld be based              | d on element flow info                             | ΔP <sub>filter</sub> = Δ<br>Exercise:<br>Determine Δ<br>RF608R10S<br>Solution:   | AP <sub>housing</sub> +<br>ΔP at 15 gp<br>D5 using 20<br>= 5.0 psi [<br>= 15 x .30  | <b>ΔP<sub>element</sub></b><br>n (57 L/min) fr<br>0 SUS (44 cSt)  | or<br>) fluid.              |   | FOF60-03<br>NMF30<br>RMF60                                  |
| Sizing of ele               | ements sho         | uld be based              | d on element flow info                             | ΔP <sub>filter</sub> = Δ<br>Exercise:<br>Determine A<br>RF608R10S<br>Solution:<br>ΔP <sub>housing</sub>                          | AP <sub>housing</sub> +<br>ΔP at 15 gpi<br>D5 using 20<br>=<br>= 5.0 psi [<br>= 15 x .30<br>or                                | ΔP <sub>element</sub><br>m (57 L/min) fr<br>0 SUS (44 cSt)<br>.35 bar]<br>x (200÷150) =                                   | or<br>) fluid.              |   | FOF60-03<br>NMF30<br>RMF60<br>Cartridge<br>Elements         |
| Sizing of ele               | ements sho         | uld be based              | d on element flow info                             | ΔP <sub>filter</sub> = Δ<br>Exercise:<br>Determine A<br>RF608R10S<br>Solution:<br>ΔP <sub>housing</sub>                          | AP <sub>housing</sub> +<br>ΔP at 15 gp<br>D5 using 20<br>= 5.0 psi [<br>= 15 x .30<br>or<br>= [57 x (.3                       | ΔP <sub>element</sub><br>m (57 L/min) fr<br>0 SUS (44 cSt)<br>.35 bar]<br>x (200÷150) =                                   | or<br>) fluid.<br>: 6.0 psi |   | FOF60-03<br>NMF30<br>RMF60<br>Cartridge                     |
| Sizing of ele               | ements sho         | uld be based              | d on element flow info                             | ΔP <sub>filter</sub> = Δ<br>Exercise:<br>Determine A<br>RF608R10S<br>Solution:<br>ΔP <sub>housing</sub><br>ΔP <sub>element</sub> | $\Delta P_{housing} + \Delta P$ at 15 gp<br>D5 using 20<br>= 5.0 psi [<br>= 15 x .30<br>or<br>= [57 x (.3<br>= 5.0 + 6.<br>or | ΔP <sub>element</sub><br>m (57 L/min) fr<br>0 SUS (44 cSt)<br>.35 bar]<br>x (200÷150) =<br>0÷54.9) x (44÷                 | or<br>) fluid.<br>: 6.0 psi |   | FOF60-03<br>NMF30<br>RMF60<br>Cartridge<br>Elements         |
| Sizing of ele               | ements sho         | uld be based              | d on element flow info                             | ΔP <sub>filter</sub> = Δ<br>Exercise:<br>Determine A<br>RF608R10S<br>Solution:<br>ΔP <sub>housing</sub><br>ΔP <sub>element</sub> | $\Delta P_{housing} + \Delta P$ at 15 gp<br>D5 using 20<br>= 5.0 psi [<br>= 15 x .30<br>or<br>= [57 x (.3<br>= 5.0 + 6.<br>or | ΔP <sub>element</sub><br>m (57 L/min) fr<br>0 SUS (44 cSt)<br>.35 bar]<br>x (200÷150) =<br>0÷54.9) x (44÷<br>0 = 11.0 psi | or<br>) fluid.<br>: 6.0 psi |   | FOF60-03<br>NMF30<br>RMF60<br>Cartridge<br>Elements<br>HS60 |

## **RF60** Top-Ported Pressure Filter

| Filter<br>Model<br>Number<br>Selection  | BOX 1 BOX 2 BOX<br>RF60   | OX 3 BOX 4  | nore than one option  | 05                                       |  |  |
|---|---|---|---|--|--|--|
|   | BOX 1BOX 2Filter<br>SeriesElement<br>Length<br>(in)RF608RFN60<br>(Non-<br>bypassing:<br>requires ZX<br>high collapse<br>elements) | BOX 3       BOX 3         t       Element Size and Media       Seal         R3 = R size 3 μ E media (cellulose)       Omit         R10 = R size 10 μ E media (cellulose)       H         RZ1 = R size 1 μ Excellement® Z-Media® (synthetic)       V         RZ3 = R size 3 μ Excellement® Z-Media® (synthetic)       V         RZ5 = R size 5 μ Excellement® Z-Media® (synthetic)       V         RZ10 = R size 10 μ Excellement® Z-Media® (synthetic)       RZ25 = R size 25 μ Excellement® Z-Media® (synthetic)         RZX3 = R size 3 μ Excellement® Z-Media® (synthetic)       RZX3 = R size 3 μ Excellement® Z-Media® (synthetic)         RZX3 = R size 3 μ Excellement® Z-Media® (synthetic)       RZX3 = R size 3 μ Excellement® Z-Media® (synthetic)         RZX10 = R size 10 μ Excellement® Z-Media® (synthetic)       RZX10 μ E size 10 μ Excellement® Z-Media® (synthetic)         RZX10 = R size 10 μ Excellement® Z-Media® (synthetic)       RZX10 μ E size 10 μ Excellement® Z-Media® (synthetic) |   |  |  |  |
|   | BOX 5<br>Inlet Port   |   | BOX 7<br>Dirt Alarm <sup>®</sup> Options  |  |  |  |
|   | P = 1" NPTF<br>S = SAE-16<br>F = 1" SAE 4-bolt<br>flange Code 62  | Visual<br>Visual with<br>Thermal<br>Lockout   | Omit = None<br>D5 = Visual pop-up<br>D8 = Visual w/ thermal lockout   |  |  |  |
|   | B = ISO 228 G-1"<br>BOX 6<br>Options<br>Omit = None<br>X = Blocked<br>bypass  | Electrical  | MS5 = Electrical w/ 12 in. 18 gauge 4-conduct<br>MS5LC = Low current MS5<br>MS10 = Electrical w/ DIN connector (male end<br>MS10LC = Low current MS10<br>MS11 = Electrical w/ 12 ft. 4-conductor wire<br>MS12 = Electrical w/ 5 pin Brad Harrison connect<br>MS12LC = Low current MS12<br>MS16 = Electrical w/ weather-packed sealed co<br>MS16LC = Low current MS16<br>MS17LC = Electrical w/ 4 pin Brad Harrison male | only)<br>tor (male end only)<br>onnector |  |  |
| cement element<br>numbers are a<br>ination of Boxes                             | 50 = 50 psi bypass<br>setting<br>L = Two ¼"<br>NPTF inlet and<br>outlet female<br>test ports<br>U = Schroeder<br>Check 7/16"-20   | Electrical<br>with<br>Thermal<br>Lockout  | MS5T = MS5 (see above) w/ thermal lockout<br>MS5T = Low current MS5T<br>MS10T = MS10 (see above) w/ thermal lockout<br>MS10LCT = Low current MS10T<br>MS12T = MS12 (see above) w/ thermal lockout<br>MS12LCT = Low current MS12T<br>MS16T = MS16 (see above) w/ thermal lockout<br>MS16LCT = Low current MS16T<br>MS17LCT = Low current MS17T   |  |  |  |
| nd 4.<br>ple: 8RZ1V<br>dia (cellulose)<br>ents are only<br>ble with Buna<br>ls. | UNF Test Point<br>installation in<br>head (upstream)  | Electrical<br>Visual<br>Electrical  | MS17ECT = Low current MS17T<br>MS13 = Supplied w/ threaded connector & ligh<br>MS14 = Supplied w/ 5 pin Brad Harrison conne<br>(male end)<br>MS13DCT = MS13 (see above), direct current, w/ t   | ector & light                            |  |  |
| <sup>®</sup> is a registered<br>mark of DuPont<br>Elastomers.                   |   | Visual<br>with<br>Thermal<br>Lockout  | MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current, w/ t<br>MS14DCLCT = Low current MS14DCT  | hermal lockout                           |  |  |

#### NOTES:

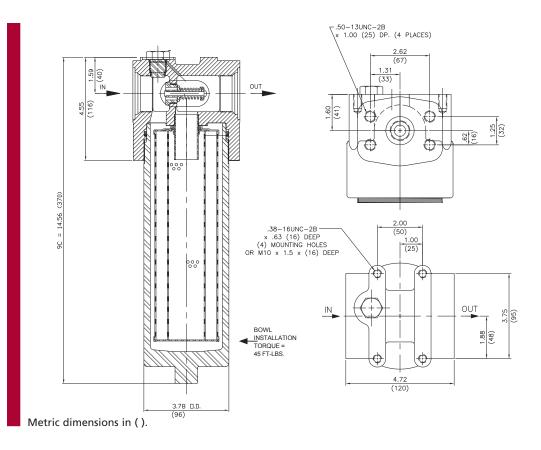
Box 2. Replace part n combi 2, 3 an Examp E meḋ eleme availal N seals

- Box 4. Viton® traden Dow E
- Box 5. B porting option supplied with metric mounting holes.
- Box 7. Standard indicator setting for non-bypassing model is 50 psi unless otherwise noted.

## Top-Ported Pressure Filter **CF60**

| Model No. of filter in photograph is CF | <ul> <li>Features and Benefits</li> <li>Top-ported high pressure filter</li> <li>Available with non-bypass option<br/>with high collapse element</li> <li>Offered in pipe, SAE straight thread,<br/>flange and ISO 228 porting</li> <li>No-Element indicator option available</li> </ul> | 50 gpm<br><u>190 L/min</u><br>6000 psi<br>415 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>LC50<br>RF550<br>RF550<br>RF60 |
|---|--|---|---|
| Model No. of filter in photograph is CF | 601CC23SD5.  | -   |   |
|   |  |   | CTF60   |
|   |  | Applications                                      | <b>VF60</b>   |
|   | <u>o</u> r 1000  |   | LW60  |
| INDUSTRIAL AUTOMOTIVE                   | MACHINE MINING   |   | KF30  |
| MANUFACTURING                           | TOOL TECHNOLOGY  |   |   |
|   |  |   | <b>TF50</b>   |
|   |  |   | KF50  |
|   | AGRICULTURE MOBILE   |   | KC50  |
| MAKING                                  | VEHICLES   |   | MKF50   |
|   |  |   | KC65  |
|   |  | NC  | <b>DF30-05</b>  |
|   |  |   |   |
|   |  |   | NOF50   |
| Flow Rating:                            | Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids   | FC Filter   | DF60-03   |
| Max. Operating Pressure:                |  | Housing   | NMF30   |
|   | 15,500 psi (1070 bar), per NFPA T2.6.1   | Specifications                                    |   |
| Rated Fatigue Pressure:                 | 4000 psi (276 bar), per NFPA T2.6.1-R1-2005  |   | RMF60   |
| Temp. Range:                            | -20°F to 225°F (-29°C to 107°C)  |   | artridge  |
| Bypass Setting:                         | Cracking: 40 psi (2.8 bar)<br>Full Flow: 75 psi (5.2 bar)  | El  | ements  |
|   | Non-bypassing model has a blocked bypass.  |   | HS60  |
| Porting Head:<br>Element Case:          |  |   | MHS60   |
| Weight of CF60-9C:                      |  |   |   |
| Element Change Clearance:               | 4.0" (103 mm)  |   | KFH50   |



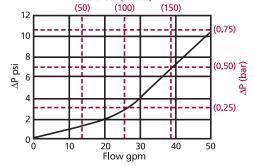


| Element<br>Performance |                    |                  | tio Per ISO 4572/N<br>article counter (APC) cal | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|--------------------|------------------|---|--|----------------------|-----------------------|
| Information            | Element            | $\beta_x \ge 75$ | $\beta_x \ge 100$                               | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | CC3                | 6.8              | 7.5   | 10.0   | N/A                  | N/A                   |
|                        | CC10               | 15.5             | 16.2  | 18.0   | N/A                  | N/A                   |
|                        | CCZ1               | <1.0             | <1.0  | <1.0   | <4.0                 | 4.2                   |
|                        | CCZ3/CAS3/CCAS3    | <1.0             | <1.0  | <2.0   | <4.0                 | 4.8                   |
|                        | CCZ5/CAS5/CCAS5    | 2.5              | 3.0   | 4.0  | 4.8                  | 6.3                   |
|                        | CCZ10/CAS10/CCAS10 | 7.4              | 8.2   | 10.0   | 8.0                  | 10.0                  |
|                        | CCZ25              | 18.0             | 20.0  | 22.5   | 19.0                 | 24.0                  |
|                        | CCZX3              | <1.0             | <1.0  | <2.0   | 4.7                  | 5.8                   |

| Dirt Holding | Element            | DHC (gm)        |  |                   |
|--------------|--------------------|-----------------|--|-------------------|
| Capacity     | CC3                | 30              |  |                   |
|              | CC10               | 25              |  |                   |
|              | CCZ1               | 57              |  |                   |
|              | CCZ3/CAS3/CCAS3    | 58              |  |                   |
|              | CCZ5/CAS5/CCAS5    | 63              |  |                   |
|              | CCZ10/CAS10/CCAS10 | 62              |  |                   |
|              | CCZ25              | 63              |  |                   |
|              | CCZX3              | 26*             |  | *Based on 100 psi |
|              | Element C          | ollapse Rating: | 150 psid (10 bar) for standard elements<br>3000 psid (210 bar) for high collapse (ZX) versions | terminal pressure |
|              | F                  | Flow Direction: | Outside In   |                   |
|              | Element Nomin      | al Dimensions:  | CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long   |                   |

## Top-Ported Pressure Filter **CF60**

|                       |              | Type Fluid      | Appropriate Sch                | roeder Media  |                        |                 |                 | Fluid  | NF30               |
|-----------------------|--------------|-----------------|--------------------------------|---|------------------------|-----------------|-----------------|--|--------------------|
| Pet                   | roleum E     | Based Fluids    | All E media (cellulo           | ose), Z-Media <sup>®</sup> and AS   | P® Media (sy           | nthetic)        |                 | Compatibility  | NFS30              |
|                       | High Wa      | ter Content     | All Z-Media <sup>®</sup> and A | ASP <sup>®</sup> Media (synthetic)  | )                      |                 |                 |  | 111 550            |
|                       | Inver        | t Emulsions     | 10 and 25 µ Z-Me               | dia <sup>®</sup> (synthetic), 10 μ A  | ASP <sup>®</sup> Media |                 |                 |  | YF30               |
|                       | W            | ater Glycols    | 3, 5, 10 and 25 μ              | Z-Media <sup>®</sup> (synthetic) a  | nd all ASP® I          | Aedia (synthet  | ic)             |  |                    |
|                       | Phosp        | hate Esters     | All Z-Media <sup>®</sup> and A | SP <sup>®</sup> Media (synthetic)   | with H (EPR            | ) seal designat | ion             |  | CFX30              |
|                       |              | Skydrol®        |                                | , 10 and 25 $\mu$ Z-Media <sup>®</sup> and all ASP <sup>®</sup> Media (synthetic) with H.5 seal designation is seals and stainless steel wire mesh in element, and light oil coating on housing rior) |                        |                 |                 | Skydrol <sup>®</sup> is a registered<br>trademark of Solutia Inc | PLD                |
|                       | Elemen       | +               |                                |   |                        |                 |                 |  | <b>DF40</b>        |
| Pressure              | Series       | Part No.        |                                | s are predicated on<br>fluid and a 40 psi (2  |                        |                 | 2 cSt)          | Element  | <b>61</b> 4 6      |
| riessure              | Series       | CC3             | petroleulli based              | CC3   | 2.6 Dai) Dy            | Jass valve.     |                 | Selection  | <b>CF40</b>        |
|                       | E            | CC10            |                                | CC10  |                        |                 |                 | Based on<br>Flow Rate  | PF40               |
|                       | Media        |                 |                                |   |                        |                 |                 | FIOW Rate  | r 1 <del>4</del> 0 |
| То                    | CC25         |                 | CC25<br>CCZ1 See KC65          |   |                        |                 |                 |  | LC50               |
| 6000 psi              |              | CCZ1<br>CCZ3    |                                | CCZ1         See KC65           CCZ3         See KC65   |                        |                 | CE              |  |                    |
| (415 bar)             | Z-           | CCZ5            |                                | CCZ5  |                        | See KC          | 205             |  | RFS50              |
|                       | Media®       |                 |                                |   |                        |                 |                 |  | <b>RF60</b>        |
|                       |              | CCZ10           |                                | CCZ10   |                        |                 |                 |  | RFOU               |
|                       |              | CCZ25           |                                | CCZ25   |                        |                 |                 |  | CF60               |
|                       | Flow         | gpm (           |                                | 20  | 30                     | 40              | 50              |  |                    |
|                       |              | (L/min) (       |                                | 100   |                        | 150             | 190             |  | CTF60              |
| nown abo              | ve are the   | e elements mo   | ost commonly used i            | n this housing.   |                        |                 |                 |  |                    |
|                       |              |                 |                                | h Water Content, In<br>patibility: Fire Resis   |                        |                 |                 |  | <b>VF60</b>        |
| Application           | 3. 1 01 1110 |                 |                                | ipationity. The Kesis   | tant nuius,            | pages 21 and    | 22.             |  | LW60               |
| ∆P <sub>housing</sub> |              |                 |                                | ΔP <sub>element</sub>   |                        |                 |                 | Pressure   |                    |
|                       | for flui     | ds with sp gr : | = 0.86.                        | $\Delta P_{element} = flo$  | ow x elemen            | t ∆P factor x v | iscosity factor | Drop   | KF30               |
| 2. So Ar nous         | 5            |                 |                                | $EI. \Delta P$ factors  |                        |                 | -               | Information  | <b>TF50</b>        |
|                       | (50)         | Flow (L/min)    | (150)                          |   | 2 . 20 202 (           | ,               |                 | Based on   | 11.50              |



sp gr = specific gravity

CC3 .22 Flow Rate CC10 .13 and Viscosity CC25 .03 CCZ1 .35 CCZ3/CCAS3 .20 CCZ5/CCAS5 .19 CCZ10/CCAS10 .10 .05 CCZ25 .29 CCZX3 CCZX10 .26 If working in units of bars & L/min, divide above factor by 54.9. Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

**KF50** 

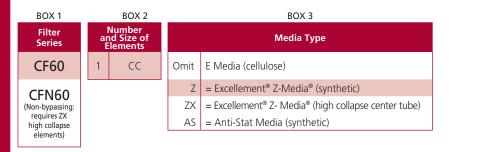
**KC50** 

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

| $\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$ | NMF30   |
|--|---|
| Exercise:  |   |
| Determine ΔP at 30 gpm (115 L/min) f<br>CF601CCZ3SD5 using 200 SUS (44 cS          |   |
| Solution:  | Cartridge   |
| $\Delta P_{\text{housing}} = 4.0 \text{ psi} [.30 \text{ bar}]$                    | Elements  |
| $\Delta P_{\text{element}} = 30 \times .20 \times (200 \div 150)$<br>or            | HS60  |
| $\Delta P_{\text{total}} = 7.0 + 7.2 = 14.2 \text{ psi}$                           | MHS60   |
| = [.30 + .58 = .88 bar]  | KFH50   |
|  | Exercise:           Determine $\Delta P$ at 30 gpm (115 L/min) f           CF601CCZ3SD5 using 200 SUS (44 cs           Solution: $\Delta P_{housing}$ = 4.0 psi [.30 bar] $\Delta P_{element}$ = 30 x .20 x (200÷150) or           = [115 x (.20÷54.9) x (4 $\Delta P_{total}$ or           or           or |

#### **Top-Ported Pressure Filter CF60**

| How to Build a Valid Model Number for a Schroeder CF40: |  |  |  |  |  |
|---|--|--|--|--|--|
| BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9   |  |  |  |  |  |
|   |  |  |  |  |  |
| Example: NOTE: One option per box                       |  |  |  |  |  |
| BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9   |  |  |  |  |  |
| CF60 - 1CC - Z - 10 - S - D5 - <b>ECF601CCZ5SD5</b>     |  |  |  |  |  |
|   |  |  |  |  |  |



|               |             | BOX 4                   | BOX 5                                    | BOX 6                                   |  |
|---------------|-------------|-------------------------|--|---|--|
| Micron Rating |             | cron Rating             | Seal<br>Material                         | Porting                                 |  |
| 1             | = 1 Micron  | (Z media)               | Omit = Buna N                            | S = SAE-20                              |  |
| 3             | = 3 Micron  | (AS,E, Z and ZX media)  | V = Viton®                               | $P = 1\frac{1}{4}$ " NPTF               |  |
| 5             | = 5 Micron  | (AS, Z, and ZX media)   | H = EPR                                  | 1¼" SAE 4-bolt                          |  |
| 10            | = 10 Micron | (AS,E, Z, and ZX media) | H.5 = Skydrol <sup>®</sup> compatibility | $F = \frac{174}{\text{flange code 62}}$ |  |
| 25            | = 25 Micron | (E, Z and ZX media)     |  | B = ISO 228 G-1¼"                       |  |

| BOX 7                      |                 | BOX 8  |  |  |  |
|----------------------------|-----------------|--|--|--|--|
| Options                    |                 | Dirt Alarm <sup>®</sup> Options  |  |  |  |
| Omit = None                |                 | Omit = None  |  |  |  |
| 10 = 10 psi bypass setting | Visual          | D5 = Visual pop-up   |  |  |  |
| 15 = 15 psi bypass setting | Visual          |  |  |  |  |
| 20 = 20 psi bypass setting | with<br>Thermal | D8 = Visual w/ thermal lockout   |  |  |  |
| 1 51 5                     | Lockout         |  |  |  |  |
| 25 = 25 psi bypass setting | LOCKOUT         | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable                  |  |  |  |
| 30 = 30 psi bypass setting |                 | MS5LC = Low current MS5  |  |  |  |
| 40 = 40 psi bypass setting |                 | MS10 = Electrical w/ DIN connector (male end only)                     |  |  |  |
| 50 = 50 psi bypass setting |                 | MS10LC = Low current MS10  |  |  |  |
| 60 = 60 psi bypass setting | Electrical      | MS11 = Electrical w/ 12 ft. 4-conductor wire                           |  |  |  |
| 1 51 5                     | LIECUICAI       | MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)     |  |  |  |
| 75 = 75 psi bypass setting |                 | MS12LC = Low current MS12  |  |  |  |
|                            |                 | MS16 = Electrical w/ weather-packed sealed connector                   |  |  |  |
|                            |                 | MS16LC = Low current MS16  |  |  |  |
|                            |                 | MS17LC = Electrical w/ 4 pin Brad Harrison male connector              |  |  |  |
|                            |                 | MS5T = MS5 (see above) w/ thermal lockout<br>MS5LCT = Low current MS5T |  |  |  |
|                            |                 | MSDCT = MS10 (see above) w/ thermal lockout                            |  |  |  |
|                            | Electrical      | MS10LCT = Low current MS10T  |  |  |  |
|                            | with            | MS102T = MS12 (see above) w/ thermal lockout                           |  |  |  |
|                            | Thermal         | MS12LCT = Low current MS12T  |  |  |  |
|                            | Lockout         | MS16T = MS16 (see above) w/ thermal lockout                            |  |  |  |
|                            |                 | MS16LCT = Low current MS16T  |  |  |  |
|                            |                 | MS17LCT = Low current MS17T  |  |  |  |
| BOX 9                      | Electrical      | MS13 = Supplied w/ threaded connector & light                          |  |  |  |
| Additional Options         | Visual          | MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)    |  |  |  |
|                            | Electrical      | MS13DCT = MS13 (see above), direct current, w/ thermal lockout         |  |  |  |
| Omit = None                | Visual<br>with  | MS13DCLCT = Low current MS13DCT  |  |  |  |
| N = No-Element             | With<br>Thermal | MS14DCT = MS14 (see above), direct current, w/ thermal lockout         |  |  |  |
| Indicator                  | Lockout         | MS14DCLCT = Low current MS14DCT  |  |  |  |
| (CF60 only)                | Locitout        |  |  |  |  |

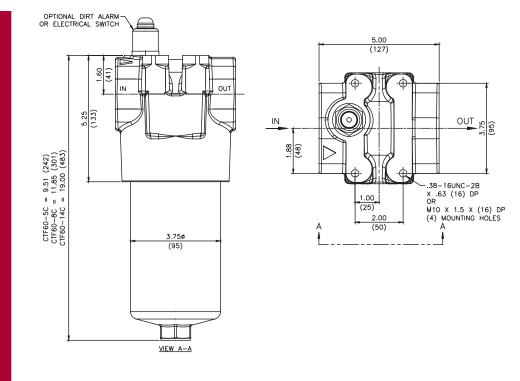
NOTES:

- Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. E media (cellulose) elements are only available with Buna N seals.
- Box 5. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 6. B porting option supplied with metric mounting holes.
- Box 8. Standard indicator setting for nonbypassing model is 50 psi unless otherwise specified.
- Box 9. N option should be used in conjunction with dirt alarm.

## Top-Ported Pressure Filter CTF60

|  | <ul> <li>Features and Benefits</li> <li>Top-ported high pressure filter</li> <li>High cyclic fatigue performance<br/>(6000 psi)</li> <li>Available with non-bypass option<br/>with high collapse element</li> <li>Offered in pipe, SAE straight thread,<br/>flange and ISO 228 porting</li> <li>Thread on bowl with optional drain<br/>plug for easy element service</li> </ul> | 75 gpm<br><u>284 L/min</u><br>6000 psi<br>415 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>PF40<br>LC50<br>RF550<br>RF60 |
|--|---|---|--|
| Model No. of filter in photograph is CT  | F608CTZ10F20D9.   |   | <b>CF60</b>  |
| INDUSTRIAL       Image: Constraint of the second seco | MACHINE   MACHINE   TOOL     MINING   TECHNOLOGY  | Applications                                      | CTF60<br>VF60<br>LW60<br>KF30<br>TF50<br>KF50<br>KC50<br>MKF50                         |
|  |   |   |  |
|  |   |   | KC65   |
|  |   | Ν   | OF30-05  |
| Flow Rating:   | Up to 75 gpm (284 L/min) for 150 SUS (32 cSt) fluids  | Filter  | NOF50  |
| Max. Operating Pressure:   |   | Housing<br>Specifications                         | OF60-03  |
|  | 18,000 psi (1241 bar), per NFPA T2.6.1<br>6000 psi (415 bar), per NFPA T2.6.1-R1-2005   | specifications                                    | NMF30  |
| -  | (only with F20 4-bolt flange porting)   |   |  |
|  | -20°F to 225°F (-29°C to 107°C)   |   | RMF60  |
|  | Cracking: 50 psi (3.4 bar)<br>Full Flow: 83 psi (5.7 bar)<br>Non-bypassing model has a blocked bypass.  |   | artridge<br>lements  |
| Porting Head:<br>Element Case:   |   |   | HS60   |
|  | 25 lbs. (11.4 kg)<br>29 lbs. (13.2 kg)<br>38 lbs. (17.3 kg)   |   | MHS60  |
| Element Change Clearance:  | 4.0" (103 mm)   |   | KFH50  |





Metric dimensions in ( ).

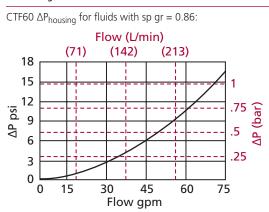
| Element<br>Performance |              |                  | tio Per ISO 4572/N<br>article counter (APC) cal | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|--------------|------------------|---|--|----------------------|-----------------------|
| Information            | Element      | $\beta_x \ge 75$ | $\beta_x \ge 100$                               | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | CTZ1/CTZX1   | <1.0             | <1.0  | <1.0   | <4.0                 | 4.2                   |
|                        | CTZ3/CTZX3   | <1.0             | <1.0  | <2.0   | <4.0                 | 4.8                   |
|                        | CTZ5/CTZX5   | 2.5              | 3.0   | 4.0  | 4.8                  | 6.3                   |
|                        | CTZ10/CTZX10 | 7.4              | 8.2   | 10.0   | 8.0                  | 10.0                  |
|                        | CTZ25/CTZX25 | 18.0             | 20.0  | 22.5   | 19.0                 | 24.0                  |

| Dirt Holding | Element       | DHC (gm)                            | Element  | DHC (gm)              | Element    | DHC (gm) |  |
|--------------|---------------|-------------------------------------|--|-----------------------|------------|----------|--|
| Capacity     | 5CTZ1         | 19                                  | 8CTZ1  | 31                    | 14CTZ1     | 66       |  |
|              | 5CTZ3         | 16                                  | 8CTZ3  | 27                    | 14CTZ3     | 57       |  |
|              | 5CTZ5         | 18                                  | 8CTZ5  | 30                    | 14CTZ5     | 64       |  |
|              | 5CTZ10        | 21                                  | 8CTZ10   | 34                    | 14CTZ10    | 72       |  |
|              | 5CTZ25        | 17                                  | 8CTZ25   | 28                    | 14CTZ25    | 60       |  |
|              | 5CTZX1        | 14                                  | 8CTZX1   | 24                    | 14CTZX1    | 53       |  |
|              | 5CTZX3        | 11                                  | 8CTZX3   | 18                    | 14CTZX3    | 41       |  |
|              | 5CTZX5        | 10                                  | 8CTZX5   | 17                    | 14CTZX5    | 38       |  |
|              | 5CTZX10       | 12                                  | 8CTZX10  | 20                    | 14CTZX10   | 44       |  |
|              | 5CTZX25       | 11                                  | 8CTZX25  | 18                    | 14CTZX25   | 39       |  |
|              |               | Collapse Rating:<br>Flow Direction: | 150 psid (10 bar) for standard elements<br>3000 psid (210 bar) for high collapse (ZX) versions<br>Outside In |                       |            |          |  |
|              | Element Nomir | nal Dimensions:                     | 5CT: 2.64" (67 mm) O.D. x 4.88" (124 mm) long  |                       |            |          |  |
|              |               |                                     | 8CT: 2.64" (67n  | nm) O.D. x 7.25" (184 | mm) long   |          |  |
|              |               |                                     | 14CT : 2.64" (67 i   | mm) O.D. x 14.38" (36 | 5 mm) long |          |  |
|              |               |                                     |  |                       |            |          |  |

## Top-Ported Pressure Filter CTF60

|                    | ,                 | Type Flu                                      | id Ap             | propriate S                                   | chroede          | r Media   |  |                       |                             | Fluid                 | NF30                 |
|--------------------|-------------------|---|-------------------|---|------------------|---|--|-----------------------|-----------------------------|-----------------------|----------------------|
| High Water Content |                   | nt All  | Z-Media® (sy      | nthetic)                                      |                  |   |  |                       | Compatibility               | NFS30                 |                      |
|                    | Invert Emulsions  |   | <b>ns</b> 10      | and 25 µ Z-N                                  | /ledia® (sy      | nthetic)  |  |                       |                             |                       |                      |
|                    | Wa                | ter Glyco                                     | ols 3, 5          | 5, 10 and 25                                  | μ Z-Media        | a® (synthetic)  |  |                       |                             |                       | YF30                 |
|                    | Phosph            | nate Este                                     | ers All           | Z-Media® (sy                                  | nthetic) w       | vith H (EPR) sea  | al designation   |                       |                             |                       |                      |
|                    |                   |   |                   |   |                  |   |  |                       |                             |                       | CFX30                |
|                    |                   |   |                   |   |                  |   |  |                       |                             |                       | PLD                  |
|                    |                   |   |                   |   |                  |   |  |                       |                             |                       |                      |
|                    | <b>F</b> I        | Davit   | <b>Flamen</b>     | • • • • • • • • • • • • •                     |                  |   |  | 2 -64)                |                             | Flement               | <b>DF40</b>          |
| Pressure           | Element<br>Series | Part<br>No.                                   |                   |   | •                |   | use of 150 SUS (3<br>ar) bypass valve.                 | 2 cSt)                |                             | Element<br>Selection  | DF40<br>CF40         |
| Pressure           |                   |   |                   |   | •                | 50 psi (3.4 b   | ar) bypass valve.                                      | <b>2 cSt)</b><br>KC65 |                             | Selection<br>Based on | CF40                 |
|                    | Series            | No.   | petrole           | um based flu                                  | uid and a        | 50 psi (3.4 b   | ar) bypass valve.                                      |                       | See KC65                    | Selection             |                      |
| To<br>6000 psi     | Series<br>Z-      | No.<br>CTZ1                                   | petrole           | um based flu<br>8CTZ1                         | uid and a        | 50 psi (3.4 b<br>TZ1  | ar) bypass valve.<br>See                               |                       | See KC65<br>See KC65        | Selection<br>Based on | CF40<br>PF40         |
| То                 | Series            | No.<br>CTZ1<br>CTZ3                           | petrole           | um based flu<br>8CTZ1<br>5CTZ3<br>5CTZ5       | uid and a        | 50 psi (3.4 b<br>TZ1<br>8CTZ3   | ar) bypass valve.<br>See<br>14CTZ3                     | KC65                  |                             | Selection<br>Based on | CF40                 |
| To<br>6000 psi     | Series<br>Z-      | No.<br>CTZ1<br>CTZ3<br>CTZ5                   | petrole           | um based flu<br>8CTZ1<br>5CTZ3<br>5CTZ5       | uid and a<br>14C | 50 psi (3.4 b<br>TZ1<br>8CTZ3   | ar) bypass valve.<br>See<br>14CTZ3<br>14CTZ5           | KC65                  | See KC65                    | Selection<br>Based on | CF40<br>PF40         |
| To<br>6000 psi     | Z-<br>Media®      | No.<br>CTZ1<br>CTZ3<br>CTZ5<br>CTZ10          | petrole           | um based flu<br>8CTZ1<br>5CTZ3<br>5CTZ5       | uid and a<br>14C | 8CTZ3<br>8CTZ5  | ar) bypass valve.<br>See<br>14CTZ3<br>14CTZ5           | KC65                  | See KC65<br>ICTZ10          | Selection<br>Based on | CF40<br>PF40<br>LC50 |
| To<br>6000 psi     | Series<br>Z-      | No.<br>CTZ1<br>CTZ3<br>CTZ5<br>CTZ10<br>CTZ25 | petrolet<br>5CTZ1 | um based flu<br>8CTZ1<br>5CTZ3<br>5CTZ5<br>5C | uid and a<br>14C | 50 psi (3.4 b)           TZ1           8CTZ3           8CTZ5           5CTZ25 | ar) bypass valve.<br>See<br>14CTZ3<br>14CTZ5<br>8CTZ10 | KC65                  | See KC65<br>ICTZ10<br>CTZ25 | Selection<br>Based on | CF40<br>PF40<br>LC50 |

Shown above are the elements most commonly used in this housing.



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

| $\Delta P_{\text{filter}} = \Delta P_{\text{housing}}$ | + ΔP <sub>element</sub> |
|--|-------------------------|
| Exercise:  |                         |

Determine  $\Delta P$  at 70 gpm (115 L/min) for CTF6014CTZ10F20D9 using 150 SUS (44 cSt) fluid.

#### Solution:

| ΔP <sub>housing</sub> | = 14 psi [0.95 bar]   |
|-----------------------|---|
| ∆P <sub>element</sub> | = 70 x .14 x (150÷150) = 9.8 psi  |
| $\Delta P_{total}$    | or<br>= [265 x (.20÷54.9) x (44÷32) = .68 bar]<br>= 14 + 9.8 = 23.8 psi<br>or<br>= [.96 + .68 = 1.64 bar] |

| ΔP <sub>element</sub>      |   |           |      |  |  |  |
|----------------------------|---|-----------|------|--|--|--|
| $\Delta P_{element} = flc$ | $\Delta P_{element} = $ flow x element $\Delta P$ factor x viscosity factor |           |      |  |  |  |
| El. $\Delta P$ factors     | @ 150 SUS   | (32 cSt): |      |  |  |  |
| 5CTZ1                      | 1.87  | 5CTZX1    | 1.64 |  |  |  |
| 5CTZ3                      | 0.77  | 5CTZX3    | 0.96 |  |  |  |
| 5CTZ5                      | 0.72  | 5CTZX5    | 0.68 |  |  |  |
| 5CTZ10                     | 0.46  | 5CTZX10   | 0.46 |  |  |  |
| 5CTZ25                     | 0.19  | 5CTZX25   | 0.25 |  |  |  |
| 8CTZ1                      | 1.17  | 8CTZX1    | 1.00 |  |  |  |
| 8CTZ3                      | 0.48  | 8CTZX3    | 0.59 |  |  |  |
| 8CTZ5                      | 0.45  | 8CTZX5    | 0.41 |  |  |  |
| 8CTZ10                     | 0.29  | 8CTZX10   | 0.28 |  |  |  |
| 8CTZ25                     | 0.12  | 8CTZX25   | 0.15 |  |  |  |
| 14CTZ1                     | 0.55  | 14CTZX1   | 0.46 |  |  |  |
| 14CTZ3                     | 0.22  | 14CTZX3   | 0.27 |  |  |  |
| 14CTZ5                     | 0.21  | 14CTZX5   | 0.19 |  |  |  |
| 14CTZ10                    | 0.14  | 14CTZX10  | 0.13 |  |  |  |
| 14CTZ25                    | 0.06  | 14CTZX25  | 0.07 |  |  |  |
|                            |   |           |      |  |  |  |

| If working in units of<br>bars & L/min, divide<br>above factor by 54.9. |  |
|---|--|
| <i>Viscosity factor:</i> Divide viscosity by 150 SUS (32 cSt).          |  |

| Pressure<br>Drop           | LW60                  |
|----------------------------|-----------------------|
| Information<br>Based on    | KF30                  |
| Flow Rate<br>and Viscosity | TF50                  |
| -                          | KF50                  |
|                            | КС50                  |
|                            | MKF50                 |
|                            | KC65                  |
|                            | NOF30-05              |
|                            | NOF50                 |
|                            | FOF60-03              |
|                            | NMF30                 |
|                            | RMF60                 |
|                            | Cartridge<br>Elements |

CTF60

|  | <b>C</b> |  |
|--|----------|--|
|  |          |  |
|  | -        |  |
|  |          |  |
|  |          |  |
|  |          |  |

#### **Top-Ported Pressure Filter** CTF60

CTZX10

CTZX25

| Filter<br>Model<br>Number<br>Selection | How to Build a Valid Model Number for a Schroeder CTF60:<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7<br>CTF60 |   |       |   |               |  |
|--|--|---|-------|---|---------------|--|
|  | BOX 1  | BOX 2   |       | BOX 3   | BOX 4         |  |
|  | Filter<br>Series   | Element<br>Length<br>(in.)  |       | Element Part Number   | Seal Material |  |
|  | CTF60  | 5   | CTZ1  | = 1 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)                 | Omit = Buna N |  |
|  |  | 8   | CTZ3  | = 3 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)                 | V = Viton®    |  |
|  | CTFN60   | 14  | CTZ5  | = 5 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)                 | H = EPR       |  |
|  | (Non-<br>bypassing:  |   | CTZ10 | = 10 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)                |               |  |
|  | requires ZX<br>high collapse   |   | CTZ25 | CTZ25 = 25 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)          |               |  |
|  | elements)  |   | CTZX1 | = 1 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (high collapse center tube) |               |  |
|  |  | = 3 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (high collapse center tube) |       |   |               |  |
|  |  |   | CTZX5 | = 5 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (high collapse center tube) |               |  |

= 10 µ Excellement® Z-Media® (high collapse center tube)

= 25 µ Excellement<sup>®</sup> Z-Media<sup>®</sup> (high collapse center tube)

BOX 7

MS13SS = Supplied w/ threaded connector & light

MS13SSDCLCT = Low current MS13DCT

MS14SSDCLCT = Low current MS14DCT

MS14SS = Supplied w/ 5 pin Brad Harrison connector & light (male end)

MS13SSDCT = MS13 (see above), direct current, w/ thermal lockout

MS14SSDCT = MS14 (see above), direct current, w/ thermal lockout

| BOX 5   | 5  |
|---|--|
| Inlet Port  | Port   |
| P20 = 1 <sup>1</sup> / <sub>4</sub> " NPTF  | " NPTF   |
| S20 = SAE-20  | E-20   |
| F20 = 1¼" SAE<br>4-bolt flange<br>Code 62<br>B20 = ISO 228  | olt flange<br>de 62  |
| G-1¼"   | 1⁄4"   |
|   |  |
| BOX 6   | K 6  |
| Options   | ons  |
| Omit = None   | one  |
| UU = Series 1215<br>7/16" UNF<br>Schroeder<br>Check Test<br>Points installed<br>in the filter<br>head (upstream)<br>& downstream)<br>DR = Drain on bowl | i" UNF<br>oeder<br>ck Test<br>ts installed<br>e filter<br>d (upstream<br>wwnstream)<br>ain on bowl |
| 30 = 30 psi bypass<br>setting   | 1 21   |
| 40 = 40 psi bypass<br>setting   | ting   |
| 50 = 50 psi bypass<br>setting   | 1 21   |

|  |  | 567.7   |
|--|--|---|
| ort  |  | Dirt Alarm <sup>®</sup> Options   |
| NPTF   |  | Omit = None   |
| 20   | Visual                                   | D9 = Visual pop-up  |
| SAE<br>t flange<br>62<br>28<br>4"  |  | MS5SS = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5SSLC = Low current MS5<br>MS10SS = Electrical w/ DIN connector (male end only)<br>MS10SSLC = Low current MS10<br>MS11SS = Electrical w/ 12 ft. 4-conductor wire   |
|  | Electrical                               | MS12SS= Electrical w/ 5 pin Brad Harrison connector (male end only)   |
| 5  |  | MS12SSLC = Low current MS12<br>MS16SS = Electrical w/ weather-packed sealed connector   |
| ns<br>e  |  | MS16SSLC = Low current MS16<br>MS16SSLC = Electrical w/ 4 pin Brad Harrison male connector  |
| es 1215<br>UNF<br>eder<br>Test<br>installed<br>filter<br>upstream<br>non bowl<br>si bypass<br>ng | Electrical<br>with<br>Thermal<br>Lockout | MS5SST = MS5 (see above) w/ thermal lockout<br>MS5SSLCT = Low current MS5T<br>MS10SST = MS10 (see above) w/ thermal lockout<br>MS10SSLCT = Low current MS10T<br>MS12SST = MS12 (see above) w/ thermal lockout<br>MS12SSLCT = Low current MS12T<br>MS16SST = MS16 (see above) w/ thermal lockout<br>MS16SSLCT = Low current MS16T<br>MS16SSLCT = Low current MS17T |

Thermal

Lockout

NOTES:

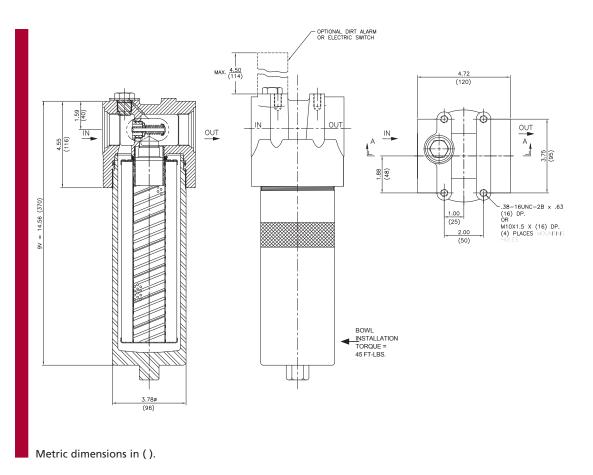
- Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3 and 4.
- Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 5. B porting option supplied with metric mounting holes.
- Box 7. All Dirt Alarm® Indicators must be Stainless Steel. Standard indicator setting is 50 psi. For replacement indicators, contact the factory.

## Top-Ported Pressure Filter VF60

| Model No. of filter in photograph is V          | <ul> <li>Features and Benefits</li> <li>Top-ported high pressure filter</li> <li>Threaded bowl for easy element servicing</li> <li>Offered in pipe, SAE straight thread and ISO 228 porting</li> <li>Various dirt alarm options available</li> </ul> | 70 gpm<br>265 L/min<br>6000 psi<br>415 bar       NF30         6000 psi<br>415 bar       YF30         0FX30       CFX30         0LD       DF40         0F40       CF40         0F50       CF60 |
|---|--|---|
|   | <b>1</b>   | CTF60<br>Applications VF60<br>LW60  |
| INDUSTRIAL AUTOMOTIVE<br>MANUFACTURING          | MACHINE MINING<br>TOOL TECHNOLOGY  | KF30  |
|   |  | TF50  |
|   |  | КF50  |
| PULP & PAPER AGRICULTURE                        | MOBILE   | КС50  |
|   | VEHICLES   | MKF50   |
|   |  | KC65  |
|   |  | NOF30-05  |
|   |  | NOF50   |
|   |  | FOF60-03  |
| Flow Rating:                                    | Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids   | Filter NMF30  |
| Max. Operating Pressure:                        | 6000 psi (415 bar)   | Housing   |
| Min. Yield Pressure:                            | 15,500 psi (1070 bar), per NFPA T2.6.1   | Specifications RMF60  |
| Rated Fatigue Pressure:<br>Temp. Range:         | 3300 psi (230 bar), per NFPA T2.6.1-R1-2005<br>-20°F to 225°F (-29°C to 107°C)   | Cartridge   |
| Bypass Setting:                                 | Cracking: 50 psi (3.5 bar)   | Elements  |
| Porting Head:                                   | Full Flow: 65 psi (4.5 bar)<br>Ductile Iron  | HS60  |
| Element Case:                                   | Steel  | MHS60   |
| Weight of VF60-9V:<br>Element Change Clearance: | 24.0 lbs. (10.9 kg)<br>4.0" (103 mm)   | KFH50   |
|   |  |   |



### **VF60** Top-Ported Pressure Filter



| Element<br>Performance |         |                  | tio Per ISO 4572/N<br>article counter (APC) cali |                   | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                        |  |
|------------------------|---------|------------------|--|-------------------|--|------------------------|--|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$ | $\beta_x(c) \ge 200$   | $\beta_x(c) \geq 1000$ |  |
|                        | 9V3     | 6.8              | 7.5  | 10.0              | N/A  | N/A                    |  |
|                        | 9V10    | 15.5             | 16.2   | 18.0              | N/A  | N/A                    |  |
|                        | 9VZ1    | <1.0             | <1.0   | <1.0              | <4.0   | 4.2                    |  |
|                        | 9VZ3    | <1.0             | <1.0   | <2.0              | <4.0   | 4.8                    |  |
|                        | 9VZ5    | 2.5              | 3.0  | 4.0               | 4.8  | 6.3                    |  |
|                        | 9VZ10   | 7.4              | 8.2  | 10.0              | 8.0  | 10.0                   |  |
|                        | 9VZ25   | 18.0             | 20.0   | 22.5              | 19.0   | 24.0                   |  |

| Dirt Holding | Element   | DHC (gm)                     |  |
|--------------|-----------|------------------------------|--|
| Capacity     | 9V3       | 25                           |  |
|              | 9V10      | 12                           |  |
|              | 9VZ1      | 55                           |  |
|              | 9VZ3      | 57                           |  |
|              | 9VZ5      | 62                           |  |
|              | 9VZ10     | 60                           |  |
|              | 9VZ25     | 61                           |  |
|              | Element C | ollapse Rating:              | 150 psid (10 bar) for standard elements    |
|              |           | Flow Direction:              | Outside In                                 |
|              | Ele       | ement Nominal<br>Dimensions: | 9V: 2.9" (75 mm) O.D. x 9.5" (240 mm) long |
|              |           |                              |  |

98 SCHROEDER INDUSTRIES

## Top-Ported Pressure Filter VF60

| Type Fluid             | Appropriate Schroeder Media  | Fluid   | NF30  |
|------------------------|--|---|-------|
| Petroleum Based Fluids | All E media (cellulose) and Z-Media <sup>®</sup> (synthetic)   | Compatibility   | NFS30 |
| High Water Content     | All Z-Media® (synthetic)   |   |       |
| Invert Emulsions       | 10 and 25 $\mu$ Z-Media® (synthetic)   |   | YF30  |
| Water Glycols          | 3, 5, 10 and 25 $\mu$ Z-Media® (synthetic)   |   | CEVOO |
| Phosphate Esters       | All Z-Media <sup>®</sup> (synthetic) with H (EPR) seal designation   | (   | CFX30 |
| Skydrol®               | 3, 5, 10 and 25 $\mu$ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior) | Skydrol <sup>®</sup> is a registered<br>trademark of Solutia Inc. | PLD   |

| Pressure  | Elen<br>Series | nent<br>Part No. |   | ement sel<br>etroleum l                                     | Element<br>Selection |     |      |                 |    |                       |           |
|-----------|----------------|------------------|---|---|----------------------|-----|------|-----------------|----|-----------------------|-----------|
|           |                | 9VZ1             |   | petroleum based fluid and a 50 psi (3.5 bar) bypass<br>9VZ1 |                      |     |      | Contact Factory |    | Based on<br>Flow Rate |           |
| То        |                | 9VZ3             |   |   |                      | g   | VZ3  |                 |    |                       | Flow Rate |
| 6000 psi  | Z-<br>Media®   | 9VZ5             |   |   |                      | g   | VZ5  |                 |    |                       |           |
| (415 bar) | IVIEUIA        | 9VZ10            |   |   |                      | 9'  | VZ10 |                 |    |                       |           |
|           |                | 9VZ25            |   |   |                      | 9'  | VZ25 |                 |    |                       |           |
|           | gpm            |                  | 0 | 10  | 20                   | 30  | 40   | 50              | 60 | 70                    |           |
| Flow      |                | (L/min)          | 0 | 50  |                      | 100 | 150  | 200             |    | 265                   |           |

Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

| ΔP <sub>housing</sub>  | ΔP <sub>element</sub>  | Pressure                | VF60        |
|--|--|-------------------------|-------------|
| VF60 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86: | $\Delta P_{element} = flow x element \Delta P factor x viscosity factor$           | Drop                    | LW60        |
| Flow (L/min)   | El. ΔP factors @ 150 SUS (32 cSt):   | Information<br>Based on | VEDO        |
| 16 (50) (150) (250)  | <u>9V</u>  | Flow Rate               | KF30        |
| 14 <b></b>   | <b>9V3</b> .32   | and Viscosity           | <b>TF50</b> |
| 12   | <b>9V10</b> 24   |                         | 1150        |
|  | <b>9VZ1</b> .34  |                         | KF50        |
|  | <b>9VZ3</b> .21  |                         | KF30        |
| 6 (0.50)   | <b>9VZ5</b> .13  |                         | KC50        |
|  | 9VZ10 .11  |                         | RC30        |
| 2 (0.25)   | <b>9VZ25</b> .06   |                         | MKF50       |
|  | If working in units of bars & L/min, divide above                                  |                         | IVIKEDU     |
| 0 10 20 30 40 50 60 70<br>Flow gpm                             | factor by 54.9.  |                         | KC65        |
|  | Viscosity factor: Divide viscosity by 150 SUS (32 cSt).                            |                         | RCOJ        |
| sp gr = specific gravity                                       |  |                         | NOF30-05    |
| Sizing of elements should be based on element flow info        | ormation provided in the Element Selection chart above.                            |                         | NOF50       |
| Notes  | $\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$ |                         | FOF60-03    |
| Notes  | Exercise:  |                         |             |
|  | Determine $\Delta P$ at 40 gpm (150 L/min) for                                     |                         | NMF30       |
|  | VF609VZ3SD5 using 200 SUS (44 cSt) fluid.  |                         | RMF60       |
|  | Solution:  |                         | KIVII OO    |
|  | $\Delta P_{\text{housing}} = 6.0 \text{ psi} [.38 \text{ bar}]$                    |                         | Cartridge   |
|  | $\Delta P_{element}$ = 40 x .21 x (200÷150) = 11.2 psi                             |                         | Elements    |
|  | or   |                         |             |
|  |  |                         |             |

 $\Delta P_{total}$ 

= [150 x (.21÷54.9) x (44÷32) = .79 bar]

= 6.0 + 11.2 = 17.2 psi

= [.38 + .79 = 1.17 bar]

or

VECO

### VF60 Top-Ported Pressure Filter

| el BOX 1 BOX 2<br>VF60 - | BOX 3                             | BOX 4 BOX 5 BOX 6   |   |  |  |  |  |  |
|--------------------------|-----------------------------------|---|---|--|--|--|--|--|
|                          |                                   |   |   |  |  |  |  |  |
| BOX 1 BOX 2              | Example: NOTE: One option per box |   |   |  |  |  |  |  |
| VF60 - 9                 | вох з<br>- VZ1 -                  | $\frac{BOX 4}{S} = \frac{BOX 5}{S} = \frac{BOX 6}{S}$   | 0\/715  |  |  |  |  |  |
|                          | VZI                               |   | <u>, , , , , , , , , , , , , , , , , , , </u> |  |  |  |  |  |
| BOX 1 BOX 2              |                                   | BOX 3   | BOX 4   |  |  |  |  |  |
| Filter Element           |                                   | Element Size and Media  | Seal Material                                 |  |  |  |  |  |
| Series (in)              |                                   |   | Sear Wateria                                  |  |  |  |  |  |
| VF60 9                   |                                   | V size 3 µ E media (cellulose)  | Omit = Buna N                                 |  |  |  |  |  |
|                          |                                   | V size 10 µ E media (cellulose)<br>V size 1 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | V = Viton®                                    |  |  |  |  |  |
|                          |                                   | V size 3 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  | H = EPR                                       |  |  |  |  |  |
|                          |                                   | V size 5 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  |   |  |  |  |  |  |
|                          |                                   | V size 10 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |   |  |  |  |  |  |
|                          |                                   | V size 25 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |   |  |  |  |  |  |
|                          |                                   | V size 150 $\mu$ M media (reusable metal)   |   |  |  |  |  |  |
|                          |                                   |   |   |  |  |  |  |  |
| BOX 5                    |                                   | BOX 6   |   |  |  |  |  |  |
| Inlet Port               |                                   | Dirt Alarm <sup>®</sup> Options   |   |  |  |  |  |  |
|                          |                                   |   |   |  |  |  |  |  |
| P = 11/4" NPTF           | Visual                            | Omit = None<br>D5 = Visual pop-up   |   |  |  |  |  |  |
| S = SAE-20               | Visual with                       | DS = Visual v/ thermal lockout  |   |  |  |  |  |  |
| B = ISO 228 G-1¼"        | Thermal                           |   |   |  |  |  |  |  |
|                          | Lockout                           |   |   |  |  |  |  |  |
|                          |                                   | MS5 = Electrical w/ 12 in. 18 gauge 4-<br>MS5LC = Low current MS5   | conductor cable                               |  |  |  |  |  |
|                          |                                   | MS10 = Electrical w/ DIN connector (ma  | le end only)                                  |  |  |  |  |  |
|                          |                                   | MS10LC = Low current MS10   | •   |  |  |  |  |  |
|                          | Electrical                        | MS11 = Electrical w/ 12 ft. 4-conductor wire<br>MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)<br>MS12LC = Low current MS12<br>MS16 = Electrical w/ weather-packed sealed connector |   |  |  |  |  |  |
|                          |                                   |   |   |  |  |  |  |  |
|                          |                                   |   |   |  |  |  |  |  |
|                          |                                   | MS16LC = Low current MS16   |   |  |  |  |  |  |
|                          |                                   | MS17LC = Electrical w/ 4 pin Brad Harrisor<br>MS5T = MS5 (see above) w/ thermal loc   |   |  |  |  |  |  |
|                          |                                   | MS5LCT = Low current MS5T   | -   |  |  |  |  |  |
|                          | Elo et d'and                      | MS10T = MS10 (see above) w/ thermal lo  | ockout  |  |  |  |  |  |
|                          | Electrical<br>with                | MS10LCT = Low current MS10T   |   |  |  |  |  |  |
|                          | Thermal                           | MS12T = MS12 (see above) w/ thermal lo<br>MS12LCT = Low current MS12T   | CKOUT   |  |  |  |  |  |
|                          | Lockout                           | MS12LCT = LOW current MS12T<br>MS16T = MS16 (see above) w/ thermal lo   | ckout   |  |  |  |  |  |
|                          |                                   | MS16LCT = Low current MS16T   |   |  |  |  |  |  |
|                          |                                   | MS17LCT = Low current MS17T   |   |  |  |  |  |  |
|                          | Electrical                        | MS13 = Supplied w/ threaded connecto  | r & light                                     |  |  |  |  |  |
|                          | Electrical<br>Visual              | MS14 = Supplied w/ 5 pin Brad Harrisor<br>(male end)  | connector & light                             |  |  |  |  |  |
|                          | Electrical                        | MS13DCT = MS13 (see above), direct currer   | t, w/ thermal lockout                         |  |  |  |  |  |
|                          | Visual                            | MS13DCLCT = Low current MS13DCT   |   |  |  |  |  |  |
|                          | with<br>Thermal                   | MS14DCT = MS14 (see above), direct currer   | t, w/ thermal lockout                         |  |  |  |  |  |
|                          | Lockout                           | MS14DCLCT = Low current MS14DCT   |   |  |  |  |  |  |

NOTES:

- Box 2. Repla part comb 2, 3, Exam E me elem avail seals.
- Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 5. B porting option supplied with metric mounting holes.

#### High-Flow, High-Pressure Longwall Filter LW60



#### **Features and Benefits**

- Horizontal alignment allows straight-through flow, maximizing efficiency and minimizing pressure drop
- Propriety synthetic media designed specifically for the mining industry. Excellement-MD<sup>™</sup> provides level of filtration not achievable using alternative wire mesh elements because of their lack of absolute ratings
- Two-inch BSPP ports are easily adaptable to Super Stecko fittings commonly used underground
- Stainless steel bypass valve that ensures smooth integration with 95/5 fluid
- Non-bypassing version available with high crush (4500 psid) cleanable metal mesh (25 micron) element

Model No. of filter in photograph is LW6039ZPZ5VB32DPG.









| Applications |  |
|--------------|--|
|              |  |

300 gpm

6000 psi 415 bar

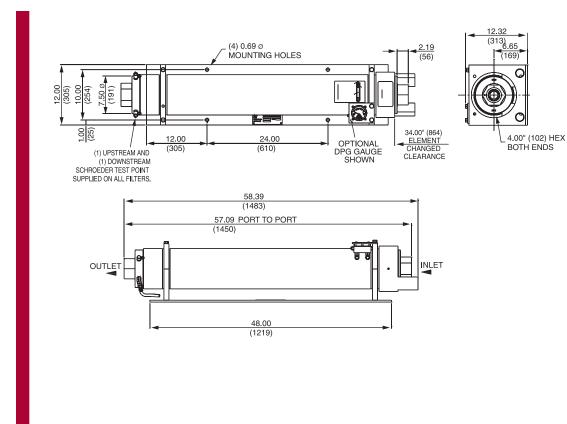
1135 L/min

LW60

| Flow Rating:                 | Up to 300 gpm (1135 L/min) for use with 95/5 fluids                                       | Filter         | NMF30     |
|------------------------------|---|----------------|-----------|
| Max. Operating Pressure:     | 6000 psi (400 bar)  | Housing        |           |
| Min. Yield Pressure:         | 18,000 psi (1240 bar), per NFPA T2.6.1  | Specifications | RMF60     |
| Rated Fatigue Pressure:      | 4500 psi (310 bar), per NFPA T2.6.1   |                | Cartridge |
| Temp. Range:                 | -20°F to 225°F (-29°C to 107°C)   |                | Elements  |
| Bypass Setting:              | Cracking: 50 psi (3.4 bar)<br>LWN60 non-bypassing model available with high crush element |                | HS60      |
| Porting Cap:<br>Housing Cap: | Steel<br>Steel  |                | MHS60     |
| Weight:                      | 550 lb. (250 kg)  |                |           |
| Element Change Clearance:    | 34.0" (864 mm)  |                | KFH50     |



## High-Flow, High-Pressure Longwall Filter



Metric dimensions in ( ).

| Element<br>Performance<br>Information | Element  | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171<br>$\beta_x(c) \ge 1000$ |  |
|---------------------------------------|----------|---|--|
|                                       | 39ZPZ3V  | 5.1   |  |
|                                       | 39ZPZ5V  | 6.1   |  |
|                                       | 39ZPZ10V | 12.1  |  |
|                                       | 39ZPZ25V | 17.7  |  |

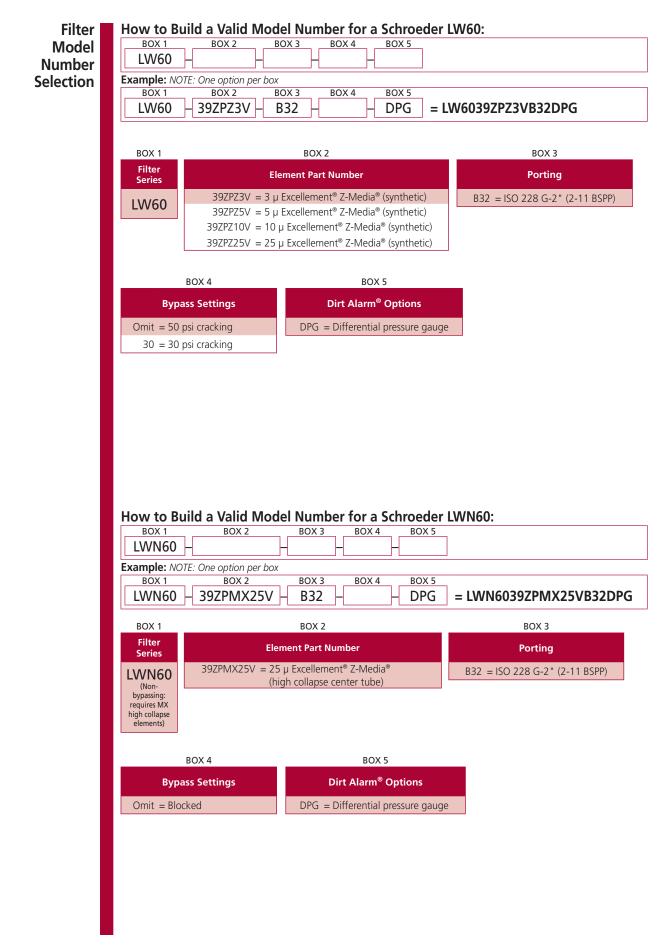
| Dirt Holding |  |
|--------------|--|
| Capacity     |  |

| ling 🗧 | Element                 | DHC (gm)                                   |
|--------|-------------------------|--|
| city   | 39ZPZ3V                 | 449  |
|        | 39ZPZ5V                 | 359  |
|        | 39ZPZ10V                | 429  |
|        | 39ZPZ25V                | 284  |
|        | Element Collapse Rating | <b>j:</b> 150 psid (10 bar)                |
|        | Flow Direction          | : Outside In                               |
|        |                         | l 5.0" (127 mm) O.D. x 38.0" (965 mm) long |
|        | Dimension               |  |
|        |                         |  |
|        |                         |  |
|        |                         |  |
|        |                         |  |
|        |                         |  |
|        |                         |  |
|        |                         |  |

## High-Flow, High-Pressure Longwall Filter LW60

| Specifically de                                   | esigned for     | use with 95/5      | fluids in mining l          | ongwall appli   | cations   |                               |                            | Fluid                | NF30                  |
|---|-----------------|--------------------|-----------------------------|---|---|-------------------------------|----------------------------|----------------------|-----------------------|
|   |                 |                    |                             |   |   |                               |                            | Compatibility        | NFS30                 |
|   |                 |                    |                             |   |   |                               |                            |                      | YF30                  |
|   |                 |                    |                             |   |   |                               |                            |                      | CFX30                 |
|   |                 |                    |                             |   |   |                               |                            |                      | PLD                   |
|   |                 |                    |                             |   |   |                               |                            |                      | <b>DF40</b>           |
| Duana   |                 | ment<br>Part No.   | Element selection           |   |   |                               |                            | Element<br>Selection | CF40                  |
| Pressure  | Series          | 39ZPZ3V            | petroleum base              |   | 2PZ3V   | ) bypass valv                 | /e.                        | Based on             |                       |
| То  | Z-              | 39ZPZ5V            |                             |   | ZPZ5V   |                               |                            | Flow Rate            | <b>PF40</b>           |
| 6000 psi<br>(415 bar)                             | Media®          | 39ZPZ10V           |                             | 39Z   | PZ10V   |                               |                            |                      | LC50                  |
|   |                 | 39ZPZ25V           |                             |   | PZ25V   |                               |                            |                      | DECEO                 |
|   | Flow            | 51                 |                             | 150   | 200   | 250                           | 300                        |                      | RFS50                 |
|   |                 | (L/min)            | b 400                       | 600   | 800   | 1000                          | 1135                       |                      | <b>RF60</b>           |
|   |                 |                    |                             |   |   |                               |                            |                      | <b>CF60</b>           |
| ΔP <sub>housing</sub>                             |                 |                    |                             | $\Delta P_{element}$  |   |                               |                            | Pressure             | CTF60                 |
| LW60 $\Delta P_{housing}$                         | g for fluids wi | th sp gr = 0.86:   |                             | $\Delta P_{\text{element}} = \text{flow x element } \Delta P \text{ factor x viscosity factor}$ |   |                               |                            | Drop<br>Information  | <b>VF60</b>           |
|   | Flow (L/min)    |                    |                             |   | <i>El. ΔP factors @ 150 SUS (32 cSt):</i><br><b>392PZ3V</b> .06 |                               |                            |                      | LW60                  |
| 2 (200) (400) (600) (800) (1000)<br>2 1 1 1 1 1 1 |                 |                    |                             | <b>392P25V</b> .05<br><b>392P210V</b> .04   |   |                               | Flow Rate<br>and Viscosity |                      |                       |
| 1.5   |                 |                    | (0.1)                       | 39ZPZ10V  |   |                               |                            |                      | KF30                  |
| <sup>i</sup> sd 1                                 |                 |                    | (0.0)<br>(par)<br>(0.05) d∑ | If working  | in units of bars  | & L/min, divid                | le above                   |                      | <b>TF50</b>           |
| 0.5   |                 |                    |                             | factor by 5<br>Viscosity fa   | 4.9.<br><i>ctor:</i> Divide visc                                | cosity by 150 S               | US (32 cSt).               |                      | KF50                  |
| 0   |                 |                    |                             |   |   |                               |                            |                      | КС50                  |
| 0   | 50 100<br>F     | 150 200<br>low gpm | 250 300                     |   |   |                               |                            |                      |                       |
|   |                 |                    | I                           |   |   |                               |                            |                      | MKF50                 |
| sp gr = specifi                                   |                 | he based on a      | lement flow infor           | mation provid   | lad in the Flore  | ont Solaction                 | shart above                |                      | KC65                  |
| -   |                 |                    | osity than 150 SUS a        |   |   |                               |                            |                      | NOF30-05              |
|   |                 |                    | ,                           |   |   |                               | ,                          |                      | NOF50                 |
|   |                 |                    |                             | 4.5   |   |                               |                            |                      | FOF60-03              |
| Notes   |                 |                    |                             | ΔP <sub>filter</sub> = 2<br>Exercise:   | $\Delta P_{\text{housing}} + \Delta P_{\text{housing}}$         | element                       |                            |                      | NMF30                 |
|   |                 |                    |                             |   | ∆P at 250 gpm<br>Z3VB32 using 1                                 |                               |                            |                      |                       |
|   |                 |                    |                             | Solution:   |   |                               |                            |                      | RMF60                 |
|   |                 |                    |                             | $\Delta P_{housing}$<br>$\Delta P_{element}$  |   | bar]<br>(150÷150) = 1         | 5.0 psi                    |                      | Cartridge<br>Elements |
|   |                 |                    |                             | ΔP <sub>total</sub>   | or<br>= [950 x (.06 -<br>= 0.7+ 15.0 =                          | ÷54.9) x (32÷3.<br>: 15.7 psi | 2) = 1.1 bar]              |                      | HS60                  |
|   |                 |                    |                             |   | or<br>= [0.05 + 1.1   | = 1.15 bar]                   |                            |                      | MHS60                 |
|   |                 |                    |                             |   |   |                               |                            |                      | KFH50                 |

#### LW60 High Flow, High-Pressure Longwall Filter



#### Base-Ported Pressure Filter **KF30**



|                  | Features and Benefits  | <b>100/150 gpm</b> | NF30              |
|------------------|--|--------------------|-------------------|
|                  | <ul> <li>Base-ported pressure filter</li> </ul>  | 380/570 L/min      | NFS30             |
|                  | <ul> <li>Can be installed in vertical or horizontal position</li> </ul>  | on <b>3000 psi</b> | VEDO              |
|                  | Meets HF4 automotive standard  | 210 bar            | YF30              |
|                  | <ul> <li>Element changeout from top minimizes<br/>oil spillage</li> </ul>  | 210 001            | CFX30             |
|                  | <ul> <li>Offered in pipe, SAE straight thread, flanged<br/>and ISO 228 porting</li> </ul>  |                    | PLD               |
|                  | No-Element indicator option available  |                    | <b>DF40</b>       |
|                  | <ul> <li>Available with non-bypass option with<br/>high collapse element</li> </ul>  |                    | <b>CF40</b>       |
|                  | <ul> <li>Integral inlet and outlet female test points<br/>option available</li> </ul>  |                    | PF40              |
| Tre              | <ul> <li>Offered in conventional subplate porting</li> </ul>   |                    | LC50              |
|                  | Same day shipment model available  |                    | LCOU              |
|                  | <ul> <li>Double and triple stacking of K-size elements of<br/>be replaced by single KK or 27K-size elements</li> </ul>           | an                 | RFS50             |
|                  | <ul> <li>Available with Patented GeoSeal<sup>®</sup> Elements. Se<br/>Section 8 – GeoSeal Filters (page 340) for deta</li> </ul> |                    | <b>RF60</b>       |
| aph is K         | F301K10SD.   |                    | <b>CF60</b>       |
|                  |  |                    | CTF60             |
|                  |  | Applications       | <b>VF60</b>       |
|                  | 0°0  |                    | LW60              |
| E<br>NG          | MACHINE MINING<br>TOOL TECHNOLOGY  |                    | KF30              |
|                  |  |                    | <b>TF50</b>       |
|                  |  |                    | KF50              |
| E                | MOBILE WASTE WATER<br>VEHICLES TREATMENT   |                    | КС50              |
|                  | VEHICLES TREATMENT   |                    | MKF50             |
|                  |  |                    | KC65              |
|                  |  | NC                 | )F30-05           |
| With             | 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids<br>2" porting only, up to 150 gpm (570 L/min)                                    | Filter<br>Housing  | NOF50             |
|                  | 50 SUS (32 cSt) fluids<br>osi (210 bar)  | Specifications FC  | )F60-03           |
|                  | ) psi (830 bar), per NFPA T2.6.1   |                    | NMF30             |
|                  | osi (170 bar), per NFPA T2.6.1-2005  |                    |                   |
| -20°F t          | to 225°F (-29°C to 107°C)  |                    | RMF60             |
| Full Flo         | ng: 40 psi (2.8 bar)<br>w: 61 psi (4.2 bar)<br>ypassing model has a blocked bypass.  |                    | ntridge<br>ements |
| Ductile<br>Steel | e Iron   |                    | HS60              |
| 48 lbs.          | (22 kg)  |                    |                   |

Model No. of filter in photograph is KF301K10SD.

AUTOMOTIVE

MANUFACTURING



INDUSTRIAL







AGRICULTURE

Flow Rating:

Max. Operating Pressure:

Min. Yield Pressure: Rated Fatigue Pressure:

> Porting Base & Cap: Element Case:

> Weight of KF30-1K:

Weight of KF30-2K:

Weight of KF30-3K:

Element Change Clearance:

Temp. Range: **Bypass Setting:** 



MOBILE VEHICLES

8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

65 lbs. (30 kg)

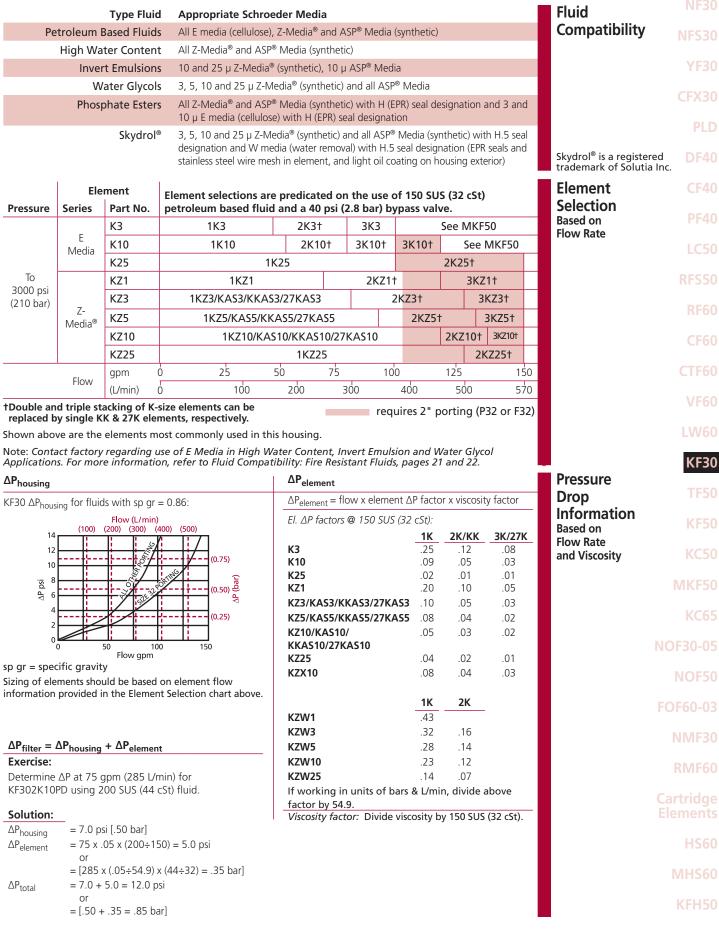
81 lbs. (37 kg)

**SCHROEDER INDUSTRIES 105** 

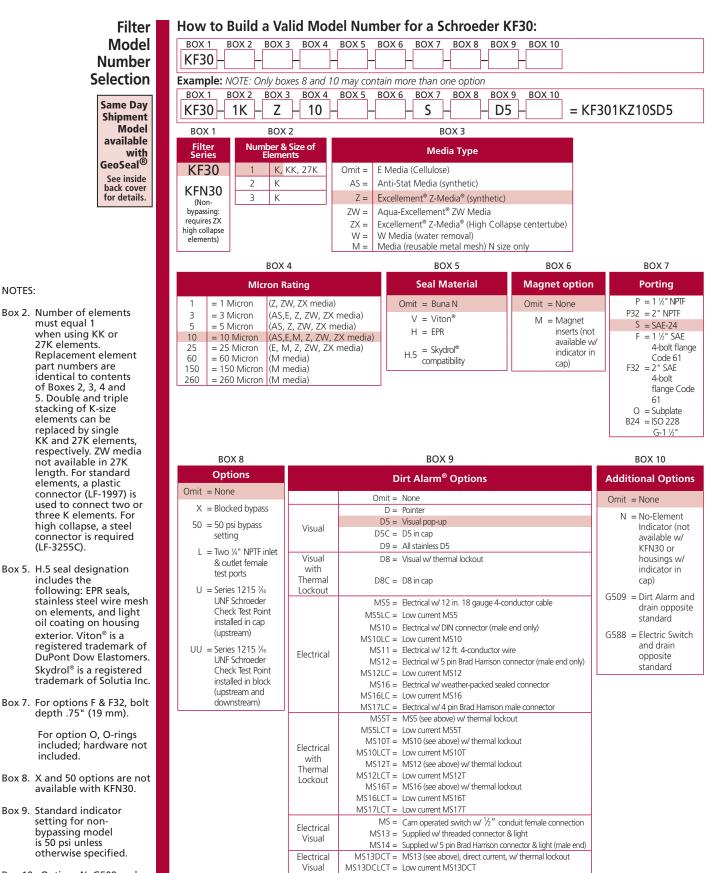
## **KF30** Base-Ported Pressure Filter

|              | Tatic dimon   | 6.06 FOR SAE<br>(18<br>6.25 FOR PIP<br>(1 | N 2.62 (67)<br>3.25 (83)<br>4.400.7 FL5<br>49<br>59 |             | .56 (14)<br>(4) MC  |                             | 6.25<br>(159) 2.60<br>(159) 2.60<br>(159) 2.60<br>(150) | PLUG<br>PLUG<br>PLUG<br>PLUG<br>PLUG | (35) Ø C'BOREE<br>O-RING   |                   |              |  |  |
|--------------|---|---|---|-------------|---|-----------------------------|---|--------------------------------------|--|-------------------|--------------|--|--|
| Element      | Metric dimensions in ( ).  Flement Figure Filtration Ratio Per  |   |   |             |   |                             |   |                                      |  |                   |              |  |  |
| Performance  |   |   |   |             | ISO 4572/NFPA T3.10.8.8<br>Using automated particle counter (APC) |                             |   |                                      | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                   |              |  |  |
| Information  |   |   |   |             |   | calibrated per              |   | > 200                                | 0 (1) > 2  |                   | ≥ 1000       |  |  |
|              | Element<br>K3/KK3/27K   |   |   |             | <b>β<sub>X</sub> ≥ 75</b><br>6.8                                  | β <sub>X</sub> ≥ 100<br>7.5 | <u>, a</u>  | <b>x</b> ≥ <b>200</b><br>10.0        | β <sub>X</sub> (c) ≥ 2<br>N/A  |                   | 2 1000<br>/A |  |  |
|              | K10/KK10/27K1   | 0   |   |             | 15.5  | 16.2                        |   | 18.0                                 | N/A  |                   | /A           |  |  |
|              | KZ1/KKZ1/27KZ1  |   |   |             | <1.0  | <1.0                        |   | <1.0                                 | <4.0 4.2   |                   | .2           |  |  |
|              | KZ3/KKZ3/27KZ3/KAS3/KKAS3/27KAS3  |   |   |             | <1.0  | <1.0                        |   | <2.0                                 | <4.0 4.8   |                   | .8           |  |  |
|              | KZ5/KKZ5/27KZ5/KAS5/KKAS5/27KAS5  |   |   |             | 2.5   | 3.0                         |   | 4.0                                  | 4.8 6.3  |                   | .3           |  |  |
|              | KZ10/KKZ10/27KZ10/KAS10/KKAS10/27KAS10  |   |   |             | 7.4   | 8.2                         |   | 10.0                                 | 8.0 1  |                   | 0.0          |  |  |
|              | KZ25/KKZ25/27KZ25   |   |   |             | 18.0  | 20.0                        |   | 22.5                                 | 19.0 24.0  |                   | 1.0          |  |  |
|              | KZW1  |   |   |             | N/A   | N/A                         |   | N/A                                  | <4.0 <4.0  |                   | 4.0          |  |  |
|              | KZW3/KKZW3  |   |   |             | N/A   | N/A                         |   | N/A                                  | 4.0 4.8  |                   |              |  |  |
|              | KZW5/KKZW5  |   |   |             | N/A   | N/A                         |   | N/A                                  | 5.1 6.4  |                   |              |  |  |
|              | KZW10/KKZW10  |   |   |             | N/A   | N/A                         |   | N/A                                  | 6.9 8.6  |                   |              |  |  |
|              | KZW25/KKZW25<br>KZX3/KKZX3/27KZX3   |   |   |             | N/A   | N/A<br><1.0                 |   | N/A<br><2.0                          | 15.4 18.5<br>4.7 5.8   |                   |              |  |  |
|              | KZX10/KKZX10/27KZX10  |   |   |             | <1.0<br>7.4   | 8.2                         |   | 10.0                                 | 8.0 9.8  |                   |              |  |  |
|              |   |   | 1   |             |   | 0.12                        |   |                                      |  |                   |              |  |  |
| Dirt Holding | Element   | DHC                                       | Element   | DHC         |   | +                           | DHC<br>(gm)   | Element                              | DHC<br>(gm)  | Element           | DHC<br>(gm)  |  |  |
| Capacity     | K3  | <b>(gm)</b><br>54                         | KK3   | (gm)<br>108 | 27K3  |                             | 162   | Liement                              | (giii)   | Liement           | (giii)       |  |  |
|              | K10   | 44  | KK10  | 88          | 27K10   |                             | 132   |                                      |  |                   |              |  |  |
|              | KZ1   | 112                                       | KKZ1  | 224         | 27KZ1   |                             | 336   | KZW1                                 | 61   |                   |              |  |  |
|              | KZ3/KAS3  | 115                                       | KKZ3/KKAS3  | 230         |   | /27KAS3                     | 345   | KZW3                                 | 64   | KKZW3             | 128          |  |  |
|              | KZ5/KAS5  | 119                                       | KKZ5/KKAS5  | 238         | B 27KZ5/27KAS5  |                             | 357   | KZW5                                 | 63   | KKZW5             | 126          |  |  |
|              | KZ10/KAS10  | 108                                       | KKZ10/KKAS10  | 216         | 6 27KZ10/27KAS10  |                             | 324   | KZW10                                | 57   | KKZW10            | 114          |  |  |
|              | KZ25  | 93  | KKZ25   | 186         | 27KZ2   | 5                           | 279   | KZW25                                | 79   | KKZW25            | 158          |  |  |
|              | KZX3  | 40*                                       | KKZX3   | 80          | 27KZX   |                             | 120   |                                      |  |                   |              |  |  |
|              | KZX10   | 49*                                       | KKZX10  | 98          | 27KZX   |                             | 147   |                                      |  | *Based on 100 psi |              |  |  |
|              | Element Collapse Rating: 150 psid (10 bar) for standard elements terminal 3000 psid (210 bar) for high collapse (ZX) versions |   |   |             |   |                             | pressure  |                                      |  |                   |              |  |  |
|              | Flow Direction: Outside In  |   |   |             |   |                             |   |                                      |  |                   |              |  |  |
|              |   |   |   |             |   | m) O.D. x 9                 | .0" (230  | mm) long                             |  |                   |              |  |  |
|              | KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long<br>27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long                                   |   |   |             |   |                             |   |                                      |  |                   |              |  |  |

#### Base-Ported Pressure Filter KF30



#### **KF30** Base-Ported Pressure Filter



Box 10. Options N, G509 and G588 are not available with KFN30. N option should be used in conjunction with dirt alarm.

NOTES:

with

Thermal

Lockout

MS14DCT = MS14 (see above), direct current, w/ thermal lockout

MS14DCLCT = Low current MS14DCT

### Base-Ported Pressure Filter **TF50**



### **Features and Benefits**

- Base-ported pressure filter
- Can be installed in vertical or horizontal position
- Element changeout from top minimizes oil spillage
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Offered in conventional subplate porting

### Model No. of filter in photograph is TF502A10P.







MACHINE TOOL



MINING TECHNOLOGY



MAKING



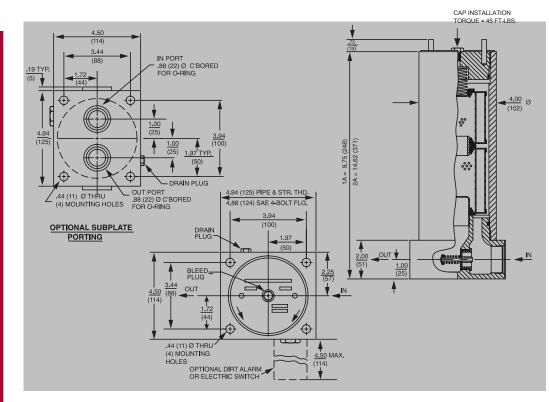
|              | <b>CF60</b> |
|--------------|-------------|
|              | CTF60       |
| Applications | VF60        |
|              | LW60        |
|              | KF30        |
|              | <b>TF50</b> |
|              | KF50        |
|              | КС50        |
|              | MKF50       |
|              | KC65        |
|              |             |

40 gpm 150 L/min

5000 psi 345 bar

| Flow Rating:                             | Up to 40 gpm (150 L/min) for 150 SUS (32 cSt) fluids   | The            | FOF60-03              |
|--|--|----------------|-----------------------|
| Max. Operating Pressure:                 | 5000 psi (345 bar)   | Housing        | NMF30                 |
| Min. Yield Pressure:                     | 15,000 psi (1035 bar), per NFPA T2.6.1   | Specifications |                       |
| Rated Fatigue Pressure:                  | 3500 psi (240 bar), per NFPA T2.6.1-2005   |                | RMF60                 |
| Temp. Range:                             | -20°F to 225°F (-29°C to 107°C)  |                |                       |
| Bypass Setting:                          | Cracking: 40 psi (2.8 bar)<br>Full Flow: 69 psi (4.8 bar)<br>Non-bypassing model has a blocked bypass. |                | Cartridge<br>Elements |
| Porting Base:<br>Element Case & Cap:     |  |                | HS60                  |
| Weight of TF50-1A:<br>Weight of TF50-2A: |  |                | MHS60                 |
| Element Change Clearance:                | 8.50" (215 mm)   |                | KFH50                 |

## **TF50** Base-Ported Pressure Filter



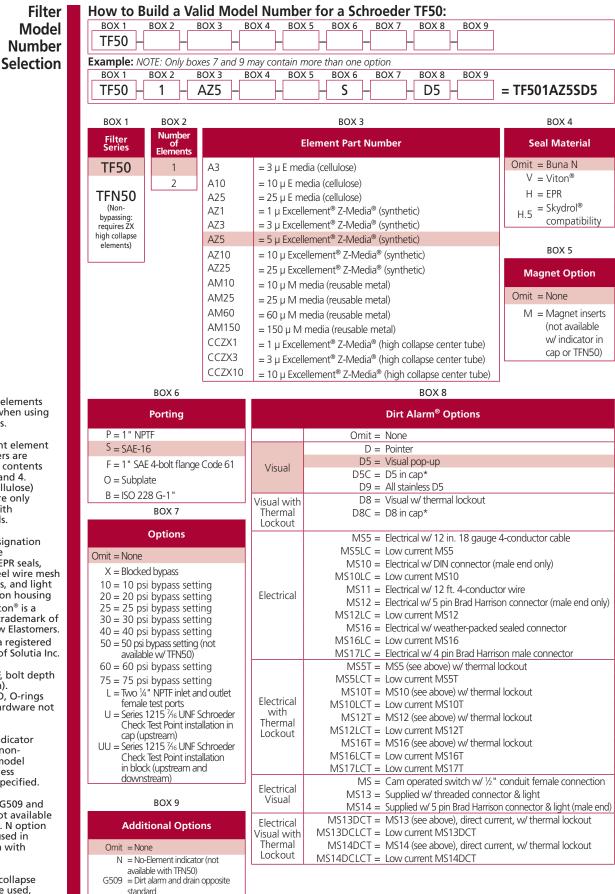
Metric dimensions in ( ).

| Element<br>Performance |             |                    | tio Per ISO 4572/N<br>article counter (APC) cali |   |                      | io per ISO 16889<br>rated per ISO 11171 |
|------------------------|-------------|--------------------|--|---|----------------------|---|
| Information            | Element     | $\beta_x \ge 75$   | $\beta_x \ge 100$                                | $B_x \ge 200$                                 | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$                   |
|                        | A3          | 6.8                | 7.5  | 10.0  | N/A                  | N/A                                     |
|                        | A10         | 15.5               | 16.2   | 18.0  | N/A                  | N/A                                     |
|                        | AZ1         | <1.0               | <1.0   | <1.0  | <4.0                 | 4.2                                     |
|                        | AZ3         | <1.0               | <1.0   | <2.0  | <4.0                 | 4.8                                     |
|                        | AZ5         | 2.5                | 3.0  | 4.0   | 4.8                  | 6.3                                     |
|                        | AZ10        | 7.4                | 8.2  | 10.0  | 8.0                  | 10.0                                    |
|                        | AZ25        | 18.0               | 20.0   | 22.5  | 19.0                 | 24.0                                    |
|                        | CCZX3       | <1.0               | <1.0   | <2.0  | 4.7                  | 5.8                                     |
|                        | CCZX10      | 7.4                | 8.2  | 10.0  | 8.0                  | 10.0                                    |
| Dirt Holding           | Element     | DHC (gm)           |  |   |                      |   |
| Capacity               | A3          | 16                 |  |   |                      |   |
|                        | A10         | 13                 |  |   |                      |   |
|                        | AZ1         | 25                 |  |   |                      |   |
|                        | AZ3         | 26                 |  |   |                      |   |
|                        | AZ5         | 30                 |  |   |                      |   |
|                        | AZ10        | 28                 |  |   |                      |   |
|                        | AZ25        | 28                 |  |   |                      |   |
|                        | CCZX3       | 26*                |  |   |                      |   |
|                        | CCZX10      | 28*                |  |   |                      |   |
|                        | Elemen      | t Collapse Rating: |  | r standard elements<br>for high collapse (ZX) | versions             | *Based on 100 psi<br>terminal pressure  |
|                        |             | Flow Direction:    | Outside In                                       |   |                      |   |
|                        | Element Nor | minal Dimensions:  |  | O.D. x 4.5" (115 mm)<br>O.D. x 9.5" (240 mm)  |                      |   |

## Base-Ported Pressure Filter TF50

| Type Fluid  | Appropriate Schroeder Media  |  |                  | Fluid NF30                      |
|---|--|--|------------------|---------------------------------|
| Petroleum Based Fluids  | Compatibility NFS30  |  |                  |                                 |
| High Water Content  | All Z-Media <sup>®</sup> (synthetic)   |  |                  |                                 |
| Invert Emulsions  | 10 and 25 $\mu$ Z-Media® (synthetic)   |  |                  | YF30                            |
| ,   | 3, 5, 10 and 25 µ Z-Media <sup>®</sup> (synthetic                                |  |                  | CFX30                           |
| •   | All Z-Media <sup>®</sup> (synthetic) with H (EP                                  | -  | ation (FDD cools |                                 |
|   | 3, 5, 10 and 25 $\mu$ Z-Media <sup>®</sup> (synthesis steel wire mesh in element |  |                  | br) Skydrol is a registered PED |
|   | ement selections are predicate<br>etroleum based fluid and a 40                  |  |                  | Element DF40<br>Selection       |
| A3  | 1A3  | 2A3  | See KF5          | Based on CF40                   |
| E<br>Media  | 1A10   | 2A   | 10               | Flow Rate PF40                  |
| A25   | 1/   | \25  |                  |                                 |
| To AZ1  | 1AZ1 2AZ1  | T  | e KF50           | LC50                            |
| (345 bar) Z- AZS  | 1AZ3   | 2AZ3   | 2AZ5             | RFS50                           |
| Media <sup>®</sup> AZ5  | 1AZ5   | & 2AZ10  | ZALD             |                                 |
| AZ25  |  | & 2AZ25  |                  |                                 |
| gpm 0   | 5 10 15  | 20 25 30   | 35 4             | CF60                            |
| Flow (L/min) 0  | 50   | 100  | 15               | 0 CTF60                         |
| Shown above are the elements most of Note: Contact factory regarding use of | , ,  | nt. Invert Emulsion and                                | l Water Glycol   | VF60                            |
| Applications. For more information, r                                       | refer to Fluid Compatibility: Fire   | Resistant Fluids, pages                                |                  | LW60                            |
| ΔP <sub>housing</sub>   | ΔP <sub>eleme</sub>  |  |                  | Pressure                        |
| TF50 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.8                |  | $t = flow x element \Delta P fa$                       |                  |                                 |
| Flow (L/min)  |  | ctors @ 150 SUS (32 cSt)<br><b>1A 2A</b>               | ):               | Information<br>Based on TF50    |
| (25) (75)   | (125) A3   | .53 .27  | -                | Flow Rate                       |
| 10  | (0.75) A10 A25   | .36 .18<br>.05 .03                                     |                  | and Viscosity KF50              |
| 8   | AZ1  | .70 .35  |                  | КС50                            |
| isd d⊴  | (0.50) (ling<br>d√ AZ3<br>AZ5  | .50 .25<br>.32 .16                                     |                  | RC50                            |
| 4   | (0.25) AZ10  | .25 .13  |                  | MKF50                           |
| 2   | AZ25   | .14 .07  |                  | КС65                            |
|   | 30 40 CCZX3  | .29<br>.26   |                  | KC05                            |
| Flow gpm  | lf worki   | ng in units of bars & L/                               | min, divide abo  | ve NOF30-05                     |
| sp gr = specific gravity<br>Sizing of elements should be based on a         | -  | factor: Divide viscosity                               |                  | e cst). NOF50                   |
| Notes   | · ·  |  |                  | FOF60-03                        |
| Notes   | ΔP <sub>filter</sub><br>Exercise   | $= \Delta P_{\text{housing}} + \Delta P_{\text{elem}}$ | ent              | NMF30                           |
|   |  | ne ∆P at 20 gpm (75 L/<br>Z3SMS using 200 SUS (        |                  | RMF60                           |
|   | Solutio<br>ΔP <sub>housing</sub><br>ΔP <sub>elemen</sub>                         | = 2.5 psi [.22 bar]                                    | -150) = 6.7 psi  | Cartridge<br>Elements           |
|   |  | or<br>= [75 x (.25÷54.9)                               | x (44÷32) = .47  | bar] HS60                       |
|   |  |  |                  |                                 |
|   | ΔP <sub>total</sub>  | = 2.5 + 6.7 = 9.2 p<br>or                              | •                | MHS60                           |
|   | ΔP <sub>total</sub>  |  | •                | MHS60<br>KFH50                  |

### **TF50** Base-Ported Pressure Filter



NOTES:

- Box 2. Number of elements must be 1 when using CC elements.
- Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4. E media (cellulose) elements are only available with Buna N seals.
- Box 4. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 6. For option F, bolt depth .75" (19 mm). For option O, O-rings included; hardware not included.
- Box 8. Standard indicator setting for nonbypassing model is 50 psi unless otherwise specified.
- Box 9. Options N, G509 and G588 are not available with TFN50. N option should be used in conjunction with dirt alarm.
  - When high collapse elements are used, indicators are incompatible in the cap.

G588 = Electrical switch and drain

opposite standard

### Base-Ported Pressure Filter **KF50**



### **Features and Benefits**

- Base-ported high pressure filter Can be installed in vertical or horizontal position
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- No-Element indicator option available
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Offered in conventional subplate porting
- Double and triple stacking of K-size elements can be replaced by single KK or 27K-size elements
- Available with Patented GeoSeal<sup>®</sup> Elements. See Section 8 – GeoSeal Filters (page 340) for details.

| 100/150 gpm   | NF30        |
|---------------|-------------|
| 380/570 L/min | NFS30       |
| 5000 psi      | YF30        |
| 345 bar       | CFX30       |
|               | PLD         |
|               | DF40        |
|               | CF40        |
|               | PF40        |
|               | LC50        |
|               | RFS50       |
|               | RF60        |
|               | <b>CF60</b> |
| I             | CTF60       |
|               |             |

**Applications** 

**KF50** 

Model No. of filter in photograph is KF501K10SD.











MACHINE

TOOL



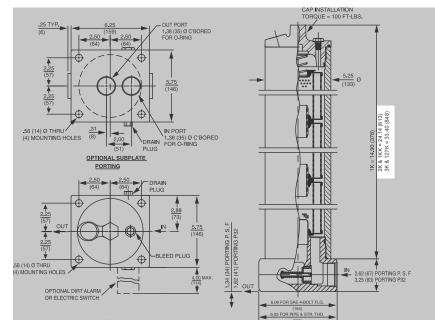


| PULP & PAPER AGRICULT  |  | Ν                         | KC50<br>MKF50<br>KC65<br>OF30-05 |
|--|--|---------------------------|----------------------------------|
| Flow Rating:   | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids<br>With 2" porting only, up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids       | Filter                    | NOF50                            |
| Max. Operating Pressure:                                       | 5000 psi (345 bar)   | Housing<br>Specifications | OF60-03                          |
| Min. Yield Pressure:   | 15,000 psi (1035 bar), per NFPA T2.6.1   | specifications            | NMF30                            |
| Rated Fatigue Pressure:  | 3500 psi (240 bar), per NFPA T2.6.1-2005   |                           |                                  |
| Temp. Range:   | -20°F to 225°F (-29°C to 107°C)  |                           | RMF60                            |
| Bypass Setting:  | Cracking: 40 psi (2.8 bar) Optional Cracking: 50 psi (3.5 bar)<br>Full Flow: 61 psi (4.2 bar)<br>Non-bypassing model has a blocked bypass. |                           | artridge<br>lements              |
| Porting Base & Cap:<br>Element Case:                           | Ductile Iron<br>Steel  |                           | HS60                             |
| Weight of KF50-1K:<br>Weight of KF50-2K:<br>Weight of KF50-3K: | 59.7 lbs. (27.1 kg)<br>80.7 lbs. (36.6 kg)<br>102.0 lbs. (46.3 kg)   |                           | MHS60                            |
| Element Change Clearance:                                      | 8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K  |                           | KFH50                            |

STEEL

MAKING

## **KF50** Base-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

|  | ISO<br>Using au     | iltration Rat<br>4572/NFPA T<br>Itomated particle<br>calibrated per ISC | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                          |                           |
|--|---------------------|---|--|--------------------------|---------------------------|
| Element                                | β <sub>X</sub> ≥ 75 | $\beta_X \ge 100$   | $\beta_X \ge 200$  | β <sub>X</sub> (c) ≥ 200 | β <sub>X</sub> (c) ≥ 1000 |
| K3/KK3/27K                             | 6.8                 | 7.5   | 10.0   | N/A                      | N/A                       |
| K10/KK10/27K10                         | 15.5                | 16.2  | 18.0   | N/A                      | N/A                       |
| KZ1/KKZ1/27KZ1                         | <1.0                | <1.0  | <1.0   | <4.0                     | 4.2                       |
| KZ3/KKZ3/27KZ3/KAS3/KKAS3/27KAS3       | <1.0                | <1.0  | <2.0   | <4.0                     | 4.8                       |
| KZ5/KKZ5/27KZ5/KAS5/KKAS5/27KAS5       | 2.5                 | 3.0   | 4.0  | 4.8                      | 6.3                       |
| KZ10/KKZ10/27KZ10/KAS10/KKAS10/27KAS10 | 7.4                 | 8.2   | 10.0   | 8.0                      | 10.0                      |
| KZ25/KKZ25/27KZ25                      | 18.0                | 20.0  | 22.5   | 19.0                     | 24.0                      |
| KZW1                                   | N/A                 | N/A   | N/A  | <4.0                     | <4.0                      |
| KZW3/KKZW3                             | N/A                 | N/A   | N/A  | 4.0                      | 4.8                       |
| KZW5/KKZW5                             | N/A                 | N/A   | N/A  | 5.1                      | 6.4                       |
| KZW10/KKZW10                           | N/A                 | N/A   | N/A  | 6.9                      | 8.6                       |
| KZW25/KKZW25                           | N/A                 | N/A   | N/A  | 15.4                     | 18.5                      |
| KZX3/KKZX3/27KZX3                      | <1.0                | <1.0  | <2.0   | 4.7                      | 5.8                       |
| KZX10/KKZX10/27KZX10                   | 7.4                 | 8.2   | 10.0   | 8.0                      | 9.8                       |

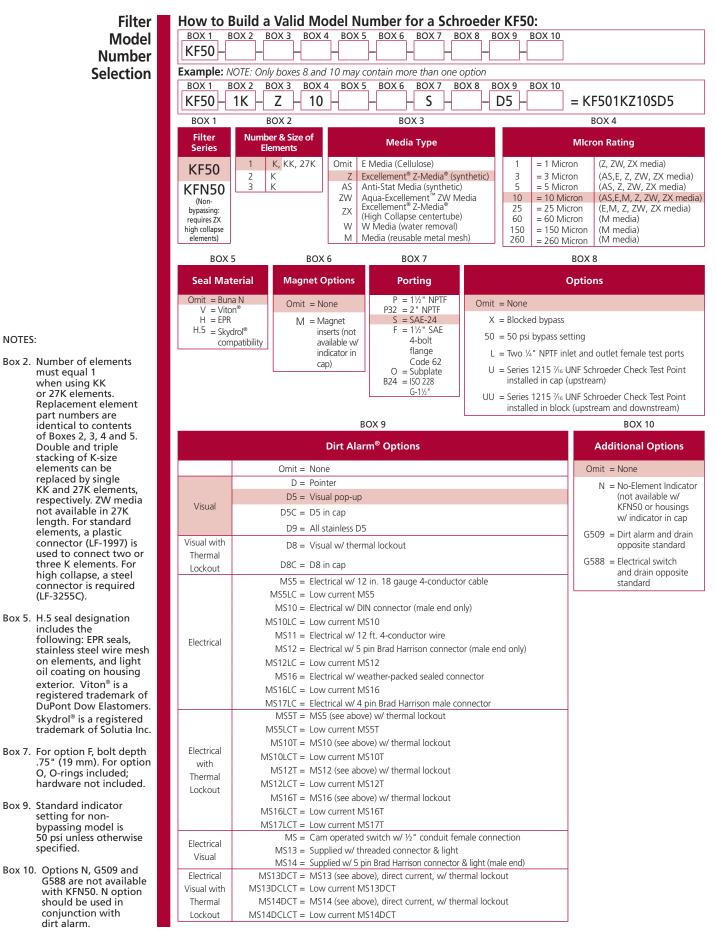
### Dirt (

| Holding<br>Capacity | Element    | DHC<br>(gm) | Element         | DHC<br>(gm)          | Element   | DHC<br>(gm) | Element | DHC<br>(gm) | Element  | DHC<br>(gm) |
|---------------------|------------|-------------|-----------------|----------------------|---|-------------|---------|-------------|----------|-------------|
| . ,                 | К3         | 54          | ККЗ             | 108                  | 27K3  | 162         |         |             |          |             |
|                     | K10        | 44          | KK10            | 88                   | 27K10   | 132         |         |             |          |             |
|                     | KZ1        | 112         | KKZ1            | 224                  | 27KZ1   | 336         | KZW1    | 61          |          |             |
|                     | KZ3/KAS3   | 115         | KKZ3/KKAS3      | 230                  | 27KZ3/27KAS3  | 345         | KZW3    | 64          | KKZW3    | 128         |
|                     | KZ5/KAS5   | 119         | KKZ5/KKAS5      | 238                  | 27KZ5/27KAS5  | 357         | KZW5    | 63          | KKZW5    | 126         |
|                     | KZ10/KAS10 | 108         | KKZ10           | 216                  | 27KZ10/27KAS10  | 324         | KZW10   | 57          | KKZW10   | 114         |
|                     | KZ25       | 93          | KKZ25           | 186                  | 27KZ25  | 279         | KZW25   | 79          | KKZW25   | 158         |
|                     | KZX3       | 40*         | KKZX3           | 80                   | 27KZX3  | 120         |         |             |          |             |
|                     | KZX10      | 49*         | KKZX10          | 98                   | 27KZX10   | 147         |         |             | *Based o | n 100 psi   |
|                     | Ele        | ement Co    | ollapse Rating: | 150 psid<br>3000 psi |   | l pressure  |         |             |          |             |
|                     |            | -           | low Direction:  |                      |   |             |         |             |          |             |
|                     | Elemen     | t Nomin     | al Dimensions:  | KK: 3.               | 9" (99 mm) O.D. x<br>9" (99 mm) O.D. x<br>9" (99 mm) O.D. x |             |         |             |          |             |

### Base-Ported Pressure Filter KF50

|  | oleum Based   | d Fluids All                    | propriate Schroe<br>E media (cellulose),                                       | Z-Media® a  | and ASP <sup>®</sup>     | Media                  | (syntheti                      | ic)       |                            |            | Fluid<br>Compatibility                                     | NF30         |
|--|---|---------------------------------|--|---|--------------------------|------------------------|--------------------------------|-----------|----------------------------|------------|--|--------------|
| ŀ  | High Water Content         All Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic)           Invert Emulsions         10 and 25 μ Z-Media <sup>®</sup> (synthetic), 10 μ ASP <sup>®</sup> Media |                                 |  |   |                          |                        |                                |           | NFS30                      |            |  |              |
|  |   | Glycols 3,<br>Esters All        | 5, 10 and 25 μ Z-M<br>Z-Media <sup>®</sup> and ASP <sup>®</sup>                | edia <sup>®</sup> (syntl<br><sup>®</sup> Media (syl | hetic) and<br>nthetic) v | d all ASP<br>vith H (E | <sup>®</sup> Media<br>PR) seal |           |                            | d 3        |  | YF30         |
|  | S   | kydrol® 3,                      | <mark>d 10 μ E media (cell</mark><br>5, 10 and 25 μ Z-Me<br>signation and W me | edia® (synth  | etic) and                | all ASP®               | Media (                        |           |                            |            |  | <b>CFX30</b> |
|  |   |                                 | inless steel wire mes  |   |                          |                        |                                |           |                            |            | Skydrol <sup>®</sup> is a register<br>trademark of Solutia |              |
|  | Eler  | nent                            | Flow capacity s  | elections   | are pred                 | dicated                | on the                         | use of    | 150 SI                     | IS         | Flow Capacity<br>Selection                                 | <b>DF40</b>  |
| Pressure   | Series  | Part No.                        | (32 cSt) petrole   |   |                          |                        |                                |           |                            |            | Based on   | <b>CF40</b>  |
|  | Е   | К3                              | 1K3  | 2K3†  |                          | 3K3                    |                                |           | MKF5                       |            | Pressure Drops   | PF40         |
|  | Media   | K10                             | 1K10   | 2K10  | D† 3                     | 3K10†                  | 3K10†                          | _         | See M                      | KF50       |  | FF4U         |
| То   |   | K25<br>KZ1                      | 1KZ1   | 1K25  |                          | 2KZ1†                  |                                | 2K2       |                            |            |  | LC50         |
| 5000 psi   |   | KZI<br>KZ3                      | 1KZ3/KAS3/KK   | ( AS3/27K /   |                          |                        |                                |           | 3KZ1†<br>3KZ3 <sup>-</sup> | +          |  | RFS50        |
| (345 bar)  | Z-  | KZ5                             | 1KZ5/KA55/KA   |   |                          | 21                     | 2KZ51                          | +         | 3KZ                        |            |  | KF33U        |
|  | Media®  | KZ10                            |  | AS10/KKA  |                          | CAS10                  | LILLS                          | 2KZ10     |                            | Z10†       |  | <b>RF60</b>  |
|  |   | KZ25                            |  | 1K2   | Z25                      |                        |                                |           | 2KZ25                      | it i       |  | CECO         |
|  | Flow  | gpm                             | 0 25   | 50  | 75                       | 100                    | 1                              | 125       |                            | 150        |  | <b>CF60</b>  |
|  |   | (=)                             | 0 100  | 200   | 300                      | 40                     | 00                             | 500       |                            | 570        |  | CTF60        |
|  |   |                                 | elements can<br>ients, respectivel   | у.  |                          |                        | requi                          | res 2"    | porting                    | g (P32)    |  | <b>VF60</b>  |
|  |   |                                 | nmonly used in thi   | 5   |                          |                        |                                |           |                            |            |  | LW60         |
|  |   |                                 | Media in High Wa<br>to Fluid Compati   |   |                          |                        |                                |           |                            |            |  |              |
| ΔP <sub>housing</sub>  |   |                                 |  | ΔP <sub>eleme</sub>                                 |                          |                        |                                |           |                            |            | Pressure   | KF30         |
| KF50 ΔP <sub>housing</sub>                                     | for fluids with   | a = 0.86                        |  |   | nt = flow                | x elemer               | nt ΔP fac                      | ctor x vi | scosity f                  | factor     | Drop   | TF50         |
| housing  |   | v (L/min)                       |  |   | ctors @                  |                        |                                |           |                            |            | Information  | KEEO         |
| <sup>14</sup>  | (100) (200)   | (300) (400) (50                 | 00)  |   |                          |                        | 1K                             | 21        | к/кк                       | 3K/27K     | Based on<br>Flow Rate                                      | KF50         |
| 12   |   |                                 |  | K3<br>K10   |                          |                        | .25<br>.09                     |           | .12<br>.05                 | .08<br>.03 | and Viscosity  | KC50         |
| 10<br>   |   | AN ING                          |  | K25   |                          |                        | .02                            | 2         | .01                        | .01        |  |              |
| o P psi  | <u>╬╬-</u>  | A LE 32                         | ∆P (bar)   | KZ1   | S3/KKAS                  | א אדר/כ                | .20<br>3 <b>3</b> .10          |           | .10<br>.05                 | .05<br>.03 |  | MKF50        |
| 4  |   |                                 | (0.25)   |   | SS/KKAS                  |                        |                                |           | .05                        | .03        |  | KC65         |
| 2  |   |                                 |  | KZ10/K/   | AS10/<br>/27KAS1         | 0                      | .05                            | 5         | .03                        | .02        |  |              |
| 0  | 50<br>Flo   | 100<br>ow gpm                   | 150  | KZ25  | /2/ (A)                  | 0                      | .04                            | Ļ         | .02                        | .01        |  | NOF30-05     |
|  |   | 51                              |  | KZX10   |                          |                        | .08                            | 3         | .04                        | .03        |  | NOF50        |
| sp gr = specif   |   |                                 |  | KZW1  |                          |                        | 1K<br>.43                      |           | <u>2K</u>                  |            |  |              |
|  |   | e based on ele<br>Element Selec | ment flow<br>tion chart above.   | KZWI  |                          |                        | .45                            |           | .16                        |            |  | FOF60-03     |
|  |   |                                 |  | KZW5  |                          |                        | .28                            |           | .14                        |            |  | NMF30        |
| $\frac{\Delta P_{\text{filter}} = \Delta I}{\text{Exercise:}}$ | $P_{housing} + \Delta P$  | element                         |  | KZW10<br>KZW25                                      |                          |                        | .23<br>.14                     |           | .12<br>.07                 |            |  |              |
|  | P at 50 gpm (1  | 90 L/min) for                   |  | If worki  | ng in uni                | ts of bar              |                                |           |                            | factor     |  | RMF60        |
|  |   | JS (44 cSt) fluid               | l  | by 54.9.<br><i>Viscosit</i> y                       | / factor:                | Divide vi              | scosity b                      | y 150 Sl  | US (32 cs                  | St).       |  | Cartridge    |
| Solution:  |   |                                 |  |   |                          |                        |                                |           |                            |            |  | Elements     |
| $\Delta P_{housing}$<br>$\Delta P_{element}$                   |   | bar]<br>200÷150) = 6.           | 7 psi  |   |                          |                        |                                |           |                            |            |  | HS60         |
|  | or<br>= [190 x (.10-  | ÷54.9) x (44÷3)                 | 2) = .48 bar]  |   |                          |                        |                                |           |                            |            |  | МПССО        |
| $\Delta P_{total}$   | = 3.0 + 6.7 =<br>or   |                                 |  |   |                          |                        |                                |           |                            |            |  | MHS60        |
|  | = [.20 + .48 =  | = .68 bar]                      |  |   |                          |                        |                                |           |                            |            |  | KFH50        |
|  |   |                                 |  |   |                          |                        | CURO                           |           |                            | TRIES 1    | 4 6  |              |

### KF50 Base-Ported Pressure Filter



### Base-Ported Pressure Filter Patent No. 6,843,378 for filter cap seal. KC



|     | F                                       | eatures and Benefits  | 100/150 grams  | NF30                  |
|-----|---|---|----------------|-----------------------|
|     |   | Base-ported high pressure filter  | 100/150 gpm    | NECOO                 |
|     |   | Patented dirt-tolerant cap design   | 380/570 L/min  | NFS30                 |
|     |   | Can be installed in vertical or horizontal position   | 5000 psi       | YF30                  |
|     |   | Meets HF4 automotive standard   | 345 bar        | CEVOO                 |
|     |   | Element changeout from top minimizes<br>oil spillage  |                | CFX30<br>PLD          |
|     | -                                       | Offered in pipe, SAE straight thread, flanged and ISO 228 porting   |                | DF40                  |
|     |   | No-Element indicator option available   |                |                       |
|     |   | Available with non-bypass option with<br>high collapse element  |                | <b>CF40</b>           |
|     | -                                       | Integral inlet and outlet female test points option available   |                | <b>PF40</b>           |
|     |   | Offered in conventional subplate porting  |                | LC50                  |
|     | -                                       | Double and triple stacking of K-size<br>elements can be replaced by single KK<br>or 27K-size elements             |                | RFS50                 |
|     | -                                       | Available with Patented GeoSeal <sup>®</sup> Elements. See<br>Section 8 – GeoSeal Filters (page 340) for details. |                | <b>RF60</b>           |
|     |   |   |                | <b>CF60</b>           |
| apl | h is KC501KZ10P                         | D.  | •              | CTF60                 |
|     | 10                                      |   | Applications   | <b>VF60</b>           |
|     |   |   |                | LW60                  |
| iΥ  | MACHINE<br>TOOL                         | STEEL WASTE WATER<br>MAKING TREATMENT   |                | KF30                  |
|     |   |   |                | <b>TF50</b>           |
|     |   |   |                | KF50                  |
| RE  | MOBILE                                  | RAILROAD  |                | КС50                  |
|     | VEHICLES                                |   |                | MKF50                 |
|     |   |   |                | KC65                  |
|     |   |   | Ν              | IOF30-05              |
|     |   | L/min) for 150 SUS (32 cSt) fluids  | Filter         | NOF50                 |
|     |   | nly, up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids  | Housing        | FOF60-03              |
|     | 000 psi (345 bar)<br>5,000 psi (1035 ba | r) por NEPA T2 6 1  | Specifications |                       |
|     |   | per NFPA T2.6.1-2005  |                | NMF30                 |
|     | 20°F to 225°F (-29°                     |   |                | RMF60                 |
| F   | ull Flow: 61 psi (4.)                   | 8 bar) Optional Cracking: 50 psi (3.5 bar)<br>2 bar)<br>el has a blocked bypass.                                  |                | Cartridge<br>Elements |
| D   | ouctile Iron<br>teel                    |   |                | HS60                  |
|     |   |   |                |                       |

Model No. of filter in photograph is KC501KZ10P







TECHNOLOGY







Flow Rating:

Temp. Range: **Bypass Setting:** 

Element Case:

Max. Operating Pressure:

Rated Fatigue Pressure:

Min. Yield Pressure:

Porting Base & Cap:

Weight of KC50-1K:

Weight of KC50-2K:

Weight of KC50-3K:

Element Change Clearance:

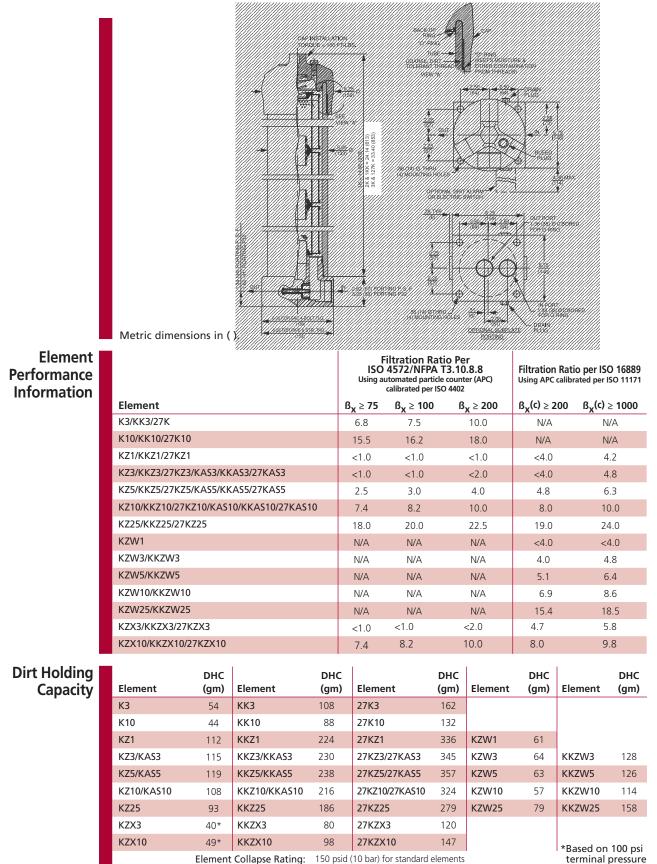
66.8 lbs. (30.3 kg)

87.8 lbs. (39.8 kg)

109.6 lbs. (49.7 kg)

8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

### KC50 Base-Ported Pressure Filter



Flow Direction: Element Nominal Dimensions:

3000 psid (210 bar) for high collapse (ZX) versions Outside In

3.9" (99 mm) O.D. x 9.0" (230 mm) long

K:

KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long

27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

### Base-Ported Pressure Filter KC50

|                        | т                          | ype Fluid                  | Appropriate Schro                             | eder Media  |                         |           |                      |                         |             | Fluid   | NF30                      |
|------------------------|----------------------------|----------------------------|---|---|-------------------------|-----------|----------------------|-------------------------|-------------|---|---------------------------|
| Pet                    | roleum Bas                 | ed Fluids                  | All E Media (cellulose                        | e), Z-Media® a  | nd ASP® Me              | dia (synt | hetic)               |                         |             | Compatibility   | NFS30                     |
| ŀ                      | High Wate                  | r Content                  | All Z-Media <sup>®</sup> and AS               | P® Media (syn   | thetic)                 |           |                      |                         |             |   | 111 550                   |
|                        | Invert E                   | mulsions                   | 10 and 25 µ Z-Media                           | <sup>®</sup> (synthetic),   | 10 µ ASP <sup>®</sup> N | 1edia (sy | nthetic)             |                         |             |   | YF30                      |
|                        | Wate                       | er Glycols                 | 3, 5, 10 and 25 µ Z-1                         | vedia <sup>®</sup> (synth   | etic) and all A         | ASP® Me   | edia (synt           | thetic)                 |             |   |                           |
|                        | Phospha                    | ate Esters                 | All Z-Media <sup>®</sup> and AS               | P <sup>®</sup> Media (syn   | thetic) with I          | H (EPR) s | seal desig           | gnation ar              | nd 3        |   | CFX30                     |
|                        |                            |                            | and 10 µ E media (ce                          |   |                         |           |                      |                         |             |   | PLD                       |
|                        |                            | Skydrol®                   | 3, 5, 10 and 25 μ Ζ-Ν                         |   |                         |           |                      |                         |             |   | PLU                       |
|                        |                            |                            | designation and W m<br>stainless steel wire m |   |                         |           |                      |                         |             | Skydrol <sup>®</sup> is a registered<br>trademark of Solutia In |                           |
| _                      |                            | nent                       | Element selection                             |   |                         |           |                      |                         | :)          | Element<br>Selection  | <b>CF40</b>               |
| Pressure               | Series                     | Part No.                   | petroleum based f                             |   | -                       | ar) byp   |                      |                         | •           | Based on  | PF40                      |
|                        | Е                          | K3                         | 1K3   | 2K3†  | 3K3                     |           |                      | ee MKF5                 | -           | Flow Rate   | FT40                      |
|                        | Media                      | K10                        | 1K10  | 2K10†   | 3K10†                   | 3K        | 10†                  |                         | MKF50       |   | LC50                      |
| То                     |                            | K25                        |   | 1K25  |                         |           | 2K                   | 25†                     |             |   |                           |
| 5000 psi               |                            | KZ1                        | 1KZ1  |   | 2KZ1†                   |           |                      | 3KZ1†                   |             |   | RFS50                     |
| 345 bar)               | Z-                         | KZ3                        | 1KZ3/KAS3/KKA                                 |   |                         | Z3†       |                      | 3KZ3                    | t           |   | DECO                      |
|                        | Media®                     | KZ5                        | 1KZ5/KAS5/K                                   | KAS5/27KA   | \$5                     | 2KZ51     | +                    | 3KZ!                    | 5†          |   | RF60                      |
|                        |                            | KZ10                       | 1KZ10/K/                                      | AS10/KKAS1  | 0/27KAS10               |           | 2KZ10                | t 3KZ                   | 10†         |   | CF60                      |
|                        |                            | KZ25                       |   | 1KZ2  |                         |           |                      | 2KZ25                   | it i        |   | CIUC                      |
|                        | Flow                       | 99                         | 0 2 <sup>5</sup><br>0 100                     | 50<br>200   | 75                      | 100<br>40 |                      | 25<br>500               | 150<br>570  |   | CTF60                     |
|                        |                            | tacking of                 | K-size elements can                           |   | 300                     |           |                      |                         | ing (P32)   |   | <b>VF60</b>               |
|                        |                            |                            | K elements, respecti                          | espectively.<br>used in this housing.                                       |                         |           |                      |                         |             | LW60  |                           |
| ote: Conta             | act factory r              | egarding us                | se of E Media in High                         | Water Conte   | ent, Invert Ei          |           |                      |                         | bl          |   | KF30                      |
|                        | s. For more                | informatio                 | n, refer to Fluid Comp                        |   |                         | luids, p  | ages 21              | and 22.                 |             | Pressure  | TF50                      |
| Phousing               |                            |                            |   | ΔP <sub>elem</sub>  |                         |           |                      |                         |             | Drop  | 1150                      |
| C50 ∆P <sub>hous</sub> | <sub>sing</sub> for fluids | with sp gr =               | = 0.86:                                       | $\Delta P_{element} = $ flow x element $\Delta P$ factor x viscosity factor |                         |           |                      |                         | Information | KF50  |                           |
| <sup>14</sup>          | Flow<br>(100) (200) (      | (L/min)<br>300) (400) (500 | <sup>))</sup>                                 | El. ΔP fa   | actors @ 150            | SUS (32   | 2 cSt):<br><b>1K</b> | 2K/KK                   | 3K/27K      | Based on<br>Flow Rate   | KC50                      |
| 12                     |                            |                            | (0.75)  | К3  |                         |           | .25                  | .12                     | .08         | and Viscosity   |                           |
| 10                     |                            |                            |   | K10<br>K25  |                         |           | .09<br>.02           | .05<br>.01              | .03<br>.01  |   | MKF50                     |
| o P psi                | <u></u>                    |                            | (0.50) dy                                     | KZJ   |                         |           | .02                  | .10                     | .01         |   |                           |
| 4                      |                            |                            | (0.25)  |   | S3/KKAS3/2              | 7KAS3     | .10                  | .05                     | .03         |   | KC65                      |
| 2                      |                            |                            |   | KZ5/KA  | S5/KKAS5/2              | 7KAS5     | .08                  | .04                     | .02         |   | 0.500.05                  |
| 0                      | 50<br>Flov                 | 100<br>v gpm               | 150   | KZ10/KA   | S10/KKAS10              | 27KAS1    | <b>0</b> .05         | .03                     | .02         | N   | OF30-05                   |
|                        |                            |                            |   | KZ25  |                         |           | .04                  | .02                     | .01         |   |                           |
|                        | ific gravity               |                            |   | KZX10   |                         |           | .08                  | .04                     | .03         |   |                           |
|                        |                            |                            |   |   |                         |           | .00                  |                         |             |   | NOF50                     |
| 5                      |                            |                            | n element flow<br>Selection chart above.      |   |                         |           | .00                  | 2K                      |             | F   |                           |
| formation              | provided in                | the Element                | Selection chart above.                        | KZW1  |                         |           |                      | 2K                      |             | F   | OF60-03                   |
| nformation             | provided in                |                            | Selection chart above.                        | KZW1<br>KZW3<br>KZW5  |                         |           | 1K                   | <b>2K</b><br>.16<br>.14 |             | F   | NOF50<br>OF60-03<br>NMF30 |

KZW10

KZW25

Determine  $\Delta P$  at 50 gpm (190 L/min) for KF501KZ3PD5 using 200 SUS (44 cSt) fluid.

### Solution:

| $\Delta P_{housing}$ | = 3.0 psi [.20 bar]  |
|----------------------|--|
| $\Delta P_{element}$ | = 50 x .10 x (200÷150) = 6.7 psi   |
| $\Delta P_{total}$   | or<br>= [190 x (.10÷54.9) x (44÷32) = .48 bar]<br>= 3.0 + 6.7 = 9.7 psi<br>or<br>= [.20 + .48 = .68 bar] |

.23

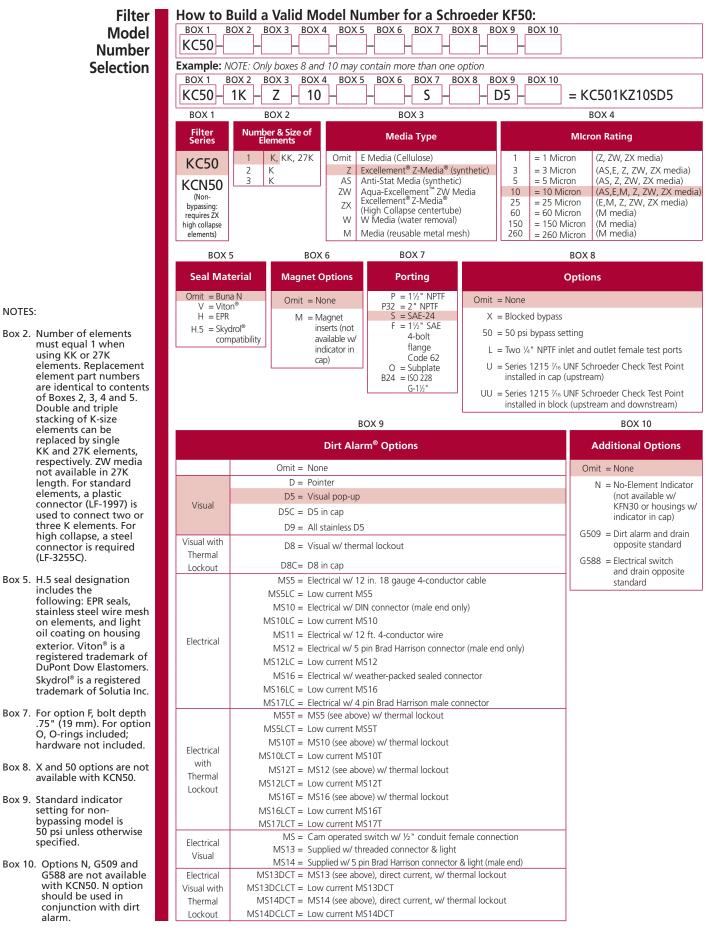
.14

If working in units of bars & L/min, divide above factor by 54.9. Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

.12

.07

### KC50 Base-Ported Pressure Filter



### **Base-Ported Pressure Filter** MKF50

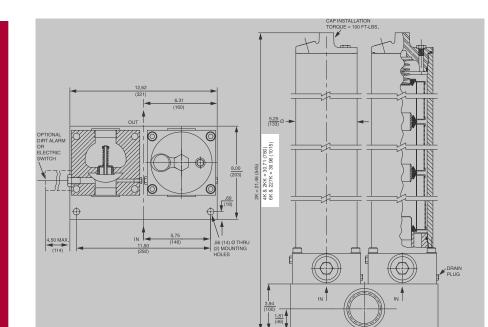


**Applications** 

MKF50

| Flow Rating:  | Up to 200 gpm (760 L/min) for 150 SUS (32 cSt) fluids  | Filter         | FOF60-03              |
|---|--|----------------|-----------------------|
| Max. Operating Pressure:  | 5000 psi (345 bar)   | Housing        | 10100-05              |
| Min. Yield Pressure:  | 15,000 psi (1035 bar), per NFPA T2.6.1   | Specifications | NMF30                 |
| Rated Fatigue Pressure:   | 3500 psi (240 bar), per NFPA T2.6.1-2005   |                |                       |
| Temp. Range:  | -20°F to 225°F (-29°C to 107°C)  |                | RMF60                 |
| Bypass Setting:   | Cracking: 40 psi (2.8 bar) Optional Cracking: 50 psi (3.5 bar)<br>Full Flow: 61 psi (4.2 bar)<br>Non-bypassing model has a blocked bypass. |                | Cartridge<br>Elements |
| Porting Base & Cap:<br>Element Case:                              | Ductile Iron<br>Steel  |                | HS60                  |
| Weight of MKF50-2K:<br>Weight of MKF50-4K:<br>Weight of MKF50-6K: | 214.0 lbs. (97.3 kg)<br>243.0 lbs. (110.2 kg)<br>284.4 lbs. (129.0 kg)   |                | MHS60                 |
| Element Change Clearance:   | 8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K  |                | KFH50                 |

### MKF50 Base-Ported Pressure Filter



Metric dimensions in ().

### Element Performance Information

|  | ISO<br>Using au     | iltration Rat<br>4572/NFPA 1<br>utomated particle<br>calibrated per ISC | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                          |                            |
|--|---------------------|---|--|--------------------------|----------------------------|
| Element                                | β <sub>X</sub> ≥ 75 | $\beta_X \ge 100$   | $\beta_{\chi} \ge 200$   | β <sub>χ</sub> (c) ≥ 200 | $\beta_{\chi}(c) \ge 1000$ |
| K3/KK3/27K                             | 6.8                 | 7.5   | 10.0   | N/A                      | N/A                        |
| K10/KK10/27K10                         | 15.5                | 16.2  | 18.0   | N/A                      | N/A                        |
| KZ1/KKZ1/27KZ1                         | <1.0                | <1.0  | <1.0   | <4.0                     | 4.2                        |
| KZ3/KKZ3/27KZ3/KAS3/KKAS3/27KAS3       | <1.0                | <1.0  | <2.0   | <4.0                     | 4.8                        |
| KZ5/KKZ5/27KZ5/KAS5/KKAS5/27KAS5       | 2.5                 | 3.0   | 4.0  | 4.8                      | 6.3                        |
| KZ10/KKZ10/27KZ10/KAS10/KKAS10/27KAS10 | 7.4                 | 8.2   | 10.0   | 8.0                      | 10.0                       |
| KZ25/KKZ25/27KZ25                      | 18.0                | 20.0  | 22.5   | 19.0                     | 24.0                       |
| KZW1                                   | N/A                 | N/A   | N/A  | <4.0                     | <4.0                       |
| KZW3/KKZW3                             | N/A                 | N/A   | N/A  | 4.0                      | 4.8                        |
| KZW5/KKZW5                             | N/A                 | N/A   | N/A  | 5.1                      | 6.4                        |
| KZW10/KKZW10                           | N/A                 | N/A   | N/A  | 6.9                      | 8.6                        |
| KZW25/KKZW25                           | N/A                 | N/A   | N/A  | 15.4                     | 18.5                       |
| KZX3/KKZX3/27KZX3                      | <1.0                | <1.0  | <2.0   | 4.7                      | 5.8                        |
| KZX10/KKZX10/27KZX10                   | 7.4                 | 8.2   | 10.0   | 8.0                      | 9.8                        |

### Dirt Holdina 📕 C

|          | -          |            |   |   | 1              |      |         |      |                   |      |  |
|----------|------------|------------|---|---|----------------|------|---------|------|-------------------|------|--|
| Holding  |            | DHC        |   | DHC   |                | DHC  |         | DHC  |                   | DHC  |  |
| Capacity | Element    | (gm)       | Element                                   | (gm)  | Element        | (gm) | Element | (gm) | Element           | (gm) |  |
|          | К3         | 54         | ККЗ                                       | 108   | 27K3           | 162  |         |      |                   |      |  |
|          | K10        | 44         | KK10                                      | 88  | 27K10          | 132  |         |      |                   |      |  |
|          | KZ1        | 112        | KKZ1                                      | 224   | 27KZ1          | 336  | KZW1    | 61   |                   |      |  |
|          | KZ3/KAS3   | 115        | KKZ3/KKAS3                                | 230   | 27KZ3/27KAS3   | 345  | KZW3    | 64   | KKZW3             | 128  |  |
|          | KZ5/KAS5   | 119        | KKZ5/KKAS5                                | 238   | 27KZ5/27KAS5   | 357  | KZW5    | 63   | KKZW5             | 126  |  |
|          | KZ10/KAS10 | 108        | KKZ10/KKAS10                              | 216   | 27KZ10/27KAS10 | 324  | KZW10   | 57   | KKZW10            | 114  |  |
|          | KZ25       | 93         | KKZ25                                     | 186   | 27KZ25         | 279  | KZW25   | 79   | KKZW25            | 158  |  |
|          | KZX3       | 40*        | KKZX3                                     | 80  | 27KZX3         | 120  |         |      |                   |      |  |
|          | KZX10      | 49*        | KKZX10                                    | 98  | 27KZX10        | 147  |         |      | *Based on 100 ps  |      |  |
|          |            | Element    | Collapse Rating:                          | 3000 psid (210 bar) for high collapse (ZX) versions |                |      |         |      | terminal pressure |      |  |
|          |            |            | Flow Direction:                           |   |                |      |         |      |                   |      |  |
|          | E          | lement Nom | K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long |   |                |      |         |      |                   |      |  |

KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long 27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

## Base-Ported Pressure Filter MKF50

Skydrol<sup>®</sup> is a registered

trademark of Solutia Inc.

| Type Fluid             | Appropriate Schroeder Media  | Fluid         | NF30  |
|------------------------|--|---------------|-------|
| Petroleum Based Fluids | All E Media (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic)   | Compatibility | NFS30 |
| High Water Content     | All Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic)  |               |       |
| Invert Emulsions       | 10 and 25 $\mu$ Z-Media® (synthetic), 10 $\mu$ ASP® Media (synthetic)  |               | YF30  |
| Water Glycols          | 3, 5, 10 and 25 $\mu$ Z-Media $^{\! (\! synthetic)}$ and all ASP $^{\! (\! s)}$ Media (synthetic)  |               |       |
| Phosphate Esters       | All Z-Media <sup>®</sup> and all ASP <sup>®</sup> Media (synthetic) with H (EPR) seal designation and 3 and 10 $\mu$ E media (cellulose) with H (EPR) seal designation |               | CFX30 |
| Skydrol®               | 3, 5, 10 and 25 $\mu$ Z-Media $^{\circ}$ (synthetic) and all ASP $^{\circ}$ Media (synthetic) with H.5 seal  |               | PLD   |

ydrol<sup>®</sup> 3, 5, 10 and 25 μ 2-Media<sup>®</sup> (synthetic) and all ASP<sup>®</sup> Media (synthetic) with H.5 seal designation and W media (water removal) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

|                             | Elei         | nent         | Element sele     | Element selections are predicated on the use of 150 SUS (32 cSt) |               |            |       |              |    |  |  |
|-----------------------------|--------------|--------------|------------------|--|---------------|------------|-------|--------------|----|--|--|
| Pressure                    | Series       | Part No.     | petroleum ba     | troleum based fluid and a 40 psi (2.8 bar) bypass valve.         |               |            |       |              |    |  |  |
|                             |              | К3           |                  | 4K3† 6K3   |               |            |       |              |    |  |  |
|                             | E<br>Media   | K10          |                  | 4K10† & 6K10†  |               |            |       |              |    |  |  |
| To<br>5000 psi<br>(345 bar) | IVIEUIA      | K25          |                  | 4K25†  |               |            |       |              |    |  |  |
|                             |              | KZ1          |                  | 4KZ11  | ŀ             |            | 6K2   | 21†          |    |  |  |
|                             |              | KZ3          |                  | 4KZ3† 6  |               |            |       |              |    |  |  |
| (5.15.501)                  | Z-<br>Media® | KZ5          |                  | 4KZ5†  |               |            |       |              |    |  |  |
|                             | IVIEUIA      | KZ10         |                  |  | 4KZ10†        |            |       | 6KZ10†       |    |  |  |
|                             |              | KZ25         |                  |  | 4KZ25†        |            |       | 6KZ25†       |    |  |  |
|                             | EL.          | gpm          | 0 100            | 120  | 140           | 160        | 180   | 20           | 00 |  |  |
| Flow (L/min)                |              | (L/min)      | 0 400            |  |               | 600        |       | 7            | 60 |  |  |
| Double and                  | trinlo stock | ing of K dis | o olomonte con l |  | d hu cinala K | עם אדר פ א | monto | rocnoctivolu |    |  |  |

**†Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively.** Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

 $\Delta P_{housing}$ MKF50  $\Delta P_{\text{housing}}$  for fluids with sp gr = 0.86: Flow (L/min) (600) (150)(300) (450) 35 30 (2.00)25 (1.50) (Jac) (Jac) ·<u>s</u> 20 ₫ 15 ٩ (1.00) 10 5 (0.25) 0 120 160 200 80 Flow gpm

sp gr = specific gravity

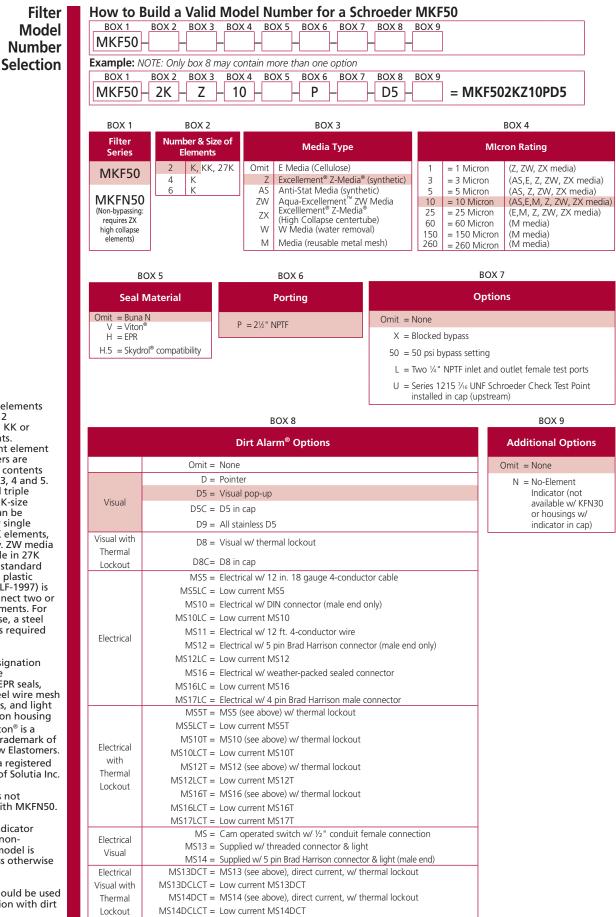
Sizing of elements should be based on element flow information provided in the Element Selection chart above.

### $\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$

The  $\Delta P$  housing curve labeled "Element Sizing" is the pressure drop between the inlet and outlet areas of the filter's bypass valve and should be used for filter sizing. The "Port to Port"  $\Delta P$  takes into consideration the manifold block. This pressure drop can be significantly higher due to these additional flow constrictions. Although this  $\Delta P$  does not affect the performance of the filter, it should be considered for overall system design.

| $\Delta \mathbf{P}_{element}$                  |            |             |            | Pressure              | 1150      |
|--|------------|-------------|------------|-----------------------|-----------|
| $\Delta P_{element} = flow x element \Delta P$ | factor >   | viscosity   | factor     | Drop                  | KF50      |
| El. ΔP factors @ 150 SUS (32 c                 | St):       | Information | 1/220      |                       |           |
|  | 2K         | 4K          | 6K         | Based on<br>Flow Rate | KC50      |
| К3   | .12        | .06         | .04        | and Viscosity         |           |
| K10<br>K25                                     | .05<br>.01 | .02<br>.01  | .02<br>.01 | and theosity          | MKF50     |
| KZ3  | .10        | .01         | .01        |                       | VCCT      |
| KZ3/KAS3/KKAS3/27KAS3                          | .10        | .03         | .03        |                       | KC65      |
| KZ5/KAS5/KKAS5/27KAS5                          | .05        | .03         | .02        |                       |           |
| KZ10/KAS10/KKAS10/27KAS10                      | .04        | .02         | .01        |                       | NOF30-05  |
| KZ25   | .02        | .02         | .01        |                       |           |
| NL25   | .02        | .01         | .01        |                       | NOF50     |
|  |            |             |            |                       | FOF60-03  |
|  | 1K         | 2K          |            |                       |           |
| KZW1   | .43        |             |            |                       | NMF30     |
| KZW3   | .32        | .16         |            |                       |           |
| KZW5   | .28        | .14         |            |                       | RMF60     |
| KZW10  | .23        | .12         |            |                       |           |
| KZW25  | .14        | .07         |            |                       | Cartridge |
| If working in units of bars & factor by 54.9.  | L/min,     | divide ab   | ove        |                       | Elements  |
| Viscosity factor: Divide visco                 | sity by    | 150 SUS     | (32 cSt).  |                       |           |
|  |            |             |            |                       | HS60      |
|  |            |             |            |                       | MULCOO    |
|  |            |             |            |                       | MHS60     |
|  |            |             |            |                       | KELLEA    |
|  |            |             |            |                       | KFH50     |

### MKF50 Base-Ported Pressure Filter



#### NOTES:

Box 2. Number of elements must equal 2 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length. For standard elements, a plastic connector (LF-1997) is used to connect two or three K elements. For high collapse, a steel connector is required (LF-3255C).

- Box 5. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 7. 50 option is not available with MKFN50.
- Box 8. Standard indicator setting for nonbypassing model is 50 psi unless otherwise specified.
- Box 9. N option should be used in conjunction with dirt alarm.

### Base-Ported Pressure Filter Patent No. 6,843,378 for filter cap seal. IK (

### **Features and Benefits**



Model No. of filter in photograph is KC651K10FD9.

MINING

TECHNOLOGY

PULP & PAPER

IO

AUTOMOTIVE

MANUFACTURING

AGRICULTURE

INDUSTRIAL

MOBILE

VEHICLES

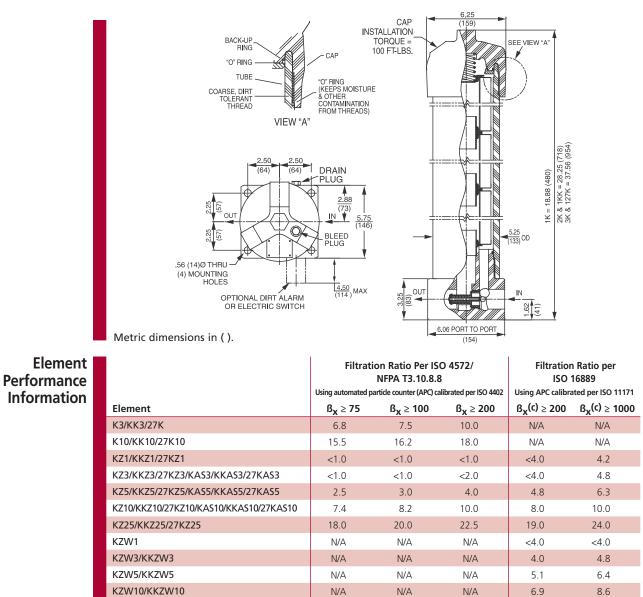
| Features and Benefits   | 100 gpm                               | NF30         |
|---|---------------------------------------|--------------|
| Base-ported high pressure filter  | 380 L/min                             | NFS30        |
| <ul> <li>Patented dirt-tolerant cap design</li> <li>Can be installed in vertical or horizontal</li> </ul> | · · · · · · · · · · · · · · · · · · · | YF30         |
| position  | 6500 psi                              | 1 50         |
| Meets HF4 automotive standard   | 450 bar                               | <b>CFX30</b> |
| <ul> <li>Element changeout from top minimizes<br/>oil spillage</li> </ul>                                 |                                       | PLD          |
| <ul> <li>Offered in flanged porting</li> </ul>  |                                       | DF40         |
| <ul> <li>No-Element indicator option available</li> </ul>   |                                       |              |
| <ul> <li>Available with non-bypass option<br/>with high collapse element</li> </ul>                       |                                       | <b>CF40</b>  |
| <ul> <li>Integral inlet and outlet female test points<br/>option available</li> </ul>                     |                                       | PF40         |
| Double and triple stacking of K-size<br>element can be replaced by single KK<br>as 27K size element.      |                                       | LC50         |
| or 27K-size element<br>Available with Patented GeoSeal <sup>®</sup>                                       |                                       | RFS50        |
| Elements. See Section 8 – GeoSeal Filters<br>(page 341) for details.                                      |                                       | <b>RF60</b>  |
| FD9.  |                                       | <b>CF60</b>  |
|   |                                       | CTF60        |
|   | Applications                          |              |
|   | Applications                          | <b>VF60</b>  |
|   |                                       | LW60         |
| DTIVE STEEL   |                                       | KF30         |
| TURING MAKING   |                                       | KI JU        |
|   |                                       | <b>TF50</b>  |
|   |                                       | KF50         |
|   |                                       | KC50         |
| TURE WASTE WATER<br>TREATMENT   |                                       |              |
|   |                                       | MKF50        |
|   |                                       | KC65         |
|   | N                                     | IOF30-05     |
|   |                                       | NOF50        |
| gpm (380 L/min) for 150 SUS (32 cSt) fluids   | Filter                                | OF60-03      |
| I50 bar)  | Housing                               |              |
| (1345 bar), per NFPA T2.6.1   | Specifications                        | NMF30        |
| 345 bar), per NFPA T2.6.1-2005<br>25°F (-29°C to 107°C)   |                                       | RMF60        |
| 40 psi (2.8 bar)  |                                       |              |

| Max. Operating Pressure:6500 psi (450 bar)Housing<br>FOF60-03Min. Yield Pressure:19,500 psi (1345 bar), per NFPA T2.6.1SpecificationsRated Fatigue Pressure:5000 psi (345 bar), per NFPA T2.6.1-2005MMF30 | Flow Rating:              |
|---|---------------------------|
| Rated Fatigue Pressure:     5000 psi (345 bar), per NFPA T2.6.1-2005  | Max. Operating Pressure:  |
|   | Min. Yield Pressure:      |
|   | Rated Fatigue Pressure:   |
| Temp. Range:         -20°F to 225°F (-29°C to 107°C)         RMF60  | Temp. Range:              |
| Bypass Setting:Cracking: 40 psi (2.8 bar)<br>Full Flow: 75 psi (5.2 bar)<br>Non-bypassing model has a blocked bypass.Cartridge<br>Elements  | Bypass Setting:           |
| Porting Base & Cap: Ductile Iron<br>Element Case: Steel HS60  | 5 1                       |
| Weight of KC65-1K:         80 lbs. (36.3 kg)           Weight of KC65-2K:         102 lbs. (46.3 kg)           Weight of KC65-3K:         124 lbs. (56.3 kg)  | Weight of KC65-2K:        |
| Element Change Clearance:         8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K   | Element Change Clearance: |





## **Base-Ported Pressure Filter** Patent No. 6,843,378 for filter cap seal.



### Dirt Holding

| irt Holding<br>Capacity | Element   | DHC<br>(gm)  | Element            | DHC<br>(gm)   | Element        | DHC<br>(gm) | Element | DHC<br>(gm) | Element           | DHC<br>(gm) |  |  |
|-------------------------|-----------|--------------|--------------------|---|----------------|-------------|---------|-------------|-------------------|-------------|--|--|
| Capacity                | K3        | 54           | ККЗ                | 108   | 27K3           | 162         | Liement | (giii)      | Liement           | (giii)      |  |  |
|                         | K10       | 44           | КК10               | 88  | 27K10          | 132         |         |             |                   |             |  |  |
|                         | KZ1       | 112          | KKZ1               | 224   | 27KZ1          | 336         | KZW1    | 61          |                   |             |  |  |
|                         | KZ3/KAS3  | 115          | KKZ3/KKAS3         | 230   | 27KZ3/27KAS3   | 345         | KZW3    | 64          | KKZW3             | 128         |  |  |
|                         | KZ5/KAS5  | 119          | KKZ5/KKAS5         | 238   | 27KZ5/27KAS5   | 357         | KZW5    | 63          | KKZW5             | 126         |  |  |
|                         | KZ10/KAS1 | <b>0</b> 108 | KKZ10/KKAS10       | 216   | 27KZ10/27KAS10 | 324         | KZW10   | 57          | KKZW10            | 114         |  |  |
|                         | KZ25      | 93           | KKZ25              | 186   | 27KZ25         | 279         | KZW25   | 79          | KKZW25            | 158         |  |  |
|                         | KZX3      | 40*          | KKZX3              | 80  | 27KZX3         | 120         |         |             |                   |             |  |  |
|                         | KZX10     | 49*          | KKZX10             | 98  | 27KZX10        | 147         |         |             | *Based on 100 psi |             |  |  |
|                         |           | Element      | : Collapse Rating: | se Rating: 150 psid (10 bar) for standard elements<br>3000 psid (210 bar) for high collapse (ZX) versions |                |             |         |             | terminal pressure |             |  |  |
|                         |           |              | Flow Direction:    | Outside I   | n              |             |         |             |                   |             |  |  |
|                         |           | Element Nom  | KK: 3.             | 9" (99 mm) O.D. x 9<br>9" (99 mm) O.D. x<br>9" (99 mm) O.D. x   | 18.0" (40      | 50 mm) long |         |             |                   |             |  |  |

N/A

<1.0

7.4

N/A

<1.0

8.2

N/A

<2.0

10.0

15.4

4.7

8.0

18.5

5.8

9.8

KZW25/KKZW25

KZX3/KKZX3/27KZX3

KZX10/KKZX10/27KZX10

# Base-Ported Pressure Filter Patent No. 6,843,378 for filter cap seal.

|  | Type Flu             | id Approp        | oriate Schroeder M                          | edia  |              |                  |            |                |      | Fluid  | NF30        |
|--|----------------------|------------------|---|---|--------------|------------------|------------|----------------|------|--|-------------|
| Petroleun  | n Based Flui         | ds All E me      | dia (cellulose) and Z-N                     | /ledia <sup>®</sup> (synthetic)   |              |                  |            |                |      | Compatibility  | NFS30       |
| High V   | Vater Conte          | nt All Z-Me      | dia <sup>®</sup> and ASP <sup>®</sup> Media | ı (synthetic)   |              |                  |            |                |      |  |             |
|  |                      |                  |   | etic), 10 µ ASP® Media  |              |                  |            |                |      |  | YF30        |
|  | ,                    |                  |   | synthetic) and all ASP <sup>®</sup>   |              |                  |            |                | _    |  | CFX30       |
| Pho  | osphate Este         |                  |   | i (synthetic) with H (EP<br>vith H (EPR) seal desigr  |              | natior           | n and      | 3              |      |  | PLD         |
|  | Skydro               |                  |   | ynthetic) and ASP® Mee<br>with H.5 seal designati   |              |                  |            |                |      | Charles I <sup>®</sup> is a maximum d                        |             |
|  |                      |                  |   | coating on housing ext  |              |                  |            |                |      | Skydrol <sup>®</sup> is a registered trademark of Solutia In |             |
| Pressure   | Elen<br>Series       | nent<br>Part No. |   | ns are predicated o<br>I fluid and a 40 psi (   |              |                  |            |                |      | Element<br>Selection   | <b>CF40</b> |
|  |                      | K3               | 1K3   | 3   | 2K3†         | 3K3              | 3          |                |      | Based on<br>Flow Rate  | <b>PF40</b> |
|  | E<br>Media           | K10              |   | 1K10  |              | 2K               | (10†       | 3K10†          |      |  | LC50        |
| _  |                      | K25              |   | 1K25  |              |                  |            |                |      |  |             |
| To<br>6500 psi   |                      | KZ1              |   | 1KZ1  | 2KZ1†        | 3KZ              |            |                |      |  | RFS50       |
| (450 bar)  | Z-                   | KZ3              |   | AS3/KKAS3/27KAS3  | _            | 2KZ              |            | 3KZ3†          |      |  | <b>RF60</b> |
|  | Media®               | KZ5<br>KZ10      |   | <pre>KAS5/KKAS5/27KAS //KAS10/KKAS10/27I</pre>  | -            | 2                | KZ5†       | 3KZ5<br>2KZ10† | Т    |  |             |
|  |                      | KZ10             | TRZTO                                       | 1KZ25   | (A) IU       |                  | 2          | 2KZ25          | +    |  | <b>CF60</b> |
|  |                      | -                | 0 20  | 40 60   |              | 80               |            | 211223         | 100  |  | CTF60       |
|  | Flow                 | (0,)             | 0   | 150   | 250          |                  |            |                | 380  |  | <b>VF60</b> |
|  | •                    | -                | elements can be re<br>mmonly used in thi    | placed by single KK s housing.  | & 2/K elen   | nents            | , resp     | bectively      |      |  |             |
|  |                      |                  |   | ater Content, Invert E<br>bility: Fire Resistant I  |              |                  |            |                |      |  | LW60        |
|  |                      | initiation, ici  | er to ridia compati                         |   | iaias, page  | .5210            |            | 2.             |      |  | KF30        |
| ΔP <sub>housing</sub>  |                      |                  |   | ΔP <sub>element</sub>   |              |                  |            | aite - fa atau | _    | Pressure   | ТГГО        |
| KC65 ∆P <sub>housing</sub>   | for fluids with      | n sp gr = 0.86   | 5:  | $\Delta P_{element}$ = flow x element $\Delta P$ factor x viscosity factor<br><i>El.</i> $\Delta P$ factors @ 150 SUS (32 cSt): |              |                  |            |                | _    | Drop<br>Information  | <b>TF50</b> |
| (50)   | Flow (L<br>(150)     |                  | 350)  | EI. ZP TACLOIS @ 150 505 (52 CSI).<br>1K 2K 3K  |              |                  |            |                |      | Based on   | KF50        |
| 20   |                      |                  | (1.25)                                      | K3  | -            | .25              | .12        |                |      | Flow Rate<br>and Viscosity                                   | КС50        |
| 15   | ·····                |                  | <b>-</b> (1.00)                             | K10<br>K25  |              | .09<br>.02       | .05<br>.01 | .03<br>.01     |      |  | KC30        |
| · <u>a</u> 10  | ·                    | /                | (0.75) (bg                                  | KZ1   | 74453        | .20              | .10        | .05            |      |  | MKF50       |
|  | ·}                   | -                | (0.50) <sup>A</sup>                         | KZ3/KAS3/KKAS3/2<br>KZ5/KAS5/KKAS5/2  |              | .10<br>.08       | .05<br>.04 | .03<br>.02     |      |  | KC65        |
| 5  |                      |                  | (0.25)                                      | KZ10/KAS10/KKAS10   | /27KAS10     | .05              | .03        | .02            |      |  | KC05        |
| 0  | 20 40                | 60 80            | 100   | KZ25  |              | .04              | .02        | .01            |      | Ν  | OF30-05     |
|  | Flow g               | Jpm              |   | KZW1  | -            | <b>1K</b><br>.43 | 2K         | -              |      |  | NOF50       |
| sp gr = specific<br>Sizing of eleme                                |                      | based on eler    | ment flow                                   | KZW3  |              | .32              | .16        |                |      |  |             |
| information pro  | wided in the E       | lement Selec     | tion chart above.                           | KZW5<br>KZW10   |              | .28<br>.23       | .14<br>.12 |                |      | F  | OF60-03     |
|  |                      |                  |   | KZW25   |              | .14              | .07        |                |      |  | NMF30       |
| $\Delta P_{\text{filter}} = \Delta P_{\text{filter}}$<br>Exercise: | housing $+ \Delta P$ | element          |   | If working in units factor by 54.9.   | of bars & I  | /min,            | divid      | de above       |      |  |             |
| Determine ∆P<br>KC652KZ3FD9  |                      |                  | id  | Viscosity factor: D   | vide viscosi | ty by            | 150 S      | SUS (32 cS     | it). |  | RMF60       |
|  | using 200 SC         | 5 (44 050) 110   |   |   |              |                  |            |                |      |  | artridge    |
| Solution:<br>∆P <sub>housing</sub>                                 | = 8.0 psi [.55       | barl             |   |   |              |                  |            |                |      | -  | lements     |
| nousing  | = 60 x .05 x (2      |                  | 1.0 psi                                     |   |              |                  |            |                |      |  | HS60        |
|  |                      |                  | 32) = .29 bar]                              |   |              |                  |            |                |      |  | MHS60       |
| total  | = 8.0 + 4.0 =<br>or  |                  |   |   |              |                  |            |                |      |  | VELIEA      |
| :  | = [.55 + .29 =       | .84 bar]         |   |   |              |                  |            |                |      |  | KFH50       |
|  |                      |                  |   |   |              |                  |            |                |      |  |             |



# Base-Ported Pressure Filter Patent No. 6,843,378 for filter cap seal.

| Model<br>Number<br>Selection                          | KC65-   | DX 2 BOX 3 BOX<br>   | _                                | 5 BOX 6 BOX 7 BC  |                    | DX 9 B(                               | OX 10  |  |
|---|---|--|----------------------------------|---|--------------------|---------------------------------------|--|--|
| Selection   | BOX 1 BO  | $\frac{DX 2}{DX 2} = \frac{BOX 3}{DX 3} = \frac{BOX 3}{DX 2} = BOX$ | 4 BOX                            |   |                    | DX 9 B(                               | OX 10  | = KC651KZ10F   |
|   | BOX 1   | BOX 2  |                                  | BOX 3   |                    |                                       |  | BOX 4  |
|   | Filter<br>Series  | Number & Size of<br>Elements   |                                  | Media Type  |                    |                                       |  | Mlcron Rating  |
|   | KC65<br>KCN65<br>(Non-<br>bypassing:<br>requires ZX<br>high collapse<br>elements) | 1 K, KK, 27K<br>2 K<br>3 K   | Z I<br>AS<br>ZW<br>ZX<br>ZX      | E Media (Cellulose)<br>Excellement <sup>®</sup> Z-Media <sup>®</sup> (syn<br>Anti-Stat Media (synthetic)<br>Aqua-Excellement <sup>®</sup> ZV Mee<br>Excelllement <sup>®</sup> Z-Media <sup>®</sup><br>(High Collapse centertube)<br>W Media (water removal)<br>Media (reusable metal mesl | dia                | 3<br>5<br>10<br>25<br>60<br>150       | = 1 Micr<br>= 3 Micr<br>= 5 Micr<br>= 10 Mic<br>= 25 Mic<br>= 60 Mic<br>= 150 M<br>= 260 M | on (AS,E, Z, ZW, ZX media<br>on (AS, Z, ZW, ZX media)<br>cron (AS,E,M, Z, ZW, ZX media)<br>cron (E,M, Z, ZW, ZX media)<br>cron (M media)<br>licron (M media) |
|   | BOX 5   | вох  | 6                                | BOX 7   |                    |                                       |  | BOX 8  |
|   | Seal Mate   | erial Magnet (   | Options                          | Porting   |                    |                                       | (  | Options  |
|   | Omit = Buna M<br>V = Viton <sup>®</sup>   |  | one                              | F = 1½" SAE<br>4-bolt flange  | Omit =             | None                                  |  |  |
|   | V = VROIT<br>H = EPR  | M = N  | lagnet<br>serts (not             | Code 62   | X =                | Blocked b                             | oypass   |  |
| lements<br>KK<br>ents.<br>element<br>s are<br>ontents | H.5 = Skydrc<br>compa   | atibility in   | vailable w/<br>dicator in<br>ap) |   | L =<br>U =<br>UU = | Series 12<br>installed i<br>Series 12 | NPTF inle<br>15 ¾6 UI<br>in cap (u<br>15 ⅔6 UI   | t and outlet female test ports<br>NF Schroeder Check Test Point  |
| 4 and 5.<br>riple                                     |   |  | B                                | OX 9  |                    |                                       |  | BOX 10   |
| -size<br>n be   |   |  |                                  | m <sup>®</sup> Options  |                    |                                       |  | Additional Options   |
| single<br>elements,                                   |   | Omit = N   | lone                             |   |                    |                                       |  | Omit = None  |
| /. ZW media   | Visual  | D9 = Visual pop-up   |                                  |   |                    |                                       |  | N = No-Element<br>Indicator (not   |
| le in 27K<br>standard                                 |   | MS5SS = E  | lectrical w                      | // 12 in. 18 gauge 4-cond   | uctor cab          | le                                    |  | available w/   |
| plastic<br>LF-1997) is                                |   | MS5SSLC = Low current MS5<br>MS10SS = Electrical w/ DIN connector (male end only)<br>MS10SSLC = Low current MS10<br>MS11SS = Electrical w/ 12 ft. 4-conductor wire   |                                  |   |                    |                                       |  | KCN65)<br>G509 = Dirt alarm and  |
| nect two or<br>ments. For                             |   |  |                                  |   |                    |                                       |  | drain opposite<br>standard   |
| se, a steel<br>s reguired                             |   |  |                                  |   |                    |                                       |  | Stanuaru   |
| , equiled   | Electrical  | MS12SS = E   | only)                            |   |                    |                                       |  |  |
| ignation  |   | MS12SSLC = L   | Jilly/                           |   |                    |                                       |  |  |
| PR seals,   |   |  |                                  | // weather-packed sealed  | connecto           | r                                     |  |  |
| el wire mesh<br>s, and light                          |   | MS16SSLC = L   | ow currer                        | nt MS16   |                    |                                       |  |  |
| n housing<br>on <sup>®</sup> is a                     |   | MS17SSLC = Electrical w/ 4 pin Brad Harrison male connector  |                                  |   |                    |                                       |  |  |
| ademark of  |   | MS5SST = N   | /IS5 (see a                      | bove) w/ thermal lockout  |                    |                                       |  |  |
| Elastomers.<br>registered                             |   | MS5SSLCT = L   | ow currer                        | nt MS5T   |                    |                                       |  |  |
| Solutia Inc.  |   | MS10SST = N  | /IS10 (see                       | above) w/ thermal lockou  | ut                 |                                       |  |  |
| oolt depth<br>).                                      | Electrical<br>with  | MS10SSLCT = L  |                                  |   |                    |                                       |  |  |
|   | Thermal   |  |                                  | above) w/ thermal lockou  | ut                 |                                       |  |  |
| ons are<br>with                                       | Lockout   | MS12SSLCT = L  |                                  |   |                    |                                       |  |  |
| vvicii  |   |  |                                  | above) w/ thermal lockou  | ut                 |                                       |  |  |
| icator  |   | MS16SSLCT = L  |                                  |   |                    |                                       |  |  |
| on-<br>odel   |   | MS17SSLCT = L  |                                  |   | aht                |                                       |  |  |
| ss  | Electrical<br>Visual  | MS13SS = Supplied w/ threaded connector & light<br>MS14SS = Supplied w/ 5 pin Brad Harrison connector & light (male end)   |                                  |   |                    |                                       |  |  |
| cified.   |   |  |                                  | above), direct current, w   |                    |                                       |  |  |
| 509 and ot  | Electrical<br>Visual with   | MS13SSDCLCT = L  |                                  |   | archituri          | Jacout                                |  |  |
| th KCN65.<br>ould be                                  | Thermal   |  |                                  |   | thermal l          | ockout                                |  |  |
| unction   | Lockout   |  |                                  |   |                    |                                       |  |  |

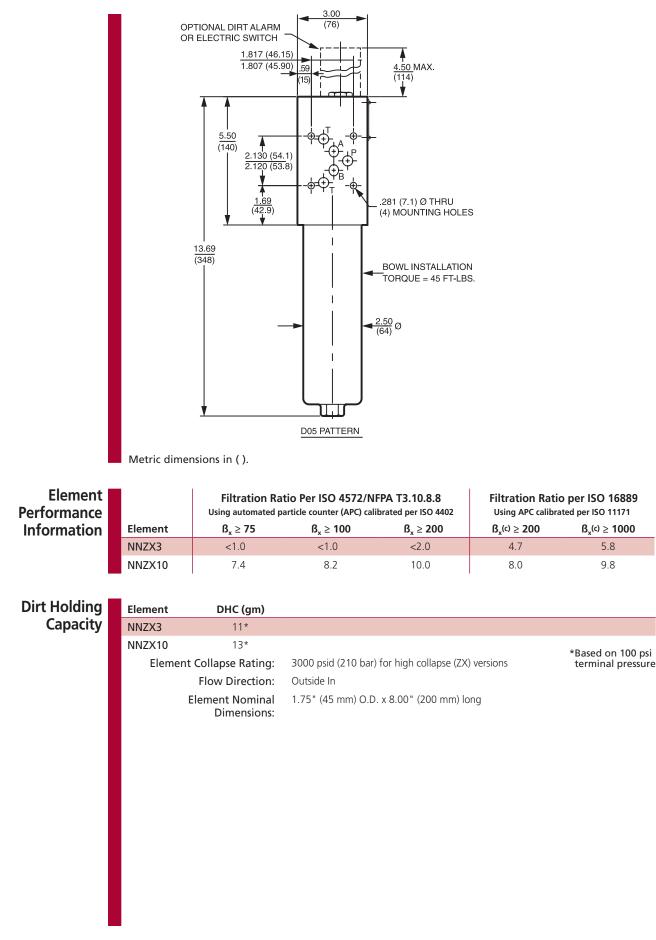
#### NOTES:

- Box 2. Num must wher or 27 Repla part iden of Bo Doub stack elem repla KK aı respe not a lengt elem conn used three high conne (LF-32
- Box 5. H.5 se incluo follo stainl on el oil co exter regist DuPo Skydı trade
- Box 7. For o 1.12
- Box 8. X and not a KCN6
- Box 9. Stand settir bypa is 50 othe
- Box 10. Opti G19 avai N oj use witl

## High-Pressure Sandwich Filter NOF30-05

|  | | 12 gpm<br><u>45 L/min</u><br>3000 psi<br>210 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>PF40<br>LC50<br>RF550<br>RF60<br>CF60 |
|--|---|--|--|
| Model No. of filter in photograph        | is NOF301NNZX305D5.   |  | CTF60  |
|  |   | Applications                                     | VF60   |
|  |   |  |  |
|  | MACHINE PULP & PAPER MOBILE   |  | LW60   |
| MANUFACTURING TECHNOLOGY                 | TOOL VEHICLES   |  | KF30   |
|  |   |  | <b>TF50</b>  |
|  |   |  | KF50   |
|  |   |  | КС50   |
|  |   |  | MKF50  |
|  |   |  |  |
|  |   |  | KC65   |
|  |   |  | NOF30-05   |
|  |   |  | NOF50  |
|  |   |  | FOF60-03   |
|  |   | Filter   | NMF30  |
| Flow Rating:<br>Max. Operating Pressure: | Up to 12 gpm (45 L/min) for 150 SUS (32 cSt) fluids<br>3000 psi (210 bar)   | Housing  | RMF60  |
| Min. Yield Pressure:                     | 10,000 psi (690 bar), per NFPA T2.6.1   | Specifications                                   |  |
| Rated Fatigue Pressure:                  | Contact Factory   |  | Cartridge<br>Elements  |
| Temp. Range:                             | -20°F to 225°F (-29°C to 107°C)   |  |  |
| Non-Bypass Model:<br>Porting Head:       | High collapse elements are standard<br>Aluminum   |  | HS60   |
| Element Case:                            | Aluminum  |  | MHS60  |
| Weight of NOF30-1NN:                     | 6.6 lbs. (3.0 kg)   |  | KFH50  |
| Element Change Clearance:                | 4.50" (115 mm)  |  |  |

## **NOF30-05** High-Pressure Sandwich Filter



## High-Pressure Sandwich Filter NOF30-05

|                      |                          | Type Fluid                  | Appropriate Schro                | eder Media                                     |  | Fluid                      | NF30                  |
|----------------------|--------------------------|-----------------------------|----------------------------------|--|--|----------------------------|-----------------------|
| Pe                   | etroleum E               | Based Fluids                | All Z-Media <sup>®</sup> (synthe | tic)   |  | Compatibility              | NFS30                 |
|                      | 5                        | ter Content                 |                                  |  |  |                            | VEDO                  |
|                      |                          | t Emulsions<br>ater Glycols |                                  | -  |  |                            | YF30                  |
|                      | vv                       | ater diycois                | 5, το and 25 μ 2-ivie            | uia (synthetic)                                |  |                            | CFX30                 |
|                      |                          |                             |                                  |  |  | -                          | PLD                   |
|                      |                          |                             | 1                                |  |  | -                          | <b>DF40</b>           |
|                      |                          | ment                        |                                  |  | l on the use of 150 SUS (32 cSt)   | Element<br>Selection       | CF40                  |
| Pressure             | Series                   | Part No.<br>NNZX3           | petroleum based flu              |  | NZX3   | Based on                   |                       |
| To<br>3000 psi       | Z-<br>Media®             | NNZX10                      |                                  |  | VZX10  | - Flow Rate                | <b>PF40</b>           |
| (210 bar)            | Ivieula-                 | NNZX25                      |                                  | 1NI  | VZX25  |                            | LC50                  |
|                      | Flow                     | gpm (                       | )                                |  | 12   |                            | DECEO                 |
|                      |                          | ( ,                         | )                                | 20   | 40 45  |                            | RFS50                 |
|                      |                          |                             | st commonly used in th           | 0  |  |                            | <b>RF60</b>           |
|                      |                          |                             |                                  |  | Invert Emulsion and Water Glycol<br>sistant Fluids, pages 21 and 22.       |                            | <b>CF60</b>           |
|                      |                          |                             |                                  |  |  |                            | CTF60                 |
| $\Delta P_{housing}$ |                          |                             |                                  | ΔP <sub>element</sub>                          |  | Pressure                   | <b>VF60</b>           |
| NOF30-D05 /          | ∆P <sub>housing</sub> fo | r fluids with s             | p gr = 0.86:                     | $\Delta P_{element} =$                         | flow x element $\Delta P$ factor x viscosity factor                        | Drop<br>Information        | LW60                  |
|                      |                          | v (L/min)                   |                                  | El. $\Delta P$ factor                          | rs @ 150 SUS (32 cSt):   | Based on                   | LWOO                  |
| 40                   | (10) (20                 | )) (30)                     | (40)                             | NNZX3<br>NNZX10                                | 1.00<br>.52  | Flow Rate<br>and Viscosity | KF30                  |
| 30                   |                          |                             |                                  |  |  |                            | <b>TF50</b>           |
|                      |                          |                             | (2.0)                            | If working<br>factor by 5                      | in units of bars & L/min, divide above                                     |                            | KEEO                  |
| <sup>.isd</sup> 20   |                          |                             | ∆P (bar)                         |  | <i>ctor:</i> Divide viscosity by 150 SUS (32 cSt).                         | -                          | KF50                  |
| 10                   |                          | 0130.005                    | (1.0) ⊲                          |  |  |                            | KC50                  |
|                      |                          | 1                           |                                  |  |  |                            | MKF50                 |
| 0 0                  | 2 4<br>5 E               | 6 8<br>ow gpm               | 10 12                            |  |  |                            |                       |
|                      |                          | w gpm                       |                                  |  |  |                            | KC65                  |
| sp gr = speci        | ific gravity             |                             |                                  |  |  |                            | NOF30-05              |
| Sizing of ele        | ements sho               | uld be based                | l on element flow info           | rmation provi                                  | ded in the Element Selection chart above                                   |                            |                       |
|                      |                          |                             |                                  |  |  |                            | NOF50                 |
| Notes                |                          |                             |                                  | $\Delta P_{\text{class}} = l$                  | $\Delta P_{\text{housing}} + \Delta P_{\text{element}}$                    |                            | FOF60-03              |
| Notes                |                          |                             |                                  | Exercise:                                      | - nousing · — element  |                            | NMF30                 |
|                      |                          |                             |                                  |  | \P at 8 gpm (30 L/min) for<br>ZX1005D5 using 150 SUS (32 cSt) fluid.       |                            | RMF60                 |
|                      |                          |                             |                                  | Solution:                                      | _  |                            |                       |
|                      |                          |                             |                                  | ∆P <sub>housing</sub><br>∆P <sub>element</sub> | = 15.0 psi [1.0 bar]<br>= 8 x 0.52 x (150÷150) = 4.2 psi                   |                            | Cartridge<br>Elements |
|                      |                          |                             |                                  | $\Delta P_{total}$                             | or<br>= [30 x (0.52 ÷54.9) x (32÷32) = 0.3 bar]<br>= 15.0 + 4.2 = 19.2 psi | 1                          | HS60                  |
|                      |                          |                             |                                  | total  | or<br>= [1.0 + 0.3 = 1.3 bar]  |                            | MHS60                 |
|                      |                          |                             |                                  |  |  |                            | KFH50                 |

## **NOF30-05** High-Pressure Sandwich Filter

| ModelBOX 1NumberNOF30-SelectionExample: NO | BOX 2 BOX 3 BOX<br>TE: One option per box<br>BOX 2 BOX 3 BOX<br>1 HNZX3H | 4 BOX 5 BOX 6 BOX 7                                       | = NOF301NNZX305                 | D5                   |  |  |
|--|--|---|---------------------------------|----------------------|--|--|
|  | Ι  | 05  |                                 |                      |  |  |
| BOX 1                                      | BOX 2  | BOX 3   | BOX 4                           | BOX 5                |  |  |
| Filter                                     | Number   | Element Part Number                                       | Seal Material                   | Porting              |  |  |
| Series                                     |  |   |                                 |                      |  |  |
| NOTO                                       |  | NN size 3 µ high collapse media                           | Omit = Buna N<br>V = Viton®     | 05 = D05<br>subplate |  |  |
| NOF30                                      |  | NN size 10 $\mu$ high collapse media                      |                                 | pattern              |  |  |
|  | NNZX25 =   | NN size 25 $\mu$ high collapse media                      | W = Buna N                      |                      |  |  |
| BOX 6                                      |  | BOX 7   |                                 |                      |  |  |
| Option                                     | 5  | Dirt Alarm <sup>®</sup>                                   |                                 |                      |  |  |
| Omit = None                                |  | Omit = None   |                                 |                      |  |  |
| 90 = Optio                                 |  | D5 = Visual pop-up (60                                    | ) psid indicator setting)       |                      |  |  |
| indic                                      | VISUAL WILLI   | D8 = Visual w/ thermal                                    |                                 |                      |  |  |
|  |  | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable     |                                 |                      |  |  |
|  |  | MS5LC = Low current MS                                    |                                 |                      |  |  |
|  |  | MS10 = Electrical w/ DIN connector (male end only)        |                                 |                      |  |  |
|  |  | MS10LC = Low current MS10                                 |                                 |                      |  |  |
|  | Electrical   | MS11 = Electrical w/ 12 ft                                | . 4-conductor wire              |                      |  |  |
|  | Electrical   | MS12 = Electrical w/ 5 pin                                | Brad Harrison connector (m      | ale end only)        |  |  |
|  |  | MS12LC = Low current MS1                                  | 2                               |                      |  |  |
|  |  | MS16 = Electrical w/ weather-packed sealed connector      |                                 |                      |  |  |
|  |  | MS16LC = Low current MS16                                 |                                 |                      |  |  |
|  |  | MS17LC = Electrical w/ 4 pin                              |                                 | or                   |  |  |
|  |  | MS5T = MS5 (see above)                                    |                                 |                      |  |  |
|  |  | MS5LCT = Low current MS5                                  |                                 |                      |  |  |
|  |  | MS10T = MS10 (see above                                   |                                 |                      |  |  |
|  | Electrical with  | MS10LCT = Low current MS1                                 |                                 |                      |  |  |
|  | Thermal<br>Lockout   | MS12T = MS12 (see above                                   |                                 |                      |  |  |
|  | Lockout  | MS12LCT = Low current MS1                                 |                                 |                      |  |  |
|  |  | MS16T = MS16 (see above<br>MS16LCT = Low current MS1      |                                 |                      |  |  |
|  |  | MS16LCT = Low current MS1<br>MS17LCT = Low current MS1    |                                 |                      |  |  |
|  | Flactrical   | MS17ECT = Low current for state MS13 = Supplied w/ threat |                                 |                      |  |  |
|  | Electrical<br>Visual   |   | Brad Harrison connector & light | nht (male end)       |  |  |
|  |  | MS13DCT = MS13 (see above                                 |                                 | -                    |  |  |
|  | Electrical<br>Visual with  | MS13DCLCT = Low current MS1                               |                                 | ocitout              |  |  |
|  | Thermal  | MS14DCT = MS14 (see above                                 |                                 | ockout               |  |  |
| nt   | Lockout  | MS14DCLCT = Low current MS1                               |                                 |                      |  |  |
|  |  |   |                                 |                      |  |  |

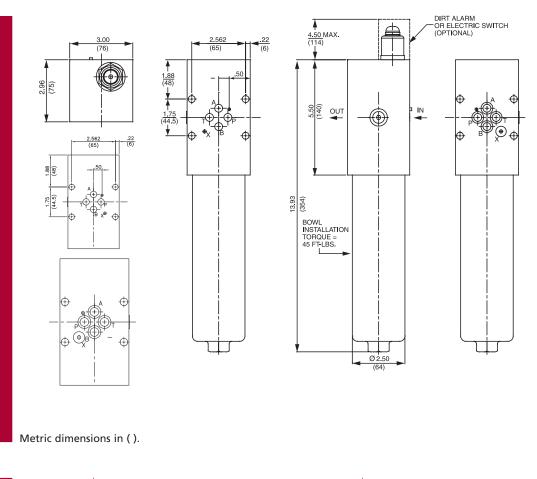
all aluminum parts are anodized. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

Box 4. For options V and W,

## High-Pressure Servo Sandwich Filter NOF50

|   | <ul> <li>Features and Benefits</li> <li>Localized protection at the servo helps to eliminate downtime and protect critical applications from contamination-related servo valve failures</li> <li>Sandwich style 4-bolt design – no additional lines to connect</li> <li>Designed to protect these commonly installed servo valves: Moog 761 &amp; 62, Vickers SM4-20 and Parker BD15</li> <li>High collapse elements, rated to 3000 psi (210 bar)</li> <li>Easily applied to new and existing systems</li> <li>All steel construction</li> </ul> | psi YF30     |
|---|--|--------------|
| Model No. of filter in photograph       | is NOF5015VZX3760.   | RF60<br>CF60 |
|   |  | CTF60        |
|   | Applica  | tions        |
|   |  | VF60         |
|   |  | LW60         |
| INDUSTRIAL AUTOMOTIVE<br>MANUFACTURING  | MACHINE STEEL<br>TOOL MAKING   | KF30         |
|   |  | <b>TF50</b>  |
|   |  | KF50         |
|   |  | КС50         |
| MOBILE PULP & PAPER<br>VEHICLES         | WASTE WATER<br>TREATMENT   |              |
|   |  | MKF50        |
|   |  | KC65         |
|   |  | NOF30-05     |
|   |  | NOF50        |
|   | · · · · · · · · · · · · · · · · · · ·  | FOF60-03     |
|   |  |              |
| Flow Rating:                            | Up to 15 gpm (57 L/min) for 150 SUS (32 cSt) fluids  | NMF30        |
| Max. Operating Pressure:                | 5000 psi (345 bar)   |              |
| Min. Yield Pressure:                    | 15,000 psi (1034 bar), per NFPA T2.6.1 Specific  | Cartridge    |
| Rated Fatigue Pressure:<br>Temp. Range: | 4000 psi (276 bar) per NFPA T2-6.1 R2-2005<br>-20°F to 225°F (-29°C to 107°C)  | Elements     |
| Non-Bypass Model:                       | Standard with high collapse elements   | HS60         |
| Porting Head:<br>Element Case:          | Steel<br>Steel   |              |
| Weight of NOF50-1SV:                    | 17 lb. (7.7 kg)  | MHS60        |
| Element Change Clearance:               | 4.50" (115 mm)   | KFH50        |

## **NOF50** High-Pressure Servo Sandwich Filter



| Element<br>Performance |         |                  | ntio Per ISO 4572/N<br>Darticle counter (APC) ca |                   | <b>per ISO 16889</b><br>ted per ISO 11171 |                       |
|------------------------|---------|------------------|--|-------------------|---|-----------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$ | $\beta_x(c) \ge 200$                      | $\beta_x(c) \ge 1000$ |
|                        | SVZX3   | <1.0             | <1.0   | <2.0              | 4.7                                       | 5.8                   |
|                        | SVZX10  | 7.4              | 8.2  | 10.0              | 8.0                                       | 9.7                   |

| Dirt Holding | Element   | DHC (gm)             |   |  |
|--------------|-----------|----------------------|---|--|
| Capacity     | SVZX3     | 11*                  |   |  |
|              | SVZX10    | 13*                  |   | *Paced on 100 nci                      |
|              | Eleme     | ent Collapse Rating: | 3000 psid (210 bar) for high collapse (ZX) versions | *Based on 100 psi<br>terminal pressure |
|              |           | Flow Direction:      | Outside In  |  |
|              | Element N | ominal Dimensions:   | 1.75" (45 mm) O.D. x 8.0" (200 mm) long             |  |
|              |           |                      |   |  |
|              |           |                      |   |  |
|              |           |                      |   |  |
|              |           |                      |   |  |
|              |           |                      |   |  |
|              |           |                      |   |  |
|              |           |                      |   |  |
|              |           |                      |   |  |
|              |           |                      |   |  |
|              |           |                      |   |  |
|              |           |                      |   |  |

## High-Pressure Servo Sandwich Filter NOF50

|                             |                             | Type Fluid                           | Appropriate                               | Schroeder Media  |  | Fluid                 | NF30        |
|-----------------------------|-----------------------------|--------------------------------------|---|--|--|-----------------------|-------------|
| P                           |                             | Based Fluids                         |   |  |  | Compatibility         | NFS30       |
|                             | -                           | ter Content<br>t Emulsions           |   | Z-Media <sup>®</sup> (synthetic)<br>Media <sup>®</sup> (synthetic) | )  |                       | YF30        |
|                             |                             | ater Glycols                         |   | Z-Media <sup>®</sup> (synthetic)                                   | )  |                       |             |
|                             |                             | -                                    |   | -  |  |                       | CFX30       |
|                             |                             |                                      |   |  |  |                       | PLD         |
|                             |                             |                                      |   |  |  |                       | <b>DF40</b> |
| Pressure                    | Eler<br>Series              | nent<br>Part No.                     | Element selecti<br>petroleum base         |  | d on the use of 150 SUS (32 cSt)   | Element<br>Selection  | <b>CF40</b> |
| То                          |                             | SVZX3                                | p-1                                       |  | VZX3   | Based on<br>Flow Rate | PF40        |
| 5000 psi                    | Z-<br>Media®                | SVZX10                               |   | 15\  | /ZX10  |                       | FF4U        |
| (345 bar)                   |                             | SVZX25                               |   | 15\  | /ZX25  |                       | LC50        |
|                             | Flow                        | 51                                   | )<br>                                     |  | 15<br>57   |                       | RFS50       |
| Shown abov                  | ve are the e                | lements mos                          | st commonly used                          | in this housing.   |  |                       | <b>RF60</b> |
| Note: Conta<br>Application: | ct factory r<br>s. For more | egarding us<br>information           | e of E Media in Hi<br>, refer to Fluid Co | igh Water Content,<br>mpatibility: Fire Re                         | Invert Emulsion and Water Glycol<br>sistant Fluids, pages 21 and 22.             |                       | CF60        |
|                             |                             |                                      |   |  |  |                       | CTF60       |
|                             |                             |                                      |   |  |  |                       |             |
| ∆P <sub>housing</sub>       |                             |                                      |   | ΔP <sub>element</sub>  | (here the set AD feature the set) feature  | Pressure<br>Drop      | <b>VF60</b> |
| NOF50 ΔP <sub>ho</sub>      | <sub>using</sub> for fluid  | ds with sp gr                        | = 0.86:                                   |  | flow x element $\triangle P$ factor x viscosity factor<br>rs @ 150 SUS (32 cSt): | Information           | LW60        |
| 120                         | Flc<br>(10) (20)            | w (L/min)<br>(30) (40)               | (50)                                      | SVZX3  | 1.00   | Based on<br>Flow Rate | KF30        |
| 100                         |                             |                                      | (7.5)                                     | SVZX10   | .52  | and Viscosity         | TEEO        |
| 80                          |                             |                                      | (5.0)                                     | If working<br>factor by 5  | in units of bars & L/min, divide above<br>4.9.                                   |                       | <b>TF50</b> |
| .isq 60                     |                             | 105976                               | ∆P (bar)                                  |  | actor: Divide viscosity by 150 SUS (32 cSt).                                     |                       | KF50        |
| 40                          | • • • • • • •               |                                      | (2.5)                                     |  |  |                       | KC50        |
| 20                          |                             |                                      |   |  |  |                       | MKF50       |
|                             | 2 4<br>F                    | 6 8 10<br>low gpm                    | 12 15                                     |  |  |                       |             |
|                             |                             | nould not be use<br>nould not be use | d beyond 7gpm<br>d beyond 10 gpm          |  |  |                       | KC65        |
| sp gr = spec                | ific gravity                |                                      |   |  |  |                       | NOF30-05    |
|                             | ements sho                  | uld be based                         | l on element flow                         | information provi  | ded in the Element Selection   |                       | NOF50       |
| Notes                       |                             |                                      |   | Δ <b>Ρ</b>   | $\Delta P_{\text{housing}} + \Delta P_{\text{element}}$                          |                       | FOF60-03    |
| Notes                       |                             |                                      |   | Exercise:  | - nousing · - element  |                       | NMF30       |
|                             |                             |                                      |   |  | ∆P at 8 gpm (30 L/min) for<br>ZX1076090D5 using 150 SUS (32 cSt) fluid.          |                       |             |
|                             |                             |                                      |   | Solution:  |  |                       | RMF60       |
|                             |                             |                                      |   | ΔP <sub>housing</sub>  | = 30.0 psi [2.1 bar]<br>= 8 x 0 52 x (150+150) = 4.2 psi                         |                       | Cartridge   |
|                             |                             |                                      |   | ∆P <sub>element</sub>  | = 8 x 0.52 x (150÷150) = 4.2 psi<br>or   |                       | Elements    |
|                             |                             |                                      |   | $\Delta P_{total}$   | = [30 x (0.52 ÷54.9) x (32÷32) = 0.3 bar]<br>= 30.0 + 4.2 = 34.2 psi             |                       | HS60        |
|                             |                             |                                      |   | lotai  | or<br>= [2.1 + 0.3 = 2.4 bar]  |                       | MHS60       |
|                             |                             |                                      |   |  |  |                       |             |

**KFH50** 

## **NOF50** High-Pressure Servo Sandwich Filter

|                                |                           | lid Model Number for a Schroede  |                   |                  |  |  |
|--------------------------------|---------------------------|--|-------------------|------------------|--|--|
| Model BOX 1                    | BOX 2 E                   | BOX 3 BOX 4 BOX 5 BOX 6 BOX 7  | BOX 8             |                  |  |  |
| Number NOF50                   |                           |  |                   |                  |  |  |
| election Example:<br>BOX 1     | VOTE: One opti<br>BOX 2 E | ion per box<br>3OX 3 BOX 4 BOX 5 BOX 6 BOX 7   | BOX 8             |                  |  |  |
| NOF50                          |                           | VZX3 760   |                   | 501SVZX3760D5    |  |  |
|                                |                           |  |                   |                  |  |  |
| BOX 1                          | BOX 2<br>Number           | BOX 3  | BOX 4             | BOX 5            |  |  |
| Filter<br>Series               | of<br>Elements            | Element Part Number  | Seal Material     | Porting          |  |  |
| NOFFO                          | 1                         | SVZX3 = S size 3 $\mu$ high collapse media   | Omit = Buna N     | 760 = Moog servo |  |  |
| NOF50                          |                           | SVZX10 = S size 10 $\mu$ high collapse media   | V = Viton®        | configuratio     |  |  |
|                                |                           | SVZX25 = S size 25 $\mu$ high collapse media   |                   | 710 = Moog servo |  |  |
|                                |                           |  | ]                 | configuratio     |  |  |
| BO                             | )X 6                      | BOX 7  |                   |                  |  |  |
| Ор                             | tions                     | Optional<br>Test Point   |                   |                  |  |  |
| Omit                           | = 60 psid                 | Omit = None  |                   |                  |  |  |
| 90                             | = 90 psid                 | U = Series 1215 7/16"-20 UNF   |                   |                  |  |  |
|                                |                           | Schroeder Check Test Point<br>installation   |                   |                  |  |  |
|                                |                           | BOX 8  |                   | _                |  |  |
|                                |                           | Dirt Alarm <sup>®</sup> Options  |                   |                  |  |  |
|                                |                           | Omit = None  |                   |                  |  |  |
| Visual                         |                           | D5 = Visual pop-up (60 psid indicator setting)   |                   |                  |  |  |
| Visual wi<br>Therma<br>Lockout |                           | D8 = Visual w/ thermal lockout   |                   |                  |  |  |
|                                |                           | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor  | cable             | -                |  |  |
|                                |                           | MS5LC = Low current MS   |                   |                  |  |  |
|                                |                           | MS10 = Electrical w/ DIN connector (male end onl   | y)                |                  |  |  |
|                                | N                         | IS10LC = Low current MS10  |                   |                  |  |  |
| Electrica                      |                           | MS11 = Electrical w/ 12 ft. 4-conductor wire   |                   |                  |  |  |
| Electrica                      |                           | MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)                                   |                   |                  |  |  |
|                                | N                         | IS12LC = Low current MS12  |                   |                  |  |  |
|                                |                           | MS16 = Electrical w/ weather-packed sealed connector   |                   |                  |  |  |
|                                | N                         | IS16LC = Low current MS16  |                   |                  |  |  |
|                                | N                         | IS17LC = Electrical w/ 4 pin Brad Harrison male con  | nector            |                  |  |  |
|                                |                           | MS5T = MS5 (see above) w/ thermal lockout  |                   |                  |  |  |
|                                |                           | 1S5LCT = Low current MS5T  |                   |                  |  |  |
|                                |                           | MS10T = MS10 (see above) w/ thermal lockout  |                   |                  |  |  |
| Electrical w                   | 101                       | 510LCT = Low current MS10T   |                   |                  |  |  |
| Therma<br>Lockout              |                           | MS12T = MS12 (see above) w/ thermal lockout  |                   |                  |  |  |
| LOCKOU                         | IVIS                      | 512LCT = Low current MS12T   |                   |                  |  |  |
| element                        |                           | MS16T = MS16 (see above) w/ thermal lockout  |                   |                  |  |  |
| are                            |                           | 516LCT = Low current MS16T   |                   |                  |  |  |
| ontents<br>d 4.                |                           | S17LCT = Low current MS17T   |                   | _                |  |  |
| Electrica                      |                           | MS13 = Supplied w/ threaded connector & light  | r Q light (mails) |                  |  |  |
| DuPont                         | N 4C                      | MS14 = Supplied w/ 5 pin Brad Harrison connecto<br>13DCT = MS13 (see above), direct current, w/ ther | -                 | _                |  |  |
| ers. Electrica                 |                           | DCLCT = Low current MS13DCT  | וומי וטכגטענ      |                  |  |  |
| ndicator Visual wi             |                           | 14DCT = MS14 (see above), direct current, w/ then  | mal lockout       |                  |  |  |
| graph, Lockout                 | 1015                      | DCLCT = Low current MS14DCT  |                   |                  |  |  |

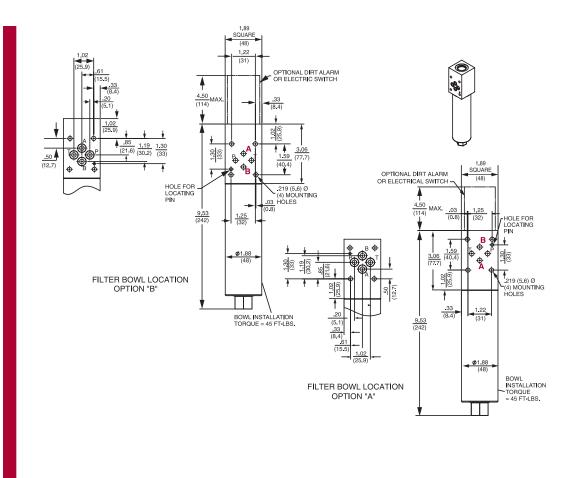
NOTES:

- Box 3.
- Box 4.
- Box 6.

## High-Pressure Sandwich Filter FOF60-03

| Model No. of filter in photograph is FC  | <ul> <li>F601FZX303D5.</li> <li>Spandwich filter configured for D03 subplate pattern</li> <li>Withstands high pressure surges, high static pressure loads</li> <li>3000 psi collapse elements</li> </ul>  | NF30<br><u>45 L/min</u><br><u>6000 psi</u><br>415 bar<br>CFX30<br>PLD<br>DF40<br>CF40<br>PF40<br>LC50<br>RF550<br>RF60<br>CF60  |
|--|---|---|
|  | ACHIE       FINING         BURNANA       FINING   | Applications         VF60           LW60         KF30           KF30         TF50           KF50         KC50           MKF50         KC65           NOF30-05         NOF50           FOF60-03         FOF60-03 |
| Flow Rating:<br>Max. Operating Pressure:<br>Min. Yield Pressure:<br>Rated Fatigue Pressure:<br>Temp. Range:<br>Non-Bypass Model:<br>Porting Head:<br>Element Case:<br>Weight:<br>Element Change Clearance: | Up to 12 gpm (45 L/min) for 150 SUS (32 cSt) fluids<br>6000 psi (415 bar)<br>26,000 psi (1790 bar), per NFPA T2.6.1<br>4000 psi (275 bar), per NFPA T2.6.1<br>-20°F to 225°F (-29°C to 107°C)<br>Available with high collapse elements<br>Steel<br>Steel<br>7.3 lbs. (3.3 kg)<br>4.50" (115 mm) | Filter<br>Housing<br>Specifications<br>Cartridge<br>Elements<br>HS60<br>MHS60<br>KFH50  |
|  | SCHROEDER INDUSTR   | LIES 137  |

## **FOF60-03** High-Pressure Sandwich Filter



Metric dimensions in ( ).

| Element<br>Performance |         |                  | tio Per ISO 4572/NF<br>article counter (APC) calil | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|---------|------------------|--|--|----------------------|-----------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                  | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | FZX3    | <1.0             | <1.0   | <2.0   | 4.7                  | 5.8                   |
|                        | FZX10   | 7.4              | 8.2  | 10.0   | 8.0                  | 9.8                   |

| Dirt Holding | Element | DHC (gm)                 |   |  |
|--------------|---------|--------------------------|---|--|
| Capacity     | FZX3    | 3*                       |   |  |
|              | FZX10   | 5.1                      |   |  |
|              |         | Element Collapse Rating: | 3000 psid (210 bar) for high collapse (ZX) versions |  |
|              |         | Flow Direction:          | Outside In  |  |
|              | Elem    | ent Nominal Dimensions:  | 1.25" (30 mm) O.D. x 3.25" (85 mm) long             | *Based on 100 psi<br>terminal pressure |
|              |         |                          |   |  |
|              |         |                          |   |  |
|              |         |                          |   |  |
|              |         |                          |   |  |
|              |         |                          |   |  |

## High-Pressure Sandwich Filter FOF60-03

|                            |                          | Type Fluid                 | Appropriate So                               | chroeder Media                                 | a  |                            |        | Fluid                 | NF30                  |
|----------------------------|--------------------------|----------------------------|--|--|--|----------------------------|--------|-----------------------|-----------------------|
| Pe                         |                          | Based Fluids               |  |  |  |                            |        | Compatibility         | NFS30                 |
|                            | High Wa                  | ter Content                | 3 and 10 µ Z-Me                              | dia® (synthetic)                               |  |                            |        |                       | YF30                  |
|                            |                          |                            |  |  |  |                            |        |                       | CFX30                 |
|                            |                          |                            |  |  |  |                            |        |                       | PLD                   |
|                            |                          |                            |  |  |  |                            |        |                       | <b>DF40</b>           |
|                            | Eler                     | ment                       | Element selection                            |  |  |                            |        | Element               | <b>CF40</b>           |
| Pressure<br>To             | Series                   | Part No.<br>FZX3           | of 150 SUS (32 cs                            | · ·  | oased fluid.<br>2X3                                    |                            | _      | Selection<br>Based on | PF40                  |
| 6000 psi<br>(415 bar)      | Z-<br>Media®             | FZX10                      |  |  | ×10  |                            | _      | Flow Rate             |                       |
|                            |                          |                            | )  |  |  | 12                         |        |                       | LC50                  |
|                            | Flow                     |                            | )  | 20   | 4  | 0 45                       |        |                       | <b>RFS50</b>          |
|                            |                          |                            | st commonly used in                          | -  |  |                            |        |                       | <b>RF60</b>           |
| Note: Conta<br>Application | s. For more              | information                | e of E Media in Higi<br>, refer to Fluid Com | n Water Conten<br>npatibility: Fire F          | t, Invert Emulsion and<br>Resistant Fluids, pages 2    | Water Glycol<br>21 and 22. |        |                       | <b>CF60</b>           |
|                            |                          |                            |  |  |  |                            |        |                       | CTF60                 |
| ΔP <sub>housing</sub>      |                          |                            |  | ΔP <sub>element</sub>                          |  |                            |        | Pressure              | VF60                  |
| FOF60-03 $\Delta$          | P <sub>housing</sub> for | fluids with s              | p gr = 0.86:                                 |  | flow x element $\Delta P$ factor                       | or x viscosity fac         | tor    | Drop<br>Information   | LW60                  |
|                            |                          | ow (L/min)                 |  | El. ΔP facto<br>FZX3                           | rs @ 150 SUS (32 cSt):<br>6.06                         |                            |        | Based on<br>Flow Rate | KF30                  |
| 300                        | (10) (                   | (20) (30)                  | (40)   | FZX10  | 4.45   |                            |        | and Viscosity         | TF50                  |
| 250                        |                          |                            | (16)   | lf working i<br>by 54.9.                       | n units of bars & L/min,                               | divide above fa            | actor  |                       | KF50                  |
| - <u>isd</u> 150           |                          |                            | (12)<br>G<br>U<br>(12)<br>G<br>U<br>U        | Viscosity fa                                   | <i>ctor:</i> Divide viscosity by                       | y 150 SUS (32 cs           | 5t).   |                       | KC50                  |
| 100<br>50                  |                          |                            | (4)  |  |  |                            |        |                       |                       |
| 0                          |                          | 6 8                        | 10 12  |  |  |                            |        |                       | MKF50                 |
| _ Ir                       |                          | low gpm<br>t be used beyon |  |  |  |                            |        |                       | KC65                  |
| sp gr = spec               | ific gravity             |                            |  |  |  |                            |        |                       | NOF30-05              |
|                            | 5 ,                      | uld be based               | l on element flow i                          | nformation pro                                 | vided in the Element S                                 | election chart a           | above. |                       | NOF50                 |
| Notos                      |                          |                            |  | ΛΡ – Λ   | $\Delta P_{housing} + \Delta P_{element}$              |                            |        |                       | FOF60-03              |
| Notes                      |                          |                            |  | Exercise:                                      | <u>y</u>   |                            |        |                       | NMF30                 |
|                            |                          |                            |  |  | ∆P at 4 gpm (19 L/min)<br>1003 using 200 SUS (44       |                            |        |                       | RMF60                 |
|                            |                          |                            |  | Solution:                                      | _  |                            |        |                       |                       |
|                            |                          |                            |  | ΔP <sub>housing</sub><br>ΔP <sub>element</sub> | = 40.0 psi [2.75 bar]<br>= 5 x 4.45 x (200÷150         | ) = 29.7 psi               |        |                       | Cartridge<br>Elements |
|                            |                          |                            |  | $\Delta P_{total}$                             | or<br>= [19 x (4.45 ÷54.9) x<br>= 40.0 + 29.7 = 69.7 g |                            | bar]   |                       | HS60                  |
|                            |                          |                            |  |  | or<br>= [2.75 + 2.12 = 4.87                            | bar]                       |        |                       | MHS60                 |
|                            |                          |                            |  |  |  |                            |        |                       | KFH50                 |

## **FOF60-03** High-Pressure Sandwich Filter

| Filter<br>Model<br>Number<br>Selection | How to Build a Valid Model Number for a Schroeder FOF60-03:<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7<br>FOF60 |                    |  |                                    |                   |  |  |  |  |  |
|--|---|--------------------|--|------------------------------------|-------------------|--|--|--|--|--|
|  | FOF60 - 1 - FZX3 - 03 - A - D5 = FOF601FZX303AD5  |                    |  |                                    |                   |  |  |  |  |  |
|  |   |                    |  |                                    |                   |  |  |  |  |  |
|  | BOX 1 BOX 2   |                    | BOX 3  | BOX 4                              | BOX 5             |  |  |  |  |  |
|  | Filter Number<br>of<br>Elements   | Elem               | ent Part Number  | Seal Material                      | Porting           |  |  |  |  |  |
|  | 1   | FZX3 = F siz       | e 3 µ high collapse media  | Omit = Buna N                      | 03 = D03 subplate |  |  |  |  |  |
|  | FOF60   | FZX10 = F siz      | e 10 µ high collapse media   | V = Viton®                         | pattern           |  |  |  |  |  |
|  |   |                    |  |                                    |                   |  |  |  |  |  |
|  |   |                    |  |                                    |                   |  |  |  |  |  |
|  | BOX 6<br>Filter Bowl  |                    |  | OX 7                               |                   |  |  |  |  |  |
|  | Location  |                    |  | m <sup>®</sup> Options             |                   |  |  |  |  |  |
|  | A = Bowl adjacent<br>to Port "A"  | Visual             | Omit = None<br>D5 = Visual pop-up  |                                    |                   |  |  |  |  |  |
|  | B = Bowl adjacent   | Visual with        |  | ai pop-up<br>al w/ thermal lockout |                   |  |  |  |  |  |
|  | to Port "B"<br>(Refer to drawing on   | Thermal<br>Lockout |  |                                    |                   |  |  |  |  |  |
|  | page 138.)  |                    | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable  |                                    |                   |  |  |  |  |  |
|  |   |                    | MS5LC = Low current MS   |                                    |                   |  |  |  |  |  |
|  |   |                    | MS10 = Electrical w/ DIN connector (male end only)<br>MS10LC = Low current MS10                        |                                    |                   |  |  |  |  |  |
|  |   |                    | MS10LC = Electrical w/ 12 ft. 4-conductor wire   |                                    |                   |  |  |  |  |  |
|  |   | Electrical         | MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)                                     |                                    |                   |  |  |  |  |  |
|  |   |                    | MS12LC = Low current MS12  |                                    |                   |  |  |  |  |  |
|  |   |                    | MS16 = Electrical w/ weather-packed sealed connector   |                                    |                   |  |  |  |  |  |
|  |   |                    | MS16LC = Low current N   |                                    |                   |  |  |  |  |  |
|  |   |                    | MS17LC = Electrical w/ 4 pin Brad Harrison male connector<br>MS5T = MS5 (see above) w/ thermal lockout |                                    |                   |  |  |  |  |  |
|  |   |                    | MSST = MSS(SEC use)<br>MSSLCT = Low current N  |                                    |                   |  |  |  |  |  |
|  |   |                    | MS10T = MS10 (see ab   | oove) w/ thermal lockout           | :                 |  |  |  |  |  |
|  |   | Electrical with    | MS10LCT = Low current N  | VIS10T                             |                   |  |  |  |  |  |
|  |   | Thermal<br>Lockout | MS12T = MS12 (see ab   | *                                  |                   |  |  |  |  |  |
|  |   | LUCINUUT           | MS12LCT = Low current M<br>MS16T = MS16 (see ab  |                                    |                   |  |  |  |  |  |
|  |   |                    | MS16LCT = Low current N  | ,                                  |                   |  |  |  |  |  |
| element                                |   |                    | MS17LCT = Low current N  |                                    |                   |  |  |  |  |  |
| ontents                                |   | Electrical         | MS13 = Supplied w/ t   | hreaded connector & lig            | ht                |  |  |  |  |  |
| id 4.                                  |   | Visual             |  | pin Brad Harrison connec           | 3 1 1             |  |  |  |  |  |
| gistered                               |   | Electrical         | MS13DCT = MS13 (see ab   |                                    | thermal lockout   |  |  |  |  |  |
| DuPont                                 |   | Visual with        | MS13DCLCT = Low current N  |                                    |                   |  |  |  |  |  |
| ers.                                   |   | Thermal            | MS14DCT = MS14 (see ab   | )ove), girect current \w// 1       | hermal lockout    |  |  |  |  |  |

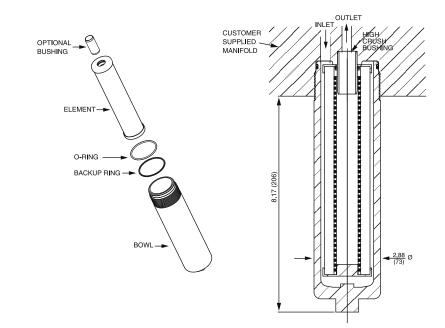
NOTES:

- Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.
- Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 7. Dirt Alarm<sup>®</sup> cannot be used beyond 4 gpm. Filters ordered without a Dirt Alarm do not include a machined indicator port. Therefore, one cannot be added at a later date.

Manifold Filter Kit NMF30

|   | <b>Description</b> • Allows for effective filtration         in customer's manifold  | 20 gpm<br><u>75 L/min</u><br>3000 psi<br>210 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>CF40<br>LC50<br>RF550<br>RF550<br>RF60<br>CF60 |
|---|--|--|---|
|   | <image/> <image/> <image/> within the series     within the series       within the series     within the series |  | VF60<br>LW60<br>KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>OF30-05<br>NOF50<br>OF60-03            |
| Flow Rating:<br>Max. Operating Pressure:<br>Min. Yield Pressure:<br>Rated Fatigue Pressure:<br>Temp. Range:<br>Element Case:<br>Element Change Clearance:<br>*Only with manifold material propertie | Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids<br>3000 psi (210 bar)*<br>10,000 psi (690 bar)*, per NFPA T2.6.1<br>2400 psi (185 bar)*, per NFPA T2.6.1<br>-20°F to 225°F (-29°C to 107°C)<br>Aluminum<br>4.50" (115 mm)<br>s equivalent to aluminium 6061-T651.                                    | Filter<br>Housing<br>Specifications              | NMF30<br>RMF60<br>artridge<br>lements<br>HS60<br>MHS60<br>KFH50   |

### **Manifold Filter Kit**



Manifold kit consists of element, o-ring, backup ring and bowl. Bushing is optional depending on machined cavity style. For manifold machining details, request drawing D-9895 from factory.

| Element<br>Performance<br>Information            |  |                           | n <b>tio Per ISO 4572</b><br>particle counter (APC) ( | /NFPA T3.10.8.8<br>calibrated per ISO 4402         | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                           |                                      |
|--|--|---------------------------|---|--|--|---------------------------|--------------------------------------|
| intornation                                      | Element  | β <sub>x</sub> ≥ 75       | $\beta_x \ge 100$                                     | $\beta_x \ge 200$                                  | $\beta_x(c) \ge 200$   | β <sub>x</sub> (c) ≥ 1000 | gm                                   |
|  | NNZX3  | <1.0                      | <1.0  | <2.0   | 4.7  | 5.8                       | 11*                                  |
|  | NNZX10   | 7.4                       | 8.2   | 10.0   | 8.0  | 9.8                       | 13*                                  |
|  | E  | F                         | ollapse Rating:<br>How Direction:<br>al Dimensions:   | 3000 psid (210 ba<br>Outside In<br>1.75" (45 mm) O |  |                           | *Based on 100 ps<br>terminal pressur |
| Pressure   | $\Delta \mathbf{P}_{element}$  |                           |   |  |  |                           |                                      |
| Drop   | $\Delta P_{element} =$   | flow x element $\Delta$   | P factor x viscosity                                  | factor   |  |                           |                                      |
| Information<br>Based on                          | El. ΔP factor  | rs @ 150 SUS (32          | cSt):   |  |  |                           |                                      |
| Flow Rate  | NNZX3 1.00   |                           |   |  |  |                           |                                      |
| and Viscosity                                    | NNZX10 .52   |                           |   |  |  |                           |                                      |
|  | If working in units of bars & L/min, divide above factor by 54.9.<br>Viscosity factor: Divide viscosity by 150 SUS (32 cSt). |                           |   |  |  |                           |                                      |
|  | Viscosity id   |                           |   | 52 (51).   |  |                           |                                      |
| Filter   |  |                           |   | ber for a Schro                                    | eder NMF3  | <b>:</b> 0:               |                                      |
| Model  | BOX 1  | BOX 2                     | BOX 3 BC  | DX 4 BOX 5   |  |                           |                                      |
| Number   |  | -                         |   |  |  |                           |                                      |
| Selection  | BOX 1  | NOTE: One optior<br>BOX 2 |   | X 4 BOX 5  |  |                           |                                      |
|  | NMF30 - 1 - NNZX3 = NMF301NNZX3  |                           |   |  |  |                           |                                      |
|  |  |                           |   |  |  |                           |                                      |
|  |  |                           |   |  |  |                           |                                      |
| lacement element<br>numbers are                  | BOX 1  | BOX 2                     |   | BOX 3  |  | BOX 4                     | BOX 5                                |
| ntical to contents<br>oxes 3 and 4.              | Filter<br>Series   | Number<br>of<br>Elements  | Elemer  | nt Part Number                                     | 9  | eal Material              | Bushing                              |
| options V and W,                                 |  | 1                         | NNZX3 = NN size                                       | e 3 µ high collapse me                             | edia Om  | it = Buna N               | Omit = Included                      |
| luminum parts are dized. Viton <sup>®</sup> is a | NMF30  |                           | NNZX10 = NN siz                                       | e 10 µ high collapse m                             | nedia  | V = Viton®                | N = Not                              |
| dized. Viton° is a stered trademark of           |  |                           |   | o 2E u high collonco m                             | vodia \  | V = Buna N                | included                             |

NNZX25 = NN size 25  $\mu$  high collapse media

W = Buna N

Metric dimensions in ( ).

#### NOTES:

- Box 3. Repla part r ident of Bo
- Box 4. For o all alı anodized. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

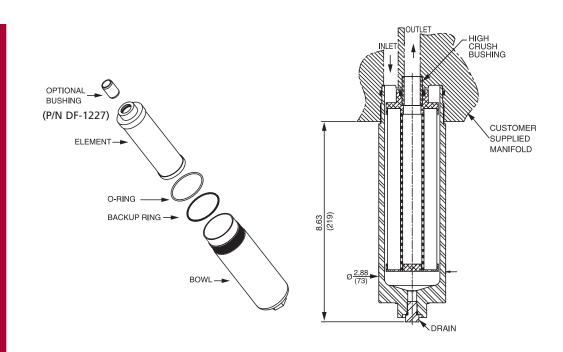
## Manifold Filter Kit RMF60

|  | Fractures and Benefits         • Allows for effective filtration         in customer's manifold  | NF30<br><u>115 L/min</u><br>6000 psi<br>415 bar<br>CFX30<br>PLD<br>DF40<br>CF40<br>PF40<br>RF50<br>RF60<br>CF60<br>VF60   |
|--|--|---|
| INDUSTRIAL       Image: Constraint of the second seco | <image/> <image/> <image/> <image/>  | Applications         LW60           KF30         TF50           KF50         KF50           KC50         MKF50           MCF30-05         NOF30-05           NOF50-760         FOF60-03           NMF30         MKF30 |
| Flow Rating:<br>Max. Operating Pressure:<br>Min. Yield Pressure:<br>Rated Fatigue Pressure:<br>Temp. Range:<br>Element Change Clearance:   | Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids<br>6000 psi (415 bar)*<br>18,000 psi (1240 bar)*<br>2300 psi (159 bar)*<br>-20°F to 225°F (-29°C to 107°C)<br>Steel<br>3.0" (75 mm) | RMF60<br>Filter<br>Housing<br>Specifications<br>HS60<br>MHS60   |

\*Only with manifold material properties equivalent to AISI 1018 C.R.S.



### **Manifold Filter Kit**



Manifold kit consists of element, o-ring, backup ring and bowl. Bushing is optional depending on machined cavity style. For manifold machining details, request drawing D-10536 from factory.

Metric dimensions in ( ).

| Element<br>Performance  |         | Filtration Ratio Per ISO 4572/NFPA T3.10.8.8<br>Using automated particle counter (APC) calibrated per ISO 4402 |                   |                   | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                       | Dirt Holding |
|---|---------|--|-------------------|-------------------|--|-----------------------|--------------|
| Information   | Element | $\beta_x \ge 75$   | $\beta_x \ge 100$ | $\beta_x \ge 200$ | $\beta_x(c) \ge 200$   | $\beta_x(c) \ge 1000$ | Capacity gm  |
|   | 8RZX3   | <1.0   | <1.0              | <2.0              | 4.7  | 5.8                   | N/A          |
|   | 8RZX10  | 7.4  | 8.2               | 10.0              | 8.0  | 9.8                   | N/A          |
|   |         | Element Co   | ollapse Rating:   | 3000 psid (210 ba | ar)  |                       |              |
|   |         | F  | low Direction:    | Outside In        |  |                       |              |
|   |         | Element Nomin  | al Dimensions:    | 2.18" (55 mm) O.  | D. x 8.15" (206 m  | m) long               |              |
| Pressure       Drop         Information       ΔP <sub>element</sub> = flow x element ΔP factor x viscosity factor         Element = flow x element ΔP factor x viscosity factor         El. ΔP factors @ 150 SUS (32 cSt):         8RZX3       N/A         8RZX10       N/A         If working in units of bars & L/min, divide above factor by 54.9.         Viscosity factor:       Divide viscosity by 150 SUS (32 cSt). |         |  |                   |                   |  |                       |              |
| Filter       How to Build a Valid Model Number for a Schroeder RMF60:         Model       BOX 1       BOX 2       BOX 3       BOX 4       BOX 5   |         |  |                   |                   |  |                       |              |

 Model Number
 BOX 1
 BOX 2
 BOX 3
 BOX 4
 BOX 5

 Selection
 Example: NOTE: One option per box

 BOX 1
 BOX 2
 BOX 3
 BOX 4
 BOX 5

 RMF60
 8
 RZX3
 =
 RMF608RZX3

#### NOTES:

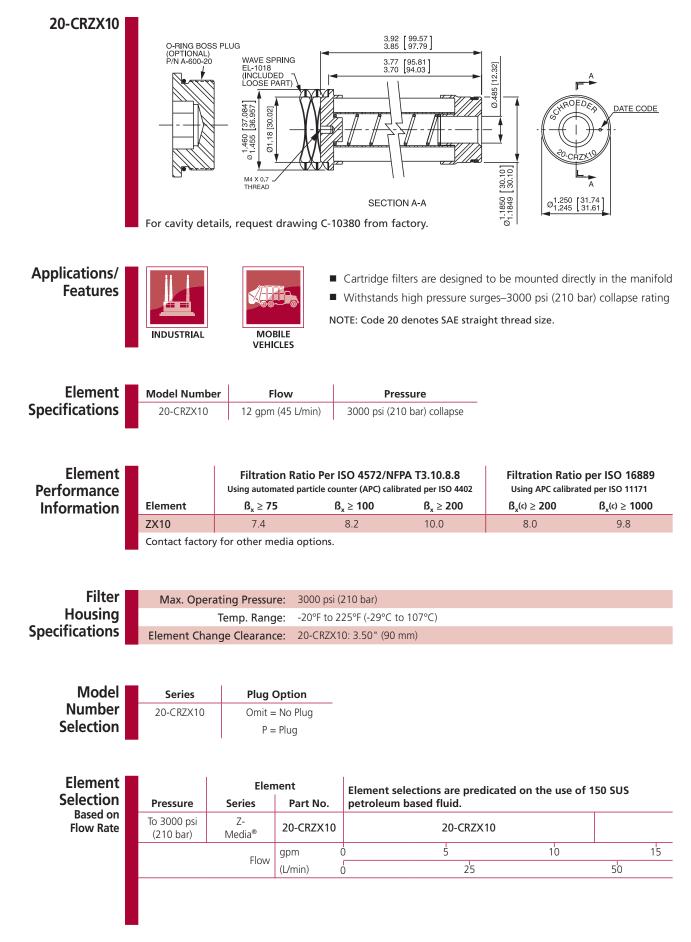
- Box 2: Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 8RZX3V
- Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

| BOX 1            | BOX 2             | BOX 3   | BOX 4         | BOX 5            |
|------------------|-------------------|---|---------------|------------------|
| Filter<br>Series | Element<br>Length | Element Size and Media  | Seal Material | Bushing          |
| DNAECO           | 8                 | RZX3 = E size 3 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (high collapse center tube)   | Omit = Buna N | Omit = Included  |
| RMF60            | ,                 | RZX10 = E size 10 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (high collapse center tube) | V = Viton®    | N = Not included |
|                  |                   | RZX25 = E size 25 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (high collapse center tube) | H = EPR       |                  |

# Cartridge Element 14-CRZX10

|   |  |   |  |  |   |  | 14-CRZX10  | NF30  |
|---|--|---|--|--|---|--|--|---|
|   | O-RING BOSS PL<br>(OPTIONAL)<br>P/N A-601-14   | .UG 22<br>2.3   | 43 [ 61.7 ]<br>39 [ 60.7 ]   |  |   |  |  | NFS30   |
|   |  |   |  | 33 10  | SCHROEDER DATE CO   | DDE  |  | YF30  |
|   |  |   |  | 0.998 25.<br>0.997 25.   |   |  |  | CFX30   |
|   |  |   |  | ·••  | rg-CRZX10   |  |  | PLD   |
|   | ·  | 2.82<br>2.76<br>3.20<br>3.13  | [71.6<br>[70.1]  |  | A<br>1.081 [ 27.46]   |  |  | <b>DF40</b>   |
|   | -  | 3.13<br>SECTION A-  |  | -  | Ø 1.081 [27.46]<br>1.079 [27.41]  |  |  | <b>CF40</b>   |
|   |  |   |  |  |   |  |  | <b>PF40</b>   |
| For cavity de   | etails, request dra  | awing C-10379 fr  | om factory.  |  |   |  |  | LC50  |
| -   |  | 5   |  |  |   |  |  | RFS50   |
|   |  |   |  |  | nted directly in the m  | annoid   | Applications/<br>Features  | <b>RF60</b>   |
|   |  |   | inds high pressure si<br>e 14 denotes SAE stra   |  | si (210 bar) collapse   | rating   |  | <b>CF60</b>   |
| INDUSTRIAL  | MOBILE<br>VEHICLES   |   |  | ingine en eue si   |   |  |  | CTF60   |
|   |  |   |  |  |   | _  |  | <b>VF60</b>   |
|   |  | Model N   | umber Flo  | w  | Pressure  |  | Element<br>Specifications  | LW60  |
|   |  |   |  |  |   |  | Specifications   |   |
|   |  | 14-CRZ  | X10 6 gpm (  | 23 L/min)  | 3000 psi (210 bar) co   |  | Specifications   | KF30  |
|   |  | 14-CRZ  | X10 6 gpm (  | 23 L/min)  | 3000 psi (210 bar) co   | ollapse  |  |   |
|   |  | Ratio Per ISO 457   | X10 6 gpm (<br>72/NFPA T3.10.8.8<br>C) calibrated per ISO 440  | Filt   | 3000 psi (210 bar) co<br>ration Ratio per ISO<br>ing APC calibrated per ISO   | ollapse  | Element<br>Performance   | TF50  |
| Element   | Using automate $\beta_x \ge 75$  | Ratio Per ISO 457<br>ed particle counter (AP<br>$\beta_x \ge 100$   | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$\beta_x \ge 200$  | Filt<br>2 Usi<br>B <sub>x</sub> (c   | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$\Rightarrow \ge 200 \qquad \beta_x(c) \ge$   | ollapse<br>16889<br>11171<br>≥ 1000                      | Element  | TF50<br>KF50  |
| ZX10  | Using automate<br>$B_x \ge 75$<br>7.4  | Ratio Per ISO 457<br>ed particle counter (AP<br>$\beta_x \ge 100$<br>8.2  | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440   | Filt<br>2 Usi<br>B <sub>x</sub> (c   | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$\Rightarrow \ge 200 \qquad \beta_x(c) \ge$   | ollapse<br>16889<br>11171                                | Element<br>Performance   | TF50  |
| ZX10  | Using automate $\beta_x \ge 75$  | Ratio Per ISO 457<br>ed particle counter (AP<br>$\beta_x \ge 100$<br>8.2  | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$\beta_x \ge 200$  | Filt<br>2 Usi<br>B <sub>x</sub> (c   | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$\Rightarrow \ge 200 \qquad \beta_x(c) \ge$   | ollapse<br>16889<br>11171<br>≥ 1000                      | Element<br>Performance   | TF50<br>KF50  |
| ZX10<br>Contact facto   | Using automate<br>$B_x \ge 75$<br>7.4  | Ratio Per ISO 457<br>ed particle counter (AP<br>$\beta_x \ge 100$<br>8.2<br>a options.  | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$\beta_x \ge 200$  | Filt<br>2 Usi<br>B <sub>x</sub> (c   | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$\Rightarrow \ge 200 \qquad \beta_x(c) \ge$   | 16889<br>11171<br>≥ 1000<br>0.8                          | Element<br>Performance   | TF50<br>KF50<br>KC50  |
| ZX10<br>Contact facto   | Using automate<br>B <sub>x</sub> ≥ <b>75</b><br>7.4<br>ory for other medi<br>ax. Operating Pre<br>Temp. F  | Ratio Per ISO 457ed particle counter (AP $\beta_x \ge 100$ 8.2a options.essure:3000 psiRange:-20°F to   | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$B_x ≥ 200$<br>10.0<br>i (210 bar)<br>225°F (-29°C to 107°C  | 2 Filt<br>2 Usi<br>β <sub>x</sub> (c   | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$\Rightarrow \ge 200 \qquad \beta_x(c) \ge$   | ollapse<br><b>16889</b><br>11171<br>≥ <b>1000</b><br>9.8 | Element<br>Performance<br>Information<br>Filter<br>Housing   | TF50<br>KF50<br>KC50<br>MKF50   |
| ZX10<br>Contact facto   | Using automate<br>$oldsymbol{eta}_x \ge 75$<br>7.4<br>pry for other medi<br>ax. Operating Pre  | Ratio Per ISO 457ed particle counter (AP $\beta_x \ge 100$ 8.2a options.essure:3000 psiRange:-20°F to   | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$\beta_x \ge 200$<br>10.0<br>i (210 bar)   | 2 Filt<br>2 Usi<br>β <sub>x</sub> (c   | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$\Rightarrow \ge 200 \qquad \beta_x(c) \ge$   | ollapse<br><b>16889</b><br>11171<br>≥ <b>1000</b><br>9.8 | Element<br>Performance<br>Information<br>Filter  | TF50<br>KF50<br>KC50<br>MKF50<br>KC65   |
| ZX10<br>Contact facto   | Using automate<br>B <sub>x</sub> ≥ <b>75</b><br>7.4<br>ory for other medi<br>ax. Operating Pre<br>Temp. F  | Ratio Per ISO 457ed particle counter (AP $\beta_x \ge 100$ 8.2a options.essure:3000 psiRange:-20°F to   | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$B_x \ge 200$<br>10.0<br>i (210 bar)<br>225°F (-29°C to 107°C<br>(10: 4.50" (115 mm)   | 2 Filt<br>2 Usi<br>B <sub>x</sub> (c   | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$\Rightarrow \ge 200$ $B_x(c) \ge 8.0$ 9  | 16889<br>11171<br>≥ 1000<br>0.8                          | Element<br>Performance<br>Information<br>Filter<br>Housing   | TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05   |
| ZX10<br>Contact facto   | Using automate<br>B <sub>x</sub> ≥ <b>75</b><br>7.4<br>ory for other medi<br>ax. Operating Pre<br>Temp. F  | Ratio Per ISO 457ed particle counter (AP $\beta_x \ge 100$ 8.2a options.essure:3000 psiRange:-20°F to   | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$\beta_x \ge 200$<br>10.0<br>i (210 bar)<br>225°F (-29°C to 107°C<br>(10: 4.50° (115 mm)   | 2 Filt<br>2 Usi<br>β <sub>x</sub> (c   | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$D \ge 200$ $B_x(c) \ge 8.0$ 9<br><b>Plug Option</b><br>Omit = No Plug                                      | 16889<br>11171<br>≥ 1000<br>0.8                          | Element<br>Performance<br>Information<br>Filter<br>Housing<br>Specifications<br>Model<br>Number  | TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50  |
| ZX10<br>Contact facto   | Using automate<br>B <sub>x</sub> ≥ <b>75</b><br>7.4<br>ory for other medi<br>ax. Operating Pre<br>Temp. F  | Ratio Per ISO 457ed particle counter (AP $\beta_x \ge 100$ 8.2a options.essure:3000 psiRange:-20°F to   | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$\beta_x \ge 200$<br>10.0<br>i (210 bar)<br>225°F (-29°C to 107°C<br>(10: 4.50° (115 mm)   | 2 Filt<br>2 Usi<br>B <sub>x</sub> (c   | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$2 \ge 200$ $\beta_x(c) \ge 8.0$ 9<br>Plug Option   | 16889<br>11171<br>≥ 1000<br>0.8                          | Element<br>Performance<br>Information<br>Filter<br>Housing<br>Specifications<br>Model  | TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03                                |
| ZX10<br>Contact facto   | Using automate<br>B <sub>x</sub> ≥ <b>75</b><br>7.4<br>bry for other medi<br>ax. Operating Pre<br>Temp. F<br>tent Change Clea                        | Ratio Per ISO 457ed particle counter (AP $\beta_x \ge 100$ 8.2a options.essure:3000 psiRange:-20°F to   | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$B_x \ge 200$<br>10.0<br>i (210 bar)<br>225°F (-29°C to 107°C<br>(10: 4.50" (115 mm)<br>S<br>14-0  | 2 Filt<br>2 Usi<br>B <sub>x</sub> (c<br>C)<br>C)<br>CRZX10                   | Plug Option         Omit = No Plug $P = Plug$   | 16889<br>11171<br>≥ 1000<br>0.8                          | Element<br>Performance<br>Information<br>Filter<br>Housing<br>Specifications<br>Model<br>Number  | TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60              |
| ZX10<br>Contact factor<br>Ma<br>Elem                            | Using automate<br>B <sub>x</sub> ≥ <b>75</b><br>7.4<br>ory for other medi<br>ax. Operating Pre<br>Temp. F<br>tent Change Clea<br>Ele<br>Series       | Ratio Per ISO 457Ratio Per ISO 457Bad particle counter (AP $\beta_x \ge 100$ 8.2a options.a options.essure:3000 psiRange:-20°F toarrance:14-CRZ>  | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$\beta_x \ge 200$<br>10.0<br>i (210 bar)<br>225°F (-29°C to 107°C<br>(10: 4.50° (115 mm)   | 2 Filt<br>2 Usi<br>B <sub>x</sub> (c<br>C)<br>C)<br>CRZX10<br>S are predicat | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$D \ge 200$ $B_x(c) \ge 8.0$ 9<br><b>Plug Option</b><br>Omit = No Plug<br>P = Plug<br>ed on the             | 16889<br>11171<br>≥ 1000<br>9.8                          | Element<br>Performance<br>Information<br>Filter<br>Housing<br>Specifications<br>Model<br>Number<br>Selection<br>Element<br>Selection             | TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60              |
| ZX10<br>Contact facto<br>Ma<br>Elem                             | Using automate<br>B <sub>x</sub> ≥ <b>75</b><br>7.4<br>ory for other medi<br>ax. Operating Pre<br>Temp. F<br>tent Change Clea<br>Ele                 | Ratio Per ISO 457<br>ed particle counter (AP<br>$\beta_x \ge 100$<br>8.2<br>a options.<br>essure: 3000 psi<br>Range: -20°F to<br>arance: 14-CRZ>  | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$B_x \ge 200$<br>10.0<br>i (210 bar)<br>225°F (-29°C to 107°C<br>(10: 4.50" (115 mm)<br>S<br>14-0<br>Element selections<br>use of 150 SUS per<br>14-CRZX10               | 2 Filt<br>2 Usi<br>B <sub>x</sub> (c<br>C)<br>C)<br>CRZX10<br>S are predicat | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$D \ge 200$ $B_x(c) \ge 8.0$ 9<br><b>Plug Option</b><br>Omit = No Plug<br>P = Plug<br>ed on the<br>d fluid. | 16889<br>11171<br>≥ 1000<br>9.8                          | Element<br>Performance<br>Information<br>Filter<br>Housing<br>Specifications<br>Model<br>Number<br>Selection<br>Element                          | TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60              |
| ZX10<br>Contact factor<br>Ma<br>Elem<br>Pressure<br>To 3000 psi | Using automate<br>B <sub>x</sub> ≥ <b>75</b><br>7.4<br>ory for other medi<br>ax. Operating Pre<br>Temp. F<br>tent Change Clea<br>Ele<br>Series<br>Z- | Ratio Per ISO 457         Bad particle counter (AP $B_x \ge 100$ 8.2         a options.         essure:       3000 psi         Range:       -20°F to         trance:       14-CRZ>         oment       Part No. | 72/NFPA T3.10.8.8<br>C) calibrated per ISO 440<br>$\beta_x \ge 200$<br>10.0<br>i (210 bar)<br>225°F (-29°C to 107°C<br>(10: 4.50° (115 mm)<br>S<br>14-C<br>Element selections<br>use of 150 SUS per<br>14-CRZX10<br>S<br>S | 2 Filt<br>2 Usi<br>B <sub>x</sub> (c<br>C)<br>C)<br>CRZX10<br>S are predicat | ration Ratio per ISO<br>ing APC calibrated per ISO<br>$D \ge 200$ $B_x(c) \ge 8.0$ 9<br><b>Plug Option</b><br>Omit = No Plug<br>P = Plug<br>ed on the             | 16889<br>11171<br>≥ 1000<br>9.8                          | Element<br>Performance<br>Information<br>Filter<br>Housing<br>Specifications<br>Model<br>Number<br>Selection<br>Element<br>Selection<br>Based on | TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60<br>Cartridge |

# 20-CRZX10 Cartridge Element

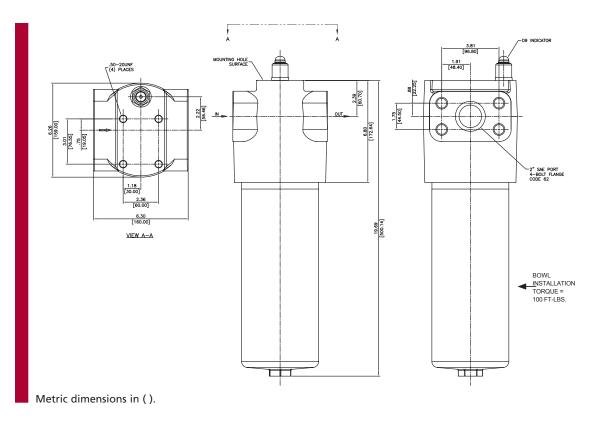


# Top-Ported Pressure Filter **HS60**

| Model No. of filters in photograph is H | <ul> <li>Full flow reverse flow check valve diverts flow past the element in hydrostatic applications</li> <li>Top-ported design capable of handling 100 gpm flow</li> <li>Offered in SAE straight thread and flange porting</li> <li>Thread on bowl with drain plug for easy element service</li> <li>6000 psi cyclic</li> <li>Certified for Offshore Standard DNVGL-OS-D101 "Marine and Machinery Systems and Equipment"</li> <li>Contact factory for higher flow applications</li> </ul> | 100 gpm<br><u>380 L/min</u><br>6000 psi<br>415 bar | NF30<br>NFS30<br>YF30<br>CFX30<br>PLD<br>DF40<br>CF40<br>CF40<br>LC50<br>RF550<br>RF60<br>CF60 |
|---|---|--|--|
| INDUSTRIAL MACHINE<br>TOOL              | OFFSHORE MINING<br>TECHNOLOGY MARINE  | Applications                                       | CTF60<br>VF60<br>LW60<br>KF30<br>TF50<br>KF50<br>KC50  |
| -                                       | Up to 100 gpm (380 L/min)<br>6000 psi (415 bar) only for flange ported models<br>Contact factory  |  | MKF50<br>KC65<br>DF30-05<br>NOF50<br>DF60-03<br>NMF30  |
| Rated Fatigue Pressure:<br>Temp. Range: | 6000 psi (415 bar)<br>(only with 4-bolt flange porting)<br>-20°F to 225°F (-29°C to 107°C)<br>Cracking: 87 psi (5.9 bar)<br>Ductile Iron<br>Steel<br>75 lbs. (34.2 kg)  |  | RMF60<br>artridge<br>lements<br>HS60<br>MHS60<br>KFH50   |



## **HS60** Top-Ported Pressure Filter



| Element<br>Performance |                |                  | io Per ISO 4572/NI<br>article counter (APC) cali | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|----------------|------------------|--|--|----------------------|-----------------------|
| Information            | Element        | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 13HZ3/13HZX3   | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | 13HZ5/13HZX5   | 2.5              | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | 13HZ10/13HZX10 | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | 13HZ25/13HZX25 | 18.0             | 20.0   | 22.5   | 19.0                 | 24.0                  |

| Dirt Holding | Element    | DHC (gm)            | Element  | DHC (gm) |  |  |
|--------------|------------|---------------------|--|----------|--|--|
| Capacity     | 13HZ3      | 100.7               | 13HZX3   | 75.7     |  |  |
|              | 13HZ5      | 113.2               | 13HZX5   | 74.1     |  |  |
|              | 13HZ10     | 119.7               | 13HZX10  | 81.4     |  |  |
|              | 13HZ25     | 123.5               | 13HZX25  | 92.9     |  |  |
|              |            |                     |  |          |  |  |
|              | Elemer     | nt Collapse Rating: | 290 psi (20 bar) for standard elements<br>3045 psi (210 bar) for high collapse (ZX) versions |          |  |  |
|              |            | Flow Direction:     | Outside In   |          |  |  |
|              | Element No | minal Dimensions:   | : 13HZ : 3.5" (90 mm) O.D. x 13" (325 mm) lo   |          |  |  |
|              |            |                     |  |          |  |  |
|              |            |                     |  |          |  |  |
|              |            |                     |  |          |  |  |
|              |            |                     |  |          |  |  |

# Top-Ported Pressure Filter **HS60**

|  |  | Type Fluid   | Appropriate   | Schroed   | er Media  |   |   |                                  |     | Fluid  | NF30   |
|--|--|--|---|-----------|---|---|---|----------------------------------|-----|--|--|
|  | High Wate  | er Content   | All Z-Media <sup>®</sup> (s   | ynthetic) |   |   |   |                                  |     | Compatibility                                | NFS30  |
|  |  | Emulsions  | 10 and 25 µ Z-  |           |   |   |   |                                  |     |  |  |
|  |  | ter Glycols<br>nate Esters   | 3, 5, 10 and 25<br>All Z-Media <sup>®</sup> (s  |           |   | al designation  | 1   |                                  |     |  | YF30   |
|  | тнозрі   |  |   | ynthetic/ |   |   | 1   |                                  |     | •  | CFX30  |
|  |  |  |   |           |   |   |   |                                  |     |  | PLD  |
| Pressure   | Element<br>Series  | Part No.   | Element selecti<br>petroleum base   |           |   |   | • • •   | )                                |     | Element<br>Selection                         | DF40   |
|  |  | 13HZ3  |   |           | 1.  | 3HZ3  |   |                                  |     | Based on                                     | <b>CF40</b>  |
|  | Z-   | 13HZ5  |   |           | 1   | 3HZ5  |   |                                  |     | Flow Rate                                    |  |
| То   | Media®   | 13HZ10   |   |           |   | BHZ10   |   |                                  |     |  | <b>PF40</b>  |
| 6000 psi   |  | 13HZ25   |   |           |   | BHZ25   |   |                                  |     |  | LC50   |
| (415 bar)  | Z-   | 13HZX3<br>13HZX5   |   |           |   | HZX3  |   |                                  |     |  | LCJU   |
|  | Media®<br>(High  | 13HZX10  |   |           |   | HZX10   |   |                                  |     |  | RFS50  |
|  | Collapse)  | 13HZX25  |   |           |   | HZX25   |   |                                  |     |  | <b>RF60</b>  |
|  |  | gpm 0  | 20  |           | 40  | 60  | 80  | р <mark>.</mark>                 | 100 |  | 11100  |
|  | Flow   | (L/min) 0  | 75  |           | 150   | 225   | 30  | 00                               | 380 |  | <b>CF60</b>  |
| Shown abov   | e are the e  | ements most  | commonly used   | n this ho | using.  |   |   |                                  |     |  | CTF60  |
|  |  |  |   |           |   |   |   |                                  |     |  | <b>VF60</b>  |
|  |  |  |   |           |   |   |   |                                  | _   |  |  |
| ∆P <sub>housing</sub>  |  |  |   |           | ∆P <sub>element</sub>   |   |   |                                  |     | Pressure                                     | LW60   |
| -  | 5  | s with sp gr =   | 0.86:   |           | $\Delta P_{element} = f$  |   | t $\Delta P$ factor x vise                          | cosity fact                      | or  | Pressure<br>Drop<br>Information              | LW60<br>KF30   |
| HS60 ΔP <sub>hou</sub>   | 5  | s with sp gr =<br>low (L/min)<br>(200)   | 0.86:<br>(300)  |           | $\Delta P_{element} = f$ <i>El.</i> $\Delta P$ factors <b>13HZ3</b>   | 0.134 @   | (30 cSt):<br>13HZX3                                 | 0.176                            | or  | Drop<br>Information<br>Based on<br>Flow Rate |  |
| -  | F  | low (L/min)<br>(200)   | (300)   | )         | $\Delta P_{element} = f$ <i>El.</i> $\Delta P$ factors  | @ 141 SUS   | (30 cSt):   |                                  | or  | Drop<br>Information<br>Based on              | KF30   |
| 20<br>15   | (100)  | low (L/min)<br>(200)   | (300)   |           | $\Delta P_{element} = fi$<br><i>El.</i> $\Delta P$ factors<br><b>13HZ3</b><br><b>13HZ5</b><br><b>13HZ10</b>   | © 141 SUS<br>0.134<br>0.098<br>0.060  | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10            | 0.176<br>0.104<br>0.054          | or  | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50   |
| 20   | (100)  | low (L/min)<br>(200)   | (300)   | (bar)     | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir   | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n, divide  | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10            | 0.176<br>0.104<br>0.054          | or  | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50   |
| 20<br>15<br>3 10   | F (100)  | low (L/min)<br>(200)   | (300)   |           | $\frac{\Delta P_{element} = fi}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto <i>Viscosity fac</i> viscosity by       | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide                | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10            | 0.176<br>0.104<br>0.054          | or  | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50   |
| 20<br>15<br>15<br>10<br>5<br>0   | F (100)  | low (L/min)<br>(200)<br>Reverse Fl   | (300)   |           | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto Viscosity factors                       | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide                | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10            | 0.176<br>0.104<br>0.054          | or  | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50<br>MKF50  |
| 20 $15$ $10$ $5$ $0$ $0$ $0$ $p gr = spece$  | F<br>(100)<br>20 4<br>F<br>cific gravity   | low (L/min)<br>(200)<br>Reverse Fi<br>fard Flow<br>0 60<br>low gpm   | (300)<br>(1.0<br>(0.5<br>80 100   | ΔP (bar)  | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto <i>Viscosity fac</i> viscosity by cSt). | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide<br>141 SUS (30 | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10<br>13HZX25 | 0.176<br>0.104<br>0.054<br>0.048 |     | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65  |
| 20 $15$ $10$ $5$ $0$ $0$ $0$ $0$ $0$ $0$ $0$ $0$ $0$ $0$   | F<br>(100)<br>20 4<br>F<br>cific gravity   | low (L/min)<br>(200)<br>Reverse Fi<br>fard Flow<br>0 60<br>low gpm   | (300)   | ΔP (bar)  | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto <i>Viscosity fac</i> viscosity by cSt). | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide<br>141 SUS (30 | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10<br>13HZX25 | 0.176<br>0.104<br>0.054<br>0.048 |     | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05  |
| 20 $15$ $10$ $10$ $5$ $0$ $0$ $0$ $17$ $10$ $10$ $10$ $10$ $10$ $10$ $10$ $10$   | F<br>(100)<br>20 4<br>F<br>cific gravity<br>ements sho   | low (L/min)<br>(200)<br>Reverse Fi<br>fard Flow<br>0 60<br>low gpm   | (300)<br>(1.0<br>(0.5<br>80 100   | ΔP (bar)  | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto <i>Viscosity fac</i> viscosity by cSt). | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide<br>141 SUS (30 | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10<br>13HZX25 | 0.176<br>0.104<br>0.054<br>0.048 |     | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50   |
| $\frac{20}{15}$ $\frac{20}{15}$ $\frac{10}{5}$ $\frac{10}{5}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac$ | F<br>(100)<br>20 4<br>F<br>cific gravity<br>ements sho<br>ΔPhousing<br>ΔP at 85 gp   | low (L/min)<br>(200)<br>Reverse FI<br>ard FION<br>ard FION<br>0 60<br>low gpm  | (300)<br>(1.0<br>(0.5<br>80 100<br>d on element flo   | ΔP (bar)  | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto <i>Viscosity fac</i> viscosity by cSt). | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide<br>141 SUS (30 | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10<br>13HZX25 | 0.176<br>0.104<br>0.054<br>0.048 |     | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03   |
| $\frac{20}{15}$ $\frac{20}{15}$ $\frac{10}{5}$ $\frac{10}{5}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac{5}{0}$ $\frac{10}{0}$ $\frac$ | F<br>(100)<br>20 4<br>F<br>cific gravity<br>ements sho<br>ΔPhousing<br>ΔP at 85 gp<br>ng 141 SUS   | low (L/min)<br>(200)<br>Reverse FI<br>ard FION<br>ard FION<br>0 60<br>low gpm<br>build be base<br>+ ΔP <sub>element</sub>  | (300)<br>(1.0<br>(0.5<br>80 100<br>d on element flo   | ΔP (bar)  | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto <i>Viscosity fac</i> viscosity by cSt). | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide<br>141 SUS (30 | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10<br>13HZX25 | 0.176<br>0.104<br>0.054<br>0.048 |     | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30<br>RMF60                             |
| $\Delta P_{filter} = Betermine HS60 usi$   | F<br>(100)<br>20 4<br>F<br>cific gravity<br>ements sho<br>ΔP at 85 gp<br>ng 141 SUS<br>= 13.5 p<br>= 85 x  | low (L/min)<br>(200)<br>Reverse FI<br><sub>aard Flow</sub><br>0 60<br>low gpm<br>build be base<br>+ ΔP <sub>element</sub><br>(30 cSt) fluid  | (300)<br>(1.0<br>(0.5<br>80 100<br>d on element flo   | ΔP (bar)  | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto <i>Viscosity fac</i> viscosity by cSt). | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide<br>141 SUS (30 | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10<br>13HZX25 | 0.176<br>0.104<br>0.054<br>0.048 |     | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF50<br>FOF60-03<br>NMF30                                      |
| 20<br>1560 ΔPhouse<br>15<br>10<br>5<br>0<br>0<br>0<br>20<br>15<br>10<br>5<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  | F<br>(100)<br>20 4<br>F<br>cific gravity<br>ements sho<br>ΔP at 85 gp<br>ng 141 SUS<br>= 13.5 p<br>= 85 x .<br>or<br>= [320 x  | low (L/min)<br>(200)<br>Reverse FI<br>ard FION<br>0 60<br>0 60<br>low gpm<br>build be base<br>+ ΔP <sub>element</sub><br>m (320 L/mir<br>(30 cSt) fluid<br>si [0.93 bar]<br>134 x (141÷1-<br>(.134÷54.9) | (300)<br>(1.0<br>(0.5<br>80 100<br>d on element flo<br>) for<br>(41) = 11.39  psi<br>$(32 \div 32) = .79 \text{ b}$             | vw inform | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto <i>Viscosity fac</i> viscosity by cSt). | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide<br>141 SUS (30 | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10<br>13HZX25 | 0.176<br>0.104<br>0.054<br>0.048 |     | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF30-03<br>FOF60-03<br>NMF30<br>RMF60<br>Cartridge             |
| $ΔP_{\text{filter}} = \frac{ΔP_{\text{filter}}}{SOlution:}$  | F<br>(100)<br>20 4<br>F<br>20 4<br>F<br>cific gravity<br>ements sho<br>ΔP at 85 gp<br>ng 141 SUS<br>= 13.5 p<br>= 85 x .<br>or<br>= [320 x<br>= 13.5 +<br>or<br>= [320 x<br>= 13.5 +<br>or | low (L/min)<br>(200)<br>Reverse FI<br>ard FION<br>0 60<br>0 60<br>low gpm<br>build be base<br>+ ΔP <sub>element</sub><br>m (320 L/mir<br>(30 cSt) fluid<br>si [0.93 bar]<br>134 x (141÷1)                | (300)<br>(1.0<br>(0.5<br>80 100<br>d on element flo<br>) for<br>(1) = 11.39  psi<br>$(32 \div 32) = .79 \text{ b}$<br>(39  psi) | vw inform | $\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir above facto <i>Viscosity fac</i> viscosity by cSt). | © 141 SUS<br>0.134<br>0.098<br>0.060<br>0.043<br>n units of<br>n divide<br>r by 54.9.<br>tor: Divide<br>141 SUS (30 | (30 cSt):<br>13HZX3<br>13HZX5<br>13HZX10<br>13HZX25 | 0.176<br>0.104<br>0.054<br>0.048 |     | Drop<br>Information<br>Based on<br>Flow Rate | KF30<br>TF50<br>KF50<br>KC50<br>MKF50<br>KC65<br>NOF30-05<br>NOF30-03<br>FOF60-03<br>NMF30<br>RMF60<br>Cartridge<br>Elements |

### **HS60** Top-Ported Pressure Filter

| Filter<br>Model<br>Number<br>Selection | BOX 1 BOX 2 BU<br>HS60             | DX 3 BOX 4            | ber for a Schroeder HS60:<br>BOX 5<br>BOX 5<br>- D13 = HS6013HZ3F24D13  |                                   |
|--|------------------------------------|-----------------------|---|-----------------------------------|
|  | 50%4                               |                       | 2012  | 201/2                             |
|  | BOX 1<br>Filter<br>Series          | Elo                   | BOX 2<br>ment Part Number   | BOX 3<br>Seal Material            |
|  |                                    |                       |   |                                   |
|  |                                    |                       | ent® Z-Media® (synthetic)<br>ent® Z-Media® (synthetic)                  | Omit = Buna N                     |
|  | HSN60 13HZ10                       | $= 10 \ \mu$ Excellen | nent <sup>®</sup> Z-Media <sup>®</sup> (synthetic)                      | V = Viton <sup>®</sup><br>H = EPR |
|  |                                    |                       | nent® Z-Media® (synthetic)<br>ent® Z-Media® (high collapse center tube) | H = EPK                           |
|  | 10112/03                           |                       | ent <sup>®</sup> Z-Media <sup>®</sup> (high collapse center tube)       |                                   |
|  |                                    |                       | nent <sup>®</sup> Z-Media <sup>®</sup> (high collapse center tube)      |                                   |
|  | 13HZX25                            | = 25 µ Excellen       | nent® Z-Media® (high collapse center tube)                              |                                   |
|  | BOX 4                              |                       | BOX 5   |                                   |
|  | Porting Options                    |                       | Dirt Alarm <sup>®</sup> Options   |                                   |
|  | S24 = SAE-24                       |                       | Omit = None   |                                   |
|  | $F24 = 1\frac{1}{2}$ " SAE         | Visual                | D13 = Visual pop-up<br>MS5SS = Electrical w/ 12 in. 18 gauge            | 4 conductor coblo                 |
|  | 4-bolt flange                      |                       | MS5SSLC = Low current MS5   |                                   |
|  | Code 62                            |                       | MS10SS = Electrical w/ DIN connector (                                  | male end only)                    |
|  | F32 = 2 "SAE 4-bolt<br>flange Code |                       | MS10SSLC = Low current MS10   |                                   |
|  | 62                                 |                       | MS11SS = Electrical w/ 12 ft. 4-conduct                                 | tor wire                          |
|  |                                    | Electrical            | MS12SS= Electrical w/ 5 pin Brad Harri                                  | son connector (male end only)     |
|  |                                    |                       | MS12SSLC = Low current MS12   |                                   |
|  |                                    |                       | MS16SS = Electrical w/ weather-packed                                   | sealed connector                  |
|  |                                    |                       | MS16SSLC = Low current MS16   |                                   |
|  |                                    |                       | MS17SSLC = Electrical w/ 4 pin Brad Harri                               |                                   |
|  |                                    |                       | MS5SST = MS5 (see above) w/ thermal<br>MS5SSLCT = Low current MS5T      | IOCKOUT                           |
|  |                                    |                       | MS10SST = MS10 (see above) w/ therma                                    | al lockout                        |
|  |                                    |                       |   | al lockout                        |

Electrical with Thermal

Lockout

Electrical

Visual

Electrical

Visual with

Thermal

Lockout

MS10SSLCT = Low current MS10T

MS12SSLCT = Low current MS12T

MS16SSLCT = Low current MS16T

MS17SSLCT = Low current MS17T

MS13SSDCLCT = Low current MS13DCT

MS14SSDCLCT = Low current MS14DCT

MS12SST = MS12 (see above) w/ thermal lockout

MS16SST = MS16 (see above) w/ thermal lockout

MS13SS = Supplied w/ threaded connector & light

MS14SS = Supplied w/ 5 pin Brad Harrison connector & light (male end)

MS13SSDCT = MS13 (see above), direct current, w/ thermal lockout

MS14SSDCT = MS14 (see above), direct current, w/ thermal lockout

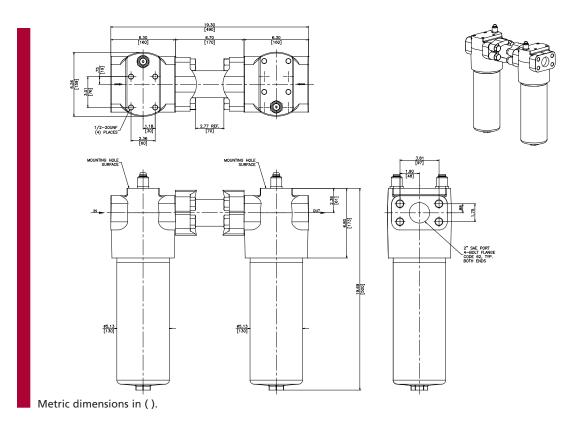
NOTES:

- Box 2. Replacement element part numbers are identical to contents of Boxes 2 and 3.
- Box 3. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 5. All Dirt Alarm<sup>®</sup> Indicators must be Stainless Steel. Standard indicator setting is 75 psi. For replacement indicators, contact the factory.

### **Top-Ported Pressure Filter MHS60**



# MHS60 Top-Ported Pressure Filter



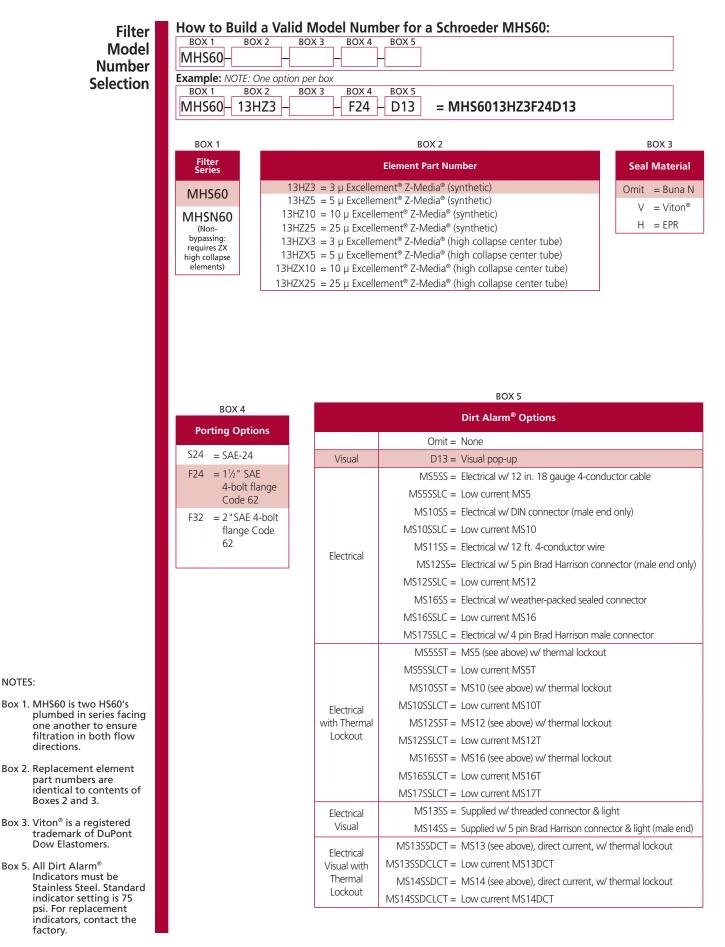
| Element<br>Performance |                |                  | io Per ISO 4572/NI<br>rticle counter (APC) cali | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|----------------|------------------|---|--|----------------------|-----------------------|
| Information            | Element        | $\beta_x \ge 75$ | $B_x \ge 100$                                   | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 13HZ3/13HZX3   | <1.0             | <1.0  | <2.0   | <4.0                 | 4.8                   |
|                        | 13HZ5/13HZX5   | 2.5              | 3.0   | 4.0  | 4.8                  | 6.3                   |
|                        | 13HZ10/13HZX10 | 7.4              | 8.2   | 10.0   | 8.0                  | 10.0                  |
|                        | 13HZ25/13HZX25 | 18.0             | 20.0  | 22.5   | 19.0                 | 24.0                  |

| Dirt Holding | Element | DHC (gm)               | Element  | DHC (gm) |  |  |
|--------------|---------|------------------------|--|----------|--|--|
| Capacity     | 13HZ3   | 100.7                  | 13HZX3   | 75.7     |  |  |
|              | 13HZ5   | 113.2                  | 13HZX5   | 74.1     |  |  |
|              | 13HZ10  | 119.7                  | 13HZX10  | 81.4     |  |  |
|              | 13HZ25  | 123.5                  | 13HZX25  | 92.9     |  |  |
|              |         |                        |  |          |  |  |
|              | El      | ement Collapse Rating: | : 290 psi (20 bar) for standard elements<br>3045 psi (210 bar) for high collapse (ZX) versions |          |  |  |
|              |         | Flow Direction:        | Outside In   |          |  |  |
|              | Elemen  | t Nominal Dimensions:  | : 13HZ : 3.5" (90 mm) O.D. x 13" (325 mm) long   |          |  |  |
|              |         |                        |  |          |  |  |
|              |         |                        |  |          |  |  |
|              |         |                        |  |          |  |  |
|              |         |                        |  |          |  |  |

# Top-Ported Pressure Filter MHS60

|                                     |                           | Type Fluid                      | Appropriate S                                   | Schroeder M    | edia              |                                   |                            |                | Fluid                      | NF30         |
|-------------------------------------|---------------------------|---------------------------------|---|----------------|-------------------|-----------------------------------|----------------------------|----------------|----------------------------|--------------|
|                                     | High Wate                 | er Content                      | All Z-Media <sup>®</sup> (sy                    | nthetic)       |                   |                                   |                            |                | Compatibility              | NFS30        |
|                                     |                           | Emulsions                       | 10 and 25 µ Z-I                                 | -              |                   |                                   |                            |                |                            |              |
|                                     |                           | ter Glycols<br>nate Esters      | 3, 5, 10 and 25<br>All Z-Media <sup>®</sup> (sy |                |                   |                                   |                            |                |                            | YF30         |
|                                     | FIIOSPI                   | Idle Esters                     | All Z-IVIEUId (S)                               |                | I (LFIV) Sec      | a designation                     |                            |                |                            | <b>CFX30</b> |
|                                     |                           |                                 |   |                |                   |                                   |                            |                |                            | PLD          |
| Pressure                            | Element<br>Series         | Part No.                        | Element selection petroleum base                |                |                   |                                   |                            | I              | Element<br>Selection       | DF40         |
|                                     |                           | 13HZ3                           |   |                | 13                | 3HZ3                              |                            |                | Based on                   | <b>CF40</b>  |
|                                     | Z-                        | 13HZ5                           |   |                | 13                | 3HZ5                              |                            |                | Flow Rate                  | CI TU        |
| То                                  | Media®                    | 13HZ10                          |   |                |                   | HZ10                              |                            |                | _                          | <b>PF40</b>  |
| 6000 psi                            |                           | 13HZ25                          |   |                |                   | HZ25                              |                            |                | -                          | LC50         |
| (415 bar)                           | Z-                        | 13HZX3<br>13HZX5                |   |                |                   | HZX3<br>HZX5                      |                            |                |                            |              |
|                                     | Media®<br>(High           | 13HZX10                         |   |                |                   | HZX10                             |                            |                |                            | RFS50        |
|                                     | Collapse)                 | 13HZX25                         |   |                |                   | HZX25                             |                            |                |                            | <b>RF60</b>  |
|                                     | Flow                      | gpm 0                           |   | 2              | 40                | 60                                | 80                         | ) 10           | D                          |              |
|                                     |                           | (L/min) 0                       |   |                | 50                | 225                               | 30                         | 0 380          |                            | <b>CF60</b>  |
| Shown abov                          | ve are the e              | lements most                    | t commonly used i                               | n this housing |                   |                                   |                            |                | •                          | CTF60        |
|                                     |                           |                                 |   |                |                   |                                   |                            |                |                            | <b>VF60</b>  |
| $\Delta P_{housing}$                |                           |                                 |   |                | element           |                                   |                            |                | Pressure                   | LW60         |
| MHS60 ∆P <sub>h</sub>               | <sub>ousing</sub> for flu | uids with sp g                  | r = 0.86:                                       |                |                   |                                   | t $\Delta P$ factor x vise | cosity factor  | Drop<br>Information        | KF30         |
|                                     | F<br>(19                  | Flow (L/min)                    | 80)   |                | ∆P factors<br>HZ3 | @ <i>141 SUS (</i><br>0.134       | 30 cSt):<br>13HZX3         | 0.176          | Based on                   | KI SU        |
| 50                                  | (13                       | ()                              | 3.3   | 13             | HZ5               | 0.098                             | 13HZX5                     | 0.104          | Flow Rate<br>and Viscosity | <b>TF50</b>  |
| 40                                  |                           |                                 | 2.7   | 13             | HZ10<br>HZ25      | 0.060<br>0.043                    | 13HZX10<br>13HZX25         | 0.054<br>0.048 |                            | KF50         |
| . <u>8</u> 30                       |                           |                                 | 2.0   | ∆P (bar)       |                   |                                   | 10112/120                  |                |                            | 1/250        |
| ₫ 20                                |                           | $\sim$                          | 1.3   |                | vorkina ir        | n units of                        |                            |                |                            | KC50         |
| 10                                  |                           |                                 | 0.7   | ba             | rs & L/min        | , divide                          |                            |                |                            | MKF50        |
| o 🖵                                 |                           |                                 | 0.0   | Vis            | cosity fac        | <i>tor:</i> Divide<br>141 SUS (30 |                            |                |                            | KC65         |
| 0                                   | 50<br>I                   | )                               | 00 150  | cSt            |                   | 141 303 (30                       |                            |                |                            | RCOJ         |
|                                     |                           |                                 |   |                |                   |                                   |                            |                |                            | NOF30-05     |
| sp gr = spe<br>Sizing of el         |                           |                                 | d on element flo                                | w informatio   | n provide         | ed in the Ele                     | ment Selection             | chart above    |                            | NOF50        |
| _                                   |                           |                                 |   |                | 1                 |                                   |                            |                |                            | FOF60-03     |
| ΔP <sub>filter</sub> =<br>Exercise: | ∆P <sub>housing</sub>     | + ∆P <sub>element</sub>         | <u> </u>  |                |                   |                                   |                            |                |                            | NMF30        |
|                                     |                           | om (320 L/mir<br>(30 cSt) fluid |   |                |                   |                                   |                            |                |                            | RMF60        |
| Solution:                           | _                         |                                 |   |                |                   |                                   |                            |                |                            | Cartridge    |
| ∆P <sub>housing</sub>               |                           | osi [0.93 bar]                  | 41) 11 20                                       |                |                   |                                   |                            |                |                            | Elements     |
| ∆P <sub>element</sub>               | = 85 x .<br>or            | 134 x (141÷1                    | 41) = 11.39 psi                                 |                |                   |                                   |                            |                |                            | 11000        |
| $\Delta P_{total}$                  |                           | (.134÷54.9)<br>⊦ 11.39 = 24.    | x (32÷32) = .79 ba<br>89 psi                    | ar]            |                   |                                   |                            |                |                            | HS60         |
| 10101                               | or                        |                                 |   |                |                   |                                   |                            |                |                            | MHS60        |
|                                     | = [.95 +                  | .79 = 1.71 b                    | aı]   |                |                   |                                   |                            |                |                            | KFH50        |
|                                     |                           |                                 |   |                |                   |                                   |                            |                |                            |              |

### MHS60 Top-Ported Pressure Filter



# Hydrostatic Base-Ported Filter KFH50

|   | <section-header><section-header><section-header><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></section-header></section-header></section-header> | 70 gpm<br>265 L/min<br>5000 psi<br>345 bar | YF30 CFX30 PLD DF40 CF40 CF40 RF550 RF60 CF60 CF60 CF60 KF30 KF30 KF30 KF50 KC50 KC50 NKF50 NOF30-05 NOF50 |
|---|---|--|--|
| Flow Rating:  | Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids  | Filter                                     | FOF60-03   |
| Max. Operating Pressure:<br>Min. Yield Pressure:                  | 5000 psi (345 bar)<br>15,000 psi (1035 bar), per NFPA T2.6.1  | Housing<br>Specifications                  | NMF30  |
| Rated Fatigue Pressure:   | 3500 psi (240 bar), per NFPA 12.6.1<br>3500 psi (240 bar), per NFPA 12.6.1-2005   | specifications                             | RMF60  |
| Temp. Range:  | -20°F to 225°F (-29°C to 107°C)   |  | RIVIFOU  |
| Bypass Setting:   | Cracking: 40 psi (2.8 bar)<br>Full Flow: 61 psi (4.2 bar)   |  | Cartridge<br>Elements  |
| Porting Base & Cap:<br>Element Case:                              | Ductile Iron<br>Steel   |  | HS60   |
| Weight of KFH50-1K:<br>Weight of KFH50-2K:<br>Weight of KFH50-3K: | 60.0 lbs. (27.2 kg)<br>80.3 lbs. (36.4 kg)<br>100.5 lbs. (45.6 kg)  |  | MHS60  |
|   |   |  | KEH50  |

Element Change Clearance: 8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

**SCHROEDER INDUSTRIES 155** 

KFH50

## **KFH50** Hydrostatic Base-Ported Filter

|              |                          | (4) MODN<br>(4) MODN<br>(5) (5) (5) (5) (5) (5) (5) (5) (5) (5) |                                     |                  | DRAIN<br>PLUG<br>2.69<br>(72)<br>(72)<br>BLEED<br>BLEED<br>(90) 87, 7 = XX1 Y X1<br>(90) 87, 7 = XX1 Y X1<br>(90) 97, 7 = XX1 Y X1 |          | 0.00 (15 POR IP<br>PORTED | ED FILTER   |                       |            |
|--------------|--------------------------|---|-------------------------------------|------------------|--|----------|---------------------------|-------------|-----------------------|------------|
|              |                          |   |                                     | Note:            | Application Que<br>submitted prior<br>factory for deta   | to pla   |                           |             |                       |            |
| Element      | Metric dimer             | isions in (   | ).                                  | Filtrati         | on Ratio Per ISO 45  |          | T3.10.8.8                 | Filtratio   | n Ratio per IS        | O 16889    |
| Performance  | -                        |   |                                     | -                | omated particle counter (A   |          |                           | 5           | calibrated per        |            |
| Information  | Element<br>K3/KK3/27K    |   |                                     | β <sub>x</sub> ≥ |  | 0 0      | B <sub>X</sub> ≥ 200      |             | 200 В <sub>X</sub> (с |            |
|              | K10/KK10/27K1            | 0   |                                     | 6.               |  |          | 10.0                      | N/A<br>N/A  |                       | N/A        |
|              | KZ1/KKZ1/27KZ            |   |                                     | 15               |  |          | 18.0<br><1.0              | N/A<br><4.0 |                       | N/A<br>4.2 |
|              | KZ3/KKZ3/27KZ            |   | Δ\$3/27KΔ\$3                        | <1               |  |          | <1.0                      | <4.0        |                       | 4.2<br>4.8 |
|              | KZ5/KKZ5/27KZ            |   |                                     | 2.               |  |          | 4.0                       | 4.8         |                       | 6.3        |
|              |                          |   | /KKAS10/27KAS10                     | 7.               |  |          | 10.0                      | 8.0         |                       | 10.0       |
|              | KZ25/KKZ25/27            |   |                                     | 18               |  |          | 22.5                      | 19.0        |                       | 24.0       |
|              | KZW1                     |   |                                     | N/               |  |          | N/A                       | <4.0        |                       | <4.0       |
|              | KZW3/KKZW3               |   |                                     | N/               |  |          | N/A                       | 4.0         |                       | 4.8        |
|              | KZW5/KKZW5               |   |                                     | N/               |  |          | N/A                       | 5.1         |                       | 6.4        |
|              | KZW10/KKZW1              | 0   |                                     | N/               | 'A N/A   |          | N/A                       | 6.9         |                       | 8.6        |
|              | KZW25/KKZW2              | 5   |                                     | N/               | 'A N/A   |          | N/A                       | 15.4        |                       | 18.5       |
|              | KZX3/KKZX3/27            | KZX3  |                                     | <1               | .0 <1.0  |          | <2.0                      | 4.7         |                       | 5.8        |
|              | KZX10/KKZX10             | /27KZX10  |                                     | 7.               | 4 8.2  |          | 10.0                      | 8.0         |                       | 9.8        |
| Dirt Holding |                          | DHC   |                                     | DHC              | 1  | DHC      |                           | DHC         |                       | DHC        |
| Capacity     | Element                  | (gm)  | Element                             | (gm)             | Element  | (gm)     | Element                   | (gm)        | Element               | (gm)       |
| corporaty    | КЗ                       | 54  | ККЗ                                 | 108              | 27K3   | 162      |                           |             |                       |            |
|              | К10                      | 44  | KK10                                | 88               | 27K10  | 132      |                           |             |                       |            |
|              | KZ1                      | 112   | KKZ1                                | 224              | 27KZ1  | 336      | KZW1                      | 61          |                       |            |
|              | KZ3/KAS3                 | 115   | KKZ3                                | 230              | 27KZ3/27KAS3   | 345      | KZW3                      | 64          | KKZW3                 | 128        |
|              | KZ5/KAS5                 | 119   | KKZ5                                | 238              | 27KZ5/27KAS5   | 357      | KZW5                      | 63          | KKZW5                 | 126        |
|              | KZ10/KAS10               | 108   | KKZ10                               | 216              | 27KZ10/27KAS10   | 324      | KZW10                     | 57          | KKZW10                | 114        |
|              | KZ25                     | 93  | KKZ25                               | 186              | 27KZ25   | 279      | KZW25                     | 79          | KKZW25                | 158        |
|              | KZX3                     | 40*   | ККХХЗ                               | 80               | 27KZX3   | 120      |                           |             |                       |            |
|              | KZX10                    | 49*   | KKZX10                              | 98               | 27KZX10  | 147      |                           |             | *Based or             | 1 100 psi  |
|              | Element Collapse Rating: |   |                                     | 3000 p           | id (10 bar) for stand<br>sid (210 bar) for hig   |          |                           | ns          |                       | pressure   |
| 4            | Ele                      |   | Flow Direction:<br>inal Dimensions: | KK:              | e In<br>3.9" (99 mm) O.D. ›<br>3.9" (99 mm) O.D. ›<br>3.9" (99 mm) O.D. ›  | (18.0" ( | 460 mm) lon               | g           |                       |            |
| I            | JU JUNIOEDE              | 111003  |                                     |                  |  |          |                           |             |                       |            |

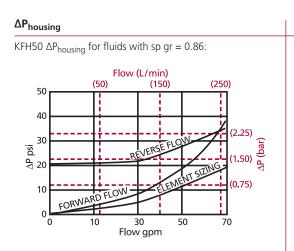
## Hydrostatic Base-Ported Filter KFH50

| Type Fluid             | Appropriate Schroeder Media  | Fluid                                | NF30        |
|------------------------|--|--------------------------------------|-------------|
| Petroleum Based Fluids | All E media (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic)   | Compatibility                        | NFS30       |
| High Water Content     | All Z-Media <sup>®</sup> (synthetic)   |                                      |             |
| Invert Emulsions       | 10 and 25 μ Z-Media <sup>®</sup> (synthetic)   |                                      | YF30        |
| Water Glycols          | 3, 5, 10 and 25 $\mu$ Z-Media® (synthetic)   |                                      | CEVOO       |
| Phosphate Esters       | All Z-Media <sup>®</sup> (synthetic) with H (EPR) seal designation and 3 and 10 $\mu$ E media (cellulose) with H (EPR) seal designation  |                                      | CFX30       |
| Skydrol®               | 3, 5, 10 and 25 µ Z-Media <sup>®</sup> (synthetic) with H.5 seal designation and W media<br>(water removal) with H.5 seal designation (EPR seals and stainless steel wire<br>mesh in element, and light oil coating on housing exterior) | Skydrol <sup>®</sup> is a registered | PLD<br>DF40 |

|                       | Elei         | ment     | E  | Element selections are predicated on the use of 150 SUS (32 cSt) |    |      |     |    |       |        |     | Element<br>Selection  |
|-----------------------|--------------|----------|----|--|----|------|-----|----|-------|--------|-----|-----------------------|
| Pressure              | Series       | Part No. | р  | petroleum based fluid and a 40 psi (2.8 bar) bypass valve.       |    |      |     |    |       |        |     |                       |
|                       |              | К3       |    | 1K3 2K3†   |    |      |     |    |       |        |     | Based on<br>Flow Rate |
|                       | E<br>Media   | K10      |    |  | 1  | IK10 | K10 |    |       |        |     | now nate              |
|                       |              | K25      |    | 1K25   |    |      |     |    |       |        |     |                       |
| To                    | Z-<br>Media® | KZ1      |    | 1KZ1   |    |      |     |    |       |        |     |                       |
| 5000 psi<br>(345 bar) |              | KZ3      |    | 1KZ3/KAS3/KKAS3/27KAS3   |    |      |     |    | 2KZ3† | 3KZ3†  |     |                       |
|                       |              | KZ5      |    | 1KZ5/KAS5/KKAS5/27KAS5 2KZ                                       |    |      |     |    |       | (Z5†   |     |                       |
|                       |              | KZ10     |    | 1KZ10/KAS10/KKAS10/27KAS10 2KZ10†                                |    |      |     |    |       |        |     |                       |
|                       |              | KZ25     |    |  |    | 1k   | Z25 |    |       | 2KZ25† |     |                       |
| gpm (                 |              | 0        | 10 | 20   | 30 | 40   | 50  | 60 |       | 70     |     |                       |
| Flow                  |              | (L/min)  | 0  | 50   |    | 100  | 150 | 20 | 00    | 2      | 265 |                       |

+Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively. Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

#### $\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$

The  $\Delta P$  housing curve labeled "Element Sizing" is the pressure drop between the inlet and outlet areas of the filter's bypass valve and should be used for filter sizing.

| ΔP <sub>element</sub>  |   |   |  |  |  |  |  |  |
|--|---|---|--|--|--|--|--|--|
| $\Delta P_{element}$ = flow x element $\Delta P$ factor x viscosity factor |   |   |  |  |  |  |  |  |
| ):   |   |   |  | Inform<br>Based on   |  |  |  |  |
| 1K   | 2K  | ЗК  |  | Flow Rate  |  |  |  |  |
| .25  | .12   | .08   |  | and Visco  |  |  |  |  |
| .09  | .05   | .03   |  |  |  |  |  |  |
| .02  | .01   | .01   |  |  |  |  |  |  |
| .20  | .10   | .05   |  |  |  |  |  |  |
| .10  | .05   | .03   |  |  |  |  |  |  |
| .08  | .04   | .02   |  |  |  |  |  |  |
| .05  | .03   | .02   |  |  |  |  |  |  |
| .04  | .02   | .01   |  |  |  |  |  |  |
|  |   |   |  |  |  |  |  |  |
|  | 2K  |   |  |  |  |  |  |  |
|  |   |   |  |  |  |  |  |  |
| .32  | .16   |   |  |  |  |  |  |  |
| .28  | .14   |   |  |  |  |  |  |  |
| .23  | .12   |   |  |  |  |  |  |  |
| .14  | .07   |   |  |  |  |  |  |  |
| If working in units of bars & L/min, divide above factor by 54.9.          |   |   |  |  |  |  |  |  |
| sity by  | 150 SU  | S (32   |  |  |  |  |  |  |
|  | ):<br><b>1K</b><br>.25<br>.09<br>.02<br>.20<br>.10<br>.08<br>.05<br>.04<br><b>1K</b><br>.43<br>.32<br>.28<br>.23<br>.14<br>L/min, | IK     2K       .25     .12       .09     .05       .02     .01       .20     .10       .10     .05       .08     .04       .05     .03       .04     .02       IK     2K       .43     .12       .32     .16       .28     .14       .23     .12       .14     .07       L/min, divide | $\begin{array}{c ccccc} 1K & 2K & 3K \\ \hline 1K & 2K & 0.8 \\ \hline .25 & .12 & .08 \\ \hline .09 & .05 & .03 \\ \hline .02 & .01 & .01 \\ \hline .20 & .10 & .05 \\ \hline .10 & .05 & .03 \\ \hline .08 & .04 & .02 \\ \hline .05 & .03 & .02 \\ \hline .04 & .02 & .01 \\ \hline 1K & 2K \\ \hline .43 \\ \hline .32 & .16 \\ \hline .28 & .14 \\ \hline .23 & .12 \\ \hline .14 & .07 \\ \end{array}$ | IK       2K       3K         .25       .12       .08         .09       .05       .03         .02       .01       .01         .20       .10       .05         .10       .05       .03         .08       .04       .02         .04       .02       .01         IK       2K         .43       .16         .28       .14         .23       .12         .14       .07         L/min, divide above |  |  |  |  |

trademark of Solutia Inc.

| Information           |               | KF50                  |
|-----------------------|---------------|-----------------------|
| Based on<br>Flow Rate | KC50          |                       |
|                       | and Viscosity | MKF50                 |
|                       |               | KC65                  |
|                       |               | NOF30-05              |
|                       |               | NOF50                 |
|                       |               | FOF60-03              |
|                       |               | NMF30                 |
|                       |               | RMF60                 |
|                       |               | Cartridge<br>Elements |
|                       |               | HS60                  |
|                       |               | MHS60                 |
|                       |               | KFH50                 |

#### **Hydrostatic Base-Ported Filter** KFH50

KM260

| Filter<br>Model<br>Number<br>Selection | How to Build a Valid Model Number for a Schroeder KFH50:<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8<br>KFH50 |                |   |   |   |  |   |  |  |
|--|--|----------------|---|---|---|--|---|--|--|
|  | Series<br>KFH50  | Elements 1 2 3 | K<br>Length<br>K3<br>K10<br>K25<br>KZ1<br>KZ3<br>KZ5<br>KZ10<br>KZ25<br>KZW1<br>KZW3<br>KZW5<br>KZW10<br>KZW25<br>KZW10<br>KZW25<br>KW<br>KM10<br>KM25<br>KM60<br>KM150 | KK<br>Length<br>KK3<br>KK10<br>KKZ1<br>KKZ3<br>KKZ0<br>KKZV5<br>KKZW3<br>KKZW5<br>KKZW10<br>KKZW25<br>KKW | 27K<br>Length<br>27K3<br>27K10<br>27KZ1<br>27KZ3<br>27KZ5<br>27KZ10<br>27KZ25 | = 3 $\mu$ E media (cellulose)<br>= 10 $\mu$ E media (cellulose)<br>= 25 $\mu$ E media (cellulose)<br>= 1 $\mu$ Excellement® Z-Media® (synthetic)<br>= 3 $\mu$ Excellement® Z-Media® (synthetic)<br>= 5 $\mu$ Excellement® Z-Media® (synthetic)<br>= 10 $\mu$ Excellement® Z-Media® (synthetic)<br>= 25 $\mu$ Excellement® Z-Media® (synthetic)<br>= 3 $\mu$ Aqua-Excellement™ ZW media<br>= 3 $\mu$ Aqua-Excellement™ ZW media<br>= 5 $\mu$ Aqua-Excellement™ ZW media<br>= 5 $\mu$ Aqua-Excellement™ ZW media<br>= 10 $\mu$ Aqua-Excellement™ ZW media<br>= 25 $\mu$ Aqua-Excellement™ ZW media<br>= 10 $\mu$ Aqua-Excellement™ ZW media<br>= 5 $\mu$ Aqua-Excellement ™ ZW media<br>= 5 $\mu$ Aqua-Excellement ™ ZW media<br>= 5 $\mu$ Aqua-Excellement ™ ZW media<br>= 5 $\mu$ Aqua-Excellement № ZW media | Omit = Buna N<br>V = Viton <sup>®</sup><br>H = EPR<br>H.5 = Skydrol <sup>®</sup><br>compatibility<br>BOX 5<br>Porting<br>P = $1\frac{1}{2}$ " NPTF<br>S = SAE-24<br>F = $1\frac{1}{2}$ " SAE<br>4-bolt flange<br>Code 62<br>O = Subplate<br>B = ISO 228 G- $1\frac{1}{2}$ " |  |  |

| BOX 6   |  | BOX 7   |  |  |  |  |  |
|---|--|---|--|--|--|--|--|
| Options   |  | Dirt Alarm <sup>®</sup> Options   |  |  |  |  |  |
| Omit = None   |  | Omit = None   |  |  |  |  |  |
| L = Two ¼" NPTF inlet and<br>outlet female test ports<br>U = Series 1215 % UNF                                | Visual   | D = Pointer<br>D5 = Visual pop-up<br>D5C = D5 in cap<br>D9 = All stainless D5   |  |  |  |  |  |
| Schroeder Check Test<br>Point installation in cap<br>(upstream)   | Visual with<br>Thermal<br>Lockout                      | D8 = Visual w/ thermal lockout<br>D8C = D8 in cap   |  |  |  |  |  |
| UU = Series 1215 % UNF<br>Schroeder Check Test<br>Point installation in<br>block (upstream and<br>downstream) | Electrical<br>Electrical<br>with<br>Thermal<br>Lockout | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5<br>MS10 = Electrical w/ DIN connector (male end only)<br>MS10LC = Low current MS10<br>MS11 = Electrical w/ 12 ft. 4-conductor wire<br>MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)<br>MS12LC = Low current MS12<br>MS16 = Electrical w/ weather-packed sealed connector<br>MS16LC = Low current MS16<br>MS17LC = Electrical w/ 4 pin Brad Harrison male connector<br>MS5T = MS5 (see above) w/ thermal lockout<br>MS5LCT = Low current MS5T<br>MS10LT = Low current MS10T<br>MS12LT = Low current MS10T<br>MS12LT = Low current MS12T<br>MS16T = MS16 (see above) w/ thermal lockout<br>MS16LT = Low current MS12T<br>MS16T = MS16 (see above) w/ thermal lockout<br>MS16LCT = Low current MS16T<br>MS16LCT = Low current MS16T<br>MS16LCT = Low current MS16T<br>MS16LCT = Low current MS16T<br>MS17LCT = Low current MS16T<br>MS17LCT = Low current MS16T<br>MS17LCT = Low current MS16T |  |  |  |  |  |
| BOX 8   | Electrical<br>Visual                                   | MS = Cam operated switch w/ ½" conduit female connection<br>MS13 = Supplied w/ threaded connector & light   |  |  |  |  |  |
| Additional Options<br>Omit = None<br>G509 = Dirt alarm and drain<br>opposite standard                         | Electrical<br>Visual with<br>Thermal<br>Lockout        | MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)<br>MS13DCT = MS13 (see above), direct current, w/ thermal lockout<br>MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current, w/ thermal lockout<br>MS14DCLCT = Low current MS14DCT   |  |  |  |  |  |

= K size 260 µ M media (reusable metal)

#### NOTES:

Box 2. Number of elements must equal 1 when using KK or 27K elements.

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length.

Box 4. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.

Box 5. For option F, bolt depth .75" (19 mm). For option O, O-rings included; hardware not included.



# **Section 4** Medium Pressure Filters Selection Guide

|          |                       | Pressure<br>psi (bar) | Flow<br>gpm (L/min) | Element<br>Length/Size                     | Page |
|----------|-----------------------|-----------------------|---------------------|--|------|
|          | Top-Ported Medium Pre | ssure Return Li       | ne Filters          |  |      |
|          | GH                    | 725 (50)              | 35 (130)            | 6G, 9G                                     | 161  |
|          | GHHF                  | 725 (50)              | 100 (380)           | 11G  | 165  |
| psi)     | RLT                   | 1000 (69)             | 70 (265)            | 9V, 14V                                    | 169  |
| 500 p    | KF5                   | 500 (35)              | 100 (380)           | К  | 173  |
| ~        | SRLT                  | 1400 (100)            | 25 (100)            | 6R   | 177  |
| (up to   | Base-Ported Medium Pr | essure Filters        |                     |  |      |
| rs (L    | К9                    | 900 (60)              | 100 (380)           | К, КК, 27К                                 | 181  |
| Filters  | 2K9                   | 900 (60)              | 100 (380)           | К, КК, 27К                                 | 185  |
|          | 3К9                   | 900 (60)              | 100 (380)           | К, КК, 27К                                 | 189  |
| Pressure | QF5                   | 500 (35)              | 300 (1135)          | 16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML | 193  |
|          | 3QF5                  | 500 (35)              | 300 (1135)          | 16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML | 197  |
| Medium   | QFD2                  | 200 (14)              | 300 (1135)          | 16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML | 201  |
| ž        | QFD5                  | 500 (35)              | 350 (1325)          | 16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML | 205  |
|          | QF15                  | 1500 (100)            | 450 (1700)          | 16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML | 209  |
|          | QLF15                 | 1500 (100)            | 500 (1900)          | 16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML | 213  |
|          | SSQLF15               | 1500 (100)            | 500 (1900)          | 16Q, 16QPML, 39Q, 39QPML                   | 217  |

HydraSPIN Filter GH



#### **Features and Benefits** Variety of differential indicator port options

35 gpm 130 L/min (visual and electrical indicators) GHHF Leak proof bar indicator, rugged visual indicator 725 psi 50 bar with protective aluminum shield is standard Proprietary bowl to element seal - minimizes potential leakage point by use of one seal on element ■ Cartridge style element (non spin-on) that is proprietary and patented with integrated bypass valve features **SRLT** ■ Wide variety of media grades that can be application specific ■ Light weight bowl design with replaceable element minimizes landfill waste Mounting interchangeability with competitor's filter head The inherent capability to pre-print the perforated outer element wrap provides a branding solution that helps to capture after-market replacement element sales Same day shipment model available **3QF5** 

Model No. of filters in photograph are GH6G10S12B and GH9G10S12B.

| <ul><li>Hydrostatic Charge Circuit</li><li>Closed-loop</li></ul> | <ul><li>Cooling Circuit Systems</li><li>Lubrication Systems</li></ul> | Applications | QFD5  |
|--|---|--------------|-------|
| <ul> <li>Return Lines</li> </ul>                                 |   |              | QF15  |
|  |   |              | QLF15 |

#### SSQLF15

GH

**RLT** 

KF5

**K9** 

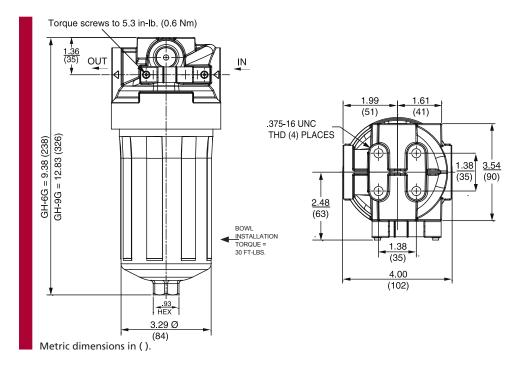
**2K9** 

**3K9** 

**QFD2** 

| Flow Rating:                         | Up to 35 gpm (130 L/min)   | Filter         |
|--------------------------------------|--|----------------|
| Max. Operating Pressure:             | 725 psi (50 bar)   | Housing        |
| Min. Yield:                          | 2600 psi (179 bar)   | Specifications |
| Rated Fatigue Pressure:              | 725 psi (50 bar)   |                |
| Temp. Range:                         | -20°F to 250°F (-29°C to 121°C)  |                |
| Bypass Setting:                      | 25 psi (1.7 bar) standard<br>50 psi (3.5 bar) optional<br>Non-bypassing model also available |                |
| Porting Head:<br>Element Case:       | Die Cast Aluminum<br>Aluminum  |                |
| Porting Options:                     | SAE-12<br>SAE-16<br>ISO 228 G-¾"<br>ISO 228 G-1"   |                |
| Weight of GH-6G:<br>Weight of GH-9G: |  |                |
| Element Change Clearance:            | 2" (50 mm)   |                |

#### HydraSPIN Filter GH



| Element<br>Performance |  |  |                            | o Per ISO 4572/N<br>ticle counter (APC) cali | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                            |                              |
|------------------------|--|--|----------------------------|--|--|----------------------------|------------------------------|
| Information            | Media Type   | Element  | $\beta_X \ge 75$           | $\beta_X \ge 100$                            | $\beta_X \ge 200$  | $\beta_{\chi}(c) \ge 200$  | β <sub>X</sub> (c) ≥<br>1000 |
|                        | Resin Impregnated<br>Cellulose media   | 6G3 / 9G3<br>6G10 / 9G10                                     | 6.8<br>15.5                | 7.5<br>16.2                                  | 10.0<br>18.0   | N/A<br>N/A                 | N/A<br>N/A                   |
|                        | Traditional<br>Excellement®<br>Z-Media®  | 6GZ3 / 9GZ3<br>6GZ5 / 9GZ5<br>6GZ10 / 9GZ10<br>6GZ25 / 9GZ25 | <1.0<br>2.5<br>7.4<br>18.0 | <1.0<br>3.0<br>8.2<br>20.0                   | <2.0<br>4.0<br>10.0<br>22.5  | <4.0<br>4.8<br>8.0<br>19.0 | 4.8<br>6.3<br>10.0<br>24.0   |
|                        | Hydraspin H media,<br>designed to<br>specifically reduce<br>filter pressure drop | 6GH10 / 9GH10  | N/A                        | N/A  | N/A  | 10.6                       | 13.0                         |

#### Dirt Holding Media Ty

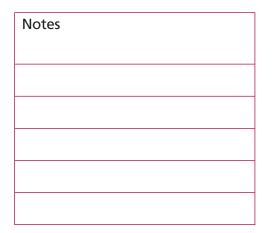
| Dirt Holding | Media Type   | Element  | DHC (gm)                           |  |  |  |  |  |
|--------------|--|--|------------------------------------|--|--|--|--|--|
| Capacity     | Resin Impregnated<br>Cellulose media   | 6G3 / 9G3<br>6G10 / 9G10                                     | 18/30<br>15/25                     |  |  |  |  |  |
|              | Traditional<br>Excellement®<br>Z-Media®  | 6GZ3 / 9GZ3<br>6GZ5 / 9GZ5<br>6GZ10 / 9GZ10<br>6GZ25 / 9GZ25 | 30/51<br>24.5/42<br>31/49<br>34/58 |  |  |  |  |  |
|              | Hydraspin H<br>media,<br>designed to<br>specifically reduce<br>filter pressure drop  | 6GH10 / 9GH10  | 12/20                              |  |  |  |  |  |
|              | Element Collapse Rating: 250 psid (17.2 bar) for standard and non-bypassing elements<br>Flow Direction: Outside In<br>Element Nominal 6G: 3.25" (82 mm) O.D. x 5.7" (144 mm) long<br>Dimensions: 9G: 3.25" (82 mm) O.D. x 9.0" (229 mm) long |  |                                    |  |  |  |  |  |

## HydraSPIN Filter GH

| Detrolour                          | Type Fluid         |                     | priate Schroed                           |  | wethotic)  |              |                                 |                                      | Fluid                                | GH         |
|------------------------------------|--------------------|---------------------|--|--|--|--------------|---------------------------------|--------------------------------------|--------------------------------------|------------|
| Petroleum                          | n Based Fiulds     |                     | iedia (cellulose), 1<br>media (Hydraspii |  | synthetic)   |              |                                 |                                      | Compatibility                        |            |
|                                    |                    |                     |  |  |  |              |                                 | _                                    |                                      | GHHF       |
| Pressure                           | Eler<br>Series     | nent<br>Part No.    | Element selecti<br>based fluid, SA       |  |  |              |                                 | ) petroleum                          | Element<br>Selection                 | RLT        |
|                                    |                    | G3                  | 6G3                                      |  | 9G3  | Conta        | ct Factory                      |                                      | Based on<br>Flow Rate                | KF5        |
|                                    | E<br>Media         | G10                 |  | 6G10                                     |  | 9G10         | Contact Facto                   | iry                                  | FIOW Kate                            |            |
|                                    |                    | G25                 |  | 6G25 & 9G25                              |  |              |                                 |                                      |                                      | SRLT       |
| То                                 |                    | GZ3                 |  | Co                                       | ntact Factor                                       | у            |                                 |                                      |                                      |            |
| 725 psi<br>(50 bar)                | Z-                 | GZ5                 | 6  | GZ5                                      |  | 9GZ5         | Contact Factor                  | у                                    |                                      | К9         |
| (30 bar)                           | Media®             | GZ10                |  | 6GZ                                      | 10   |              | 9GZ10                           |                                      |                                      |            |
|                                    |                    | GZ25                |  | Co                                       | ntact Factor                                       | у            |                                 |                                      |                                      | 21/0       |
|                                    | Hydraspin<br>Media | GH10                |  | Co                                       | ntact Factor                                       | у            |                                 |                                      |                                      | 2K9        |
|                                    | Flow               | 51                  | 0 10                                     | 15                                       | 20<br>75   | 25<br>95     | 30                              | 35<br>135                            |                                      | <b>3K9</b> |
|                                    |                    |                     | mmonly used in T                         |  |  | mulsion an   | d Water Gly                     | col                                  |                                      | QF5        |
|                                    |                    |                     | er to Fluid comp                         |  |  |              |                                 |                                      |                                      | 3QF5       |
| $\Delta \mathbf{P}_{housing}$      |                    |                     |  | $\Delta \mathbf{P}_{element}$            |  |              |                                 |                                      | Pressure                             | QFD2       |
| $GH \Delta \mathbf{P}_{housing} f$ | or fluids with     | sp gr = 0.86:       |  | $\Delta P_{element}$                     | flow x elem  | ent ∆P facto | or x viscosity                  | factor                               | Drop                                 |            |
| 6                                  | (25)               | low (L/min)<br>(75) | (125)                                    | <b>6G3</b> .6                            |  | 35           |                                 |                                      | Information<br>Based on<br>Flow Rate | QFD5       |
| 5                                  |                    |                     | (0.3)                                    | 6G10 .4<br>6G25 .0                       | 8 <b>9G25</b> .                                    | 05           |                                 | H10 CF                               | and Viscosity                        | QF15       |
| isd d⊽ 3 2                         |                    |                     | (0.2) (0.1)                              | 6GZ3 C<br>6GZ5 .6<br>6GZ10 .2<br>6GZ25 C | 9GZ5 .<br>7 9GZ10 .                                |              | .45 <b>9G</b><br>0.27 <b>9G</b> | P3 CF<br>P5 .26<br>P10 .16<br>P25 CF |                                      | QLF15      |
| $\int_{0}^{1}$                     |                    | 20 25 3<br>w gpm    | 0 35                                     |  | in units of bar<br>factor: Divide v<br>ct factory. |              |                                 | tor by 54.9.                         |                                      | SSQLF15    |

sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.



 $\triangle \mathbf{P}_{\mathsf{filter}} = \triangle \mathbf{P}_{\mathsf{housing}} + \triangle \mathbf{P}_{\mathsf{element}}$ 

Exercise: Determine  $\triangle P$  at 20 gpm (76 L/min) for GH6GZ10S16L using 200 SUS (44 cSt) fluid.

#### Solution:

 $\Delta P_{\text{housing}} = 2.1 \text{ psi} [.15 \text{ bar}]$ 

 $\Delta P_{element} = 20 \times .27 \times (200 \div 150) = 7.2 \text{ psi}$ or = [76 x (.27 ÷ 54.9) x (44 ÷ 32) = .51 bar]  $\Delta P_{total} = 2.1 + 7.2 = 9.3 \text{ psi}$ or = [.15 + .51 = .66 bar]

#### HydraSPIN Filter GH

| Filter   | How to Build                                    | d a Valid N      | /lodel Ni                                | umber f       | or a Schroeder GH:   |                             |  |             |
|--|---|------------------|--|---------------|--|-----------------------------|--|-------------|
| Model  |   |                  |  | 30X 4         |  | BOX 7                       |  | ]           |
| Number<br>Selection  | Example: NOTE:                                  |                  |  |               |  |                             |  |             |
|  | BOX 1<br>GH –                                   |                  |  | 30X 4<br>50 – | BOX 5 BOX 6 F  | <sup>BOX 7</sup><br>L = GH6 | GZ1050S12L   |             |
|  |   |                  |  |               |  |                             |  | ]           |
|  | BOX 1<br>Filter                                 | BOX 2<br>Element |  |               | BOX 3  |                             | BOX 4<br>Bypass  |             |
|  |   | Length (in)      |  |               | lement Part Number   |                             | Setting  |             |
|  | GH  | 6<br>9           | G10 =                                    | = 10 µ E m    | dia (cellulose)<br>Iedia (cellulose)   |                             | it = 25 psid<br>0 = 50 psid  |             |
|  |   |                  | G25 =                                    | : 25 µ E mi   | edia (cellulose)   |                             | N = Non-bypassing  |             |
|  |   |                  |  |               | llement® Z-Media® (synthe<br>llement® Z-Media® (synthe   |                             |  | ]           |
|  |   |                  | GZ10 =                                   | = 10 µ Exce   | ellement <sup>®</sup> Z-Media <sup>®</sup> (synthe<br>ellement <sup>®</sup> Z-Media <sup>®</sup> (synthe | netic)                      |  |             |
|  |   |                  |  | ·             | ellement <sup>®</sup> Hydraspin media  |                             |  |             |
|  |   | -                |  |               |  |                             |  |             |
|  |   |                  |  |               |  |                             |  |             |
|  | BOX 5   | BOX              | 6  |               | В  | 30X 7                       |  |             |
|  | Element Seal<br>Material                        | Inlet            | t  |               |  | rm <sup>®</sup> Options     |  |             |
|  | Omit = Buna N                                   | S12 = SAE-1      |  |               | Omit = None  |                             | Indicator Location<br>Option L   |             |
|  |   | S16 = SAE-16     |  |               | L = Bar indicator, lef   |                             | Bar Indicator  |             |
|  |   |                  | 12 = ISO 228 G-3/4"<br>16 = ISO 228 G-1" |               | R = Bar indicator, rig<br>B = Bar indicators, le   |                             | Inlet Top View   |             |
|  |   | 010-00-          | 20.5 .                                   |               | VA = Visual pop-up w   | /auto reset                 |  |             |
|  |   |                  |  |               | VM = Visual pop-up w<br>Omit = None  | //manual reset              |  | -           |
|  |   |                  |  | El triad      | M = Drilled, tapped,   |                             |  |             |
|  |   |                  |  | Electrical    | DTC = DC 2 wire, norm<br>DTO = DC 2 wire, norm   |                             |  |             |
|  |   |                  |  |               | DW = AC/DC 3-wire (N   |                             |  |             |
|  |   |                  |  |               |  |                             |  |             |
|  |   |                  |  |               |  |                             |  | DM N#1 N.O. |
|  |   |                  | -  |               |  | OM                          |  | DTO         |
|  |   | J                | -  |               | PI   | OW #1   N.O.<br>OUND PIN #3 | Cores .  | <b>——</b>   |
|  |   |                  | L  | ļ             | 1 mm   | L <u>=</u><br>DW            |  | 0M PIN #2   |
|  | -   |                  |  |               | 9  |                             |  |             |
| element part<br>a combination  | VA = Auto Reset                                 | t VN             | M = Manual                               | l Reset       | DW = AC/DC 3-wire  |                             | DTO, DTC = DC 2-wi   | DTC<br>ire  |
| and 4.<br>elements   | Indicator P/N 129                               | 92113 Inc        | dicator P/N                              | 1293450       | Indicator P/N 1277426  |                             | Consult factory for i  |             |
| ss. For 50 psid<br>n-bypassing<br>lent part<br>Ides suffix.<br>iZ1050, | (VM2B.1) (NOTE:<br>available with 50<br>bypass) | ) psid ava       | M2BM.1) (N<br>ailable with<br>pass)      |               | v or NC) for 25 psi bypas<br>Indicator P/N 1297773<br>(NO or NC) for 50 psi b                            | (VM2.5C.0)                  | 25 psi bypass<br>Indicator P/N 12944<br>2M0-OE, NC) for 50<br>1298354 (VM1CD.0/<br>50 psi bypass | psi bypass  |
| ndicators  |   |                  |  |               |  |                             |  |             |

#### NOTES:

- Box 2. Replacement e numbers are a of Boxes 2, 3 a Replacement e contain bypass setting or non-version, elemen number includ Examples: 6GZ 9GZ10N.
- Box 7. VA and VM indicators are available with 50 psid bypass element only.

### Top-Ported Medium Pressure Filter GHHE



Model No. of filter in photograph is: GHHF11GZ10S24D5

#### **Features and Benefits**

- Bowl seal on element functions as no-element indicator
- Variety of differential indicator port options (visual and electrical indicators)
- Leak proof bar indicator, rugged visual indicator with protective aluminum shield is standard
- Cartridge style element (non spin-on)
- Wide variety of media grades for application specific requirements (static discharge, low pressure drop, etc.)
- Port to port and mounting pattern dimensions match standard spin-on assembly
- Ideal for hydrostatic charge lines, high flow return applications where traditional spin-on filters fail (flow surge or cold start)
- Proprietary bowl to element seal minimizes potential leakage point by use of one seal on element

GHHF RLT KF5

GH

100 gpm 380 L/min

725 psi 50 bar

SRLT

К9

3K9

**2K9** 



STEEL

MAKING

AUTOMOTIVE



AUTOMOTIVE MANUFACTURING

0

PULP & PAPER



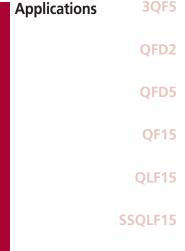


MACHINE

TOOL

AGRICULTURE

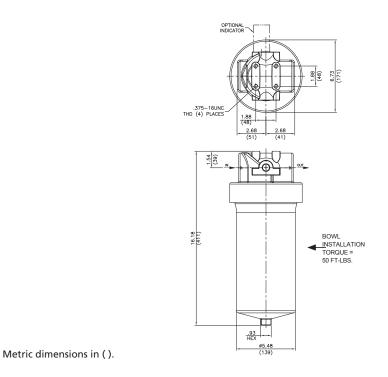




Filter Housing Specifications

| Flow Rating:                   | Up to 100 gpm (380 L/min)                                 |
|--------------------------------|---|
| Max. Operating Pressure:       | 725 psi (50 bar)  |
| Min. Yield:                    | 2600 psi (179 bar)  |
| Rated Fatigue Pressure:        | 725 psi (50 bar)  |
| Temp. Range:                   | -20°F to 225°F (-29°C to 107°C)                           |
| Bypass Setting:                | Cracking: 50 psi (3.5 bar)<br>Full Flow: 52 psi (3.6 bar) |
| Porting Head:<br>Element Case: |   |
| Weight of GHHF:                | 11.82 lbs. (5.36 kg)                                      |
| Element Change Clearance:      | 2" (50 mm)  |
|                                |   |

### **GHHF** Top-Ported Medium Pressure Filter



| Element     |  |
|-------------|--|
| Performance |  |
| Information |  |

| ent<br>Ice |   |   | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                                   |  |  |  |  |  |
|------------|---|---|--|-----------------------------------|--|--|--|--|--|
| on         | Media Type                              | Element                                     | $\beta_{X}(c) \geq 200$  | $\beta_X(c) \ge 1000$             |  |  |  |  |  |
|            | Traditional<br>Excellement®<br>Z-Media® | 11GZ1<br>11GZ3<br>11GZ5<br>11GZ10<br>11GZ25 | <4.0<br>4.6<br>5.9<br>11.4<br>15.8                                   | 4.5<br>5.8<br>7.8<br>13.2<br>17.5 |  |  |  |  |  |

Hydraspin H media, designed to specifically reduce filter pressure drop 11GH10 10.6 13.0

#### Dirt Holding Capacity

| olding | Media Type                              | Element                                     | DHC (gm)                        |                    |  |  |  |  |
|--------|---|---|---------------------------------|--------------------|--|--|--|--|
| oacity | Traditional<br>Excellement®<br>Z-Media® | 11GZ1<br>11GZ3<br>11GZ5<br>11GZ10<br>11GZ25 | 158<br>136<br>160<br>152<br>150 |                    |  |  |  |  |
|        | Flamout Collanse De                     | <b>tin p</b> . 150 paid (10.2 bas           | v) for standard and non-        |                    |  |  |  |  |
|        | Element Collapse Ra                     | ating: 150 psid (10.3 bar                   | r) for standard and non-r       | bypassing elements |  |  |  |  |
|        | Flow Dire                               | ction: Outside In                           | Outside In                      |                    |  |  |  |  |
|        | Element Nor<br>Dimen                    |   |                                 |                    |  |  |  |  |
|        |   |   |                                 |                    |  |  |  |  |
|        |   |   |                                 |                    |  |  |  |  |
|        |   |   |                                 |                    |  |  |  |  |

# Top-Ported Medium Pressure Filter GHHF

|                                       | Type Fluid      |                        |                      |                               | raspin) and ASP                      | <b>A</b>   |                   | _        | Fluid                 | GH          |
|---------------------------------------|-----------------|------------------------|----------------------|-------------------------------|--------------------------------------|------------|-------------------|----------|-----------------------|-------------|
|                                       | Based Fluid     |                        | Compatibility        |                               |                                      |            |                   |          |                       |             |
| Inv                                   | ert Emulsion    | ς το and z5 μ z-ιν     | ieula  (sy           | nthetic), TO µ A              | ASP <sup>®</sup> Media (syntł        | ietic)     |                   |          |                       | GHHF        |
| Pressure                              | Series          | Element<br>Part No.    | petro                |                               | s are predicated<br>fluid, SAE-20 po |            |                   |          | Element<br>Selection  | RLT         |
| Tressure                              |                 | GZ1                    |                      |                               | 11GZ                                 | 1          |                   |          | Based on<br>Flow Rate | KF5         |
|                                       | 7               | GZ3                    |                      |                               | 11GZ                                 | 3          |                   |          |                       | 6013        |
|                                       | Z-<br>Media®    | GZ5                    |                      |                               | 11GZ                                 | 5          |                   |          |                       | SRL         |
|                                       |                 | GZ10                   |                      |                               | 11GZ                                 |            |                   |          |                       |             |
|                                       |                 | GZ25                   |                      |                               | 11GZ2                                |            |                   |          |                       | KS          |
|                                       | Flow            | gpm                    | 0                    | 20                            | 40                                   | 60         | 80                | 100      |                       |             |
|                                       |                 | (L/min)                | 0                    | 50                            | 150                                  |            | 250               | 380      |                       | 2K9         |
|                                       |                 |                        |                      |                               |                                      |            |                   |          |                       | <b>3K</b> 9 |
| iown above                            | are the elem    | nents most commonly    | used in              | this housing.                 |                                      |            |                   |          |                       | QF          |
|                                       |                 |                        |                      |                               |                                      |            |                   |          |                       | 3QF         |
| <b>D</b> housing                      |                 |                        |                      | $\Delta \mathbf{P}_{element}$ |                                      |            |                   |          | Pressure              | QFD2        |
| $H \Delta \mathbf{P}_{housing} f_{c}$ |                 | n sp gr = 0.86:        |                      | $\Delta P_{element} = 1$      | flow x element                       | ∆P facto   | r x viscosity fac | tor      | Drop<br>Information   |             |
| (50)                                  | (150)           | (L/min)<br>(250) (350) |                      | El. $\triangle P$ facto       | ors @ 150 SUS (3                     | 82 cSt):   |                   |          | Based on              | QFD!        |
|                                       |                 |                        | .00)                 |                               | AS1 0.33 11GZ3<br>AS5 0.22 11GZ1     |            |                   |          | Flow Rate             |             |
|                                       |                 |                        | ).75)                | 11GZ25/11G                    |                                      | IU/TIGA:   | 510 0.22          |          | and Viscosity         | QF1!        |
| 10                                    |                 |                        | bar)                 | If working ir                 | n units of bars & L                  | /min, divi | de above factor   | by 54.9. |                       |             |
| 5                                     |                 |                        | 0.50) <b>∇</b> (par) |                               | ctor: Divide viscosi                 |            |                   | <u> </u> |                       | QLF1        |
| 0 10 2                                | 0 30 40 50      | 0 60 70 80 90 100      | ,                    |                               |                                      |            |                   |          |                       | SSQLF1      |
| o gr = specific<br>zing of eleme      | Flow<br>gravity |                        | w inforn             |                               | ed in the Elemer                     |            | on chart above    |          |                       |             |
| Notes                                 |                 |                        |                      | Exercise:                     | -• nousing <sup>-</sup> r ⊔∎ el      | ement      |                   |          |                       |             |
|                                       |                 |                        |                      | Determine                     | e ∆P at 80 gpm<br>Z10S24 using 2     |            |                   |          |                       |             |
|                                       |                 |                        |                      | Solution:                     |                                      |            |                   |          |                       |             |
|                                       |                 |                        |                      |                               | = 6psi [.41 bar]                     |            |                   |          |                       |             |
|                                       |                 |                        | _                    | ∆P <sub>element</sub> :<br>or | = 80 x .22 x (20                     | )0÷150)    | = 23.5 psi        |          |                       |             |
|                                       |                 |                        |                      |                               | = [303 x (.22÷5                      | 4.9) x (4  | 4÷32) = 1.66      | bar]     |                       |             |
|                                       |                 |                        |                      | $\Delta P_{total}$            | = 6 + 23.5 = 29<br>or                | .5 psi     |                   |          |                       |             |
|                                       |                 |                        |                      | :                             | = [.41 + 1.66 =                      | 2.07 baı   | r]                |          |                       |             |

### **GHHF** Top-Ported Medium Pressure Filter

| GHHF –                  | K 2 BOX 3 BO   | 0X 4 BOX 5 BO                                   | DX 6 BOX 7   | BOX 8  |  |  |  |  |  |  |  |  |
|-------------------------|--|---|--|--|--|--|--|--|--|--|--|--|
|                         | Example: NOTE: One option per box<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 |   |  |  |  |  |  |  |  |  |  |  |
| GHHF – 11               | L = GHHF11GZ10   | 520L  |  |  |  |  |  |  |  |  |  |  |
| BOX 1                   | BOX 2  | BOX 3   |  | BOX 4  | BOX 5  |  |  |  |  |  |  |  |
|                         | Element<br>Ingth (in)  | Element Me                                      | dia  | Micron Rating  | Element S<br>Materia   |  |  |  |  |  |  |  |
|                         | 11G AS = /   | Anti-Static Pleat N                             | edia (synthetic)   | 1 = (AS and Z media)   | Omit = Bu  |  |  |  |  |  |  |  |
| GHHF                    | Z = 1  | Excellement <sup>®</sup> Z-Me                   | edia® (synthetic)  | 3 = (AS and Z media)   |  |  |  |  |  |  |  |  |
|                         | H = I  | Excellement® Hyd                                | aSpin Media  | 5 = (AS and Z media)   |  |  |  |  |  |  |  |  |
|                         |  |   |  | 10 = (AS, Z and H media)   |  |  |  |  |  |  |  |  |
|                         |  |   |  | 25 = (AS and Z media)  |  |  |  |  |  |  |  |  |
| BOX 6<br>Bypass Setting | BOX 7<br>Inlet<br>Port   |   |  | BOX 8<br>Dirt Alarm <sup>®</sup> Options   |  |  |  |  |  |  |  |  |
|                         | Port   |   |  | Dirt Alarm <sup>®</sup> Options  | Indicator Loc  |  |  |  |  |  |  |  |
| Omit = 50 psid          | S20 = SAE-20   |   | Omit = None  | licator, left side std   | Option I   |  |  |  |  |  |  |  |
|                         | S24 = SAE-24   | DTE   |  | licator, right side std  |  |  |  |  |  |  |  |  |
|                         | P20 = 1.25" N<br>P24 = 1.5" NP   | Visual  |  | licators, left and right side  | Inlet Top View   |  |  |  |  |  |  |  |
|                         | 124 - 1.5 10   | ···   |  | pop-up w/auto reset<br>pop-up w/manual reset   |  |  |  |  |  |  |  |  |
|                         |  | Electrical                                      | MS5 = E<br>MS5LC = L<br>MS10LC = L<br>MS10LC = L<br>MS11 = E<br>MS12LC = L<br>MS12LC = L<br>MS16LC = L | lectrical w/ 12 in. 18 gauge 2<br>ow current MS5<br>lectrical w/ DIN connector (m<br>ow current MS10<br>lectrical w/ 12 ft. 4-conducto<br>lectrical w/ 5 pin Brad Harrison con<br>ow current MS12<br>lectrical w/ weather-packed s<br>ow current MS16<br>lectrical w/ 4 pin Brad Harriso | ale end only)<br>or wire<br>nector (male en<br>sealed connec |  |  |  |  |  |  |  |
|                         |  | Electrical<br>with<br>Thermal<br>Lockout        | MS5LCT = L<br>MS10T = N<br>MS10LCT = L<br>MS12T = N<br>MS12LCT = L<br>MS16T = N<br>MS16LCT = L         | IS5 (see above) w/ thermal lo<br>ow current MS5T<br>IS10 (see above) w/ thermal<br>ow current MS10T<br>IS12 (see above) w/ thermal<br>ow current MS12T<br>IS16 (see above) w/ thermal<br>ow current MS16T<br>ow current MS17T  | lockout<br>lockout   |  |  |  |  |  |  |  |
|                         |  | Electrical<br>Visual                            | MS13 = S<br>MS14 = S   | am operated switch w/ ½" cond<br>upplied w/ threaded connect<br>upplied w/ 5 pin Brad Harrisc<br>onnector & light (male end)   | uit female conn<br>or & light<br>on                          |  |  |  |  |  |  |  |
|                         |  | Electrical<br>Visual with<br>Thermal<br>Lockout | MS13DCLCT = L<br>MS14DCT = N   | IS13 (see above), direct current,<br>ow current MS13DCT<br>IS14 (see above), direct current,<br>ow current MS14DCT   |  |  |  |  |  |  |  |  |

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5.

#### SAME DAY SHIPMENT MODEL AVAILABLE!

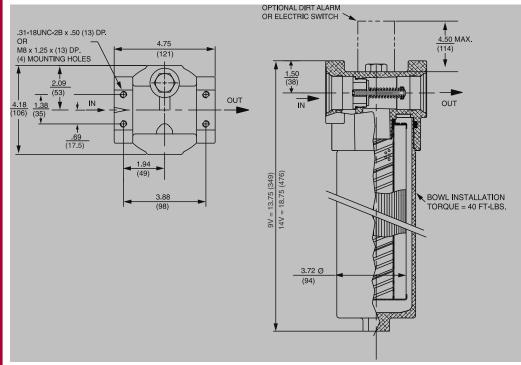
 Weight of RLT-14V:
 8.0 lbs. (3.6 kg)

 Element Change Clearance:
 9V & 14V: 2.75" (70 mm)

#### Medium Pressure Filter **RLT**

|                                 | <ul> <li>Features and Benefits</li> <li>Durable, compact design</li> <li>Quick and easy cartridge element changeouts</li> <li>Available in 9" and 14" element lengths</li> <li>Lightweight at 8 pounds</li> <li>Offered in pipe, SAE straight thread, flange and ISO 228 porting</li> <li>Available with NPTF inlet and outlet female test ports</li> <li>WRLT model for water service also available – refer to Section 7 of this catalog</li> <li>Various Dirt Alarm<sup>®</sup> options</li> <li>Same day shipment model available</li> </ul> | 70 gpm<br><u>265 L/min</u><br>1000 psi<br>69 bar | GH<br>GHHF<br>RLT<br>KF5<br>SRLT<br>K9<br>2K9 |
|---------------------------------|--|--|---|
|                                 |  |  | 3K9   |
| Model No. of filter in photogra | pn is KL19VZ 10P20D5.  | -  | QF5   |
|                                 |  | Applications                                     | 3QF5  |
| INDUSTRIAL AUTOMOT              |  |  | QFD2  |
| MANUFACTU                       |  |  | QFD5  |
|                                 |  |  | QF15  |
| STEEL PULP & PAP<br>MAKING      | PER AGRICULTURE MOBILE<br>VEHICLES   |  | QLF15   |
|                                 |  | SS   | QLF15   |
| Flow Rating:                    | Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids for P20, S20, & B20 porting<br>Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids for P16, S16, F16, F20<br>& B16 porting   | Filter<br>Housing                                |   |
| Max. Operating Pressure:        | - 5  | Specifications                                   |   |
|                                 | 4200 psi (290 bar) , per NFPA T2.6.1   |  |   |
| Rated Fatigue Pressure:         | 415 psi (29 bar), per NFPA T2.6.1-R1-2005  |  |   |
|                                 | -20°F to 225°F (-29°C to 107°C)  |  |   |
|                                 | Cracking: 40 psi (2.8 bar) for all porting<br>Full Flow: 57 psi (3.9 bar) for P20 & S20 porting<br>Full Flow: 75 psi (5.2 bar) for P16, S16, F16 & F20 porting   |  |   |
| Porting Head:                   | Aluminum   |  |   |
| Element Case:                   |  |  |   |
| Weight of RLT-9V:               | 6.7 lbs. (3.0 kg)  |  |   |

#### **RLT** Medium Pressure Filter



Metric dimensions in ( ).

| Element<br>Performance |              |                  | a <b>tio Per ISO 4572/NF</b><br>Particle counter (APC) cali | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                          |                           |
|------------------------|--------------|------------------|---|--|--------------------------|---------------------------|
| Information            | Element      | $\beta_X \ge 75$ | $\beta_X \ge 100$   | $\beta_X \ge 200$  | β <sub>X</sub> (c) ≥ 200 | β <sub>X</sub> (c) ≥ 1000 |
|                        | 9V3/14V3     | 6.8              | 7.5   | 10.0   | N/A                      | N/A                       |
|                        | 9V10/14V10   | 15.5             | 16.2  | 18.0   | N/A                      | N/A                       |
|                        | 9VZ1/14VZ1   | <1.0             | <1.0  | <1.0   | <4.0                     | 4.2                       |
|                        | 9VZ3/14VZ3   | <1.0             | <1.0  | <2.0   | <4.0                     | 4.8                       |
|                        | 9VZ5/14VZ5   | 2.5              | 3.0   | 4.0  | 4.8                      | 6.3                       |
|                        | 9VZ10/14VZ10 | 7.4              | 8.2   | 10.0   | 8.0                      | 10.0                      |
|                        | 9VZ25/14VZ25 | 18.0             | 20.0  | 22.5   | 19.0                     | 24.0                      |

| Dirt Holding | Element  | DHC (gm)   | )                            | Element              | DHC (gm)   |  |
|--------------|--|------------|------------------------------|----------------------|--|--|
| Capacity     | 9V3  | 25         |                              | 14V3                 | 38   |  |
|              | 9V10   | 12         |                              | 14V10                | 25   |  |
|              | 9VZ1   | 55         |                              | 14VZ1                | 102  |  |
|              | 9VZ3   | 57         |                              | 14VZ3                | 105  |  |
|              | 9VZ5   | 62         |                              | 14VZ5                | 115  |  |
|              | 9VZ10  | 52         |                              | 14VZ10               | 104  |  |
|              | 9VZ25  | 48         |                              | 14VZ25               | 94   |  |
|              | Element Collaps<br>Flow I<br>Element Nominal Dir | Direction: | 500 psi<br>Outside<br>9V: 3. | e In<br>0" (75 mm) C | or hydrostatic high collap<br>).D. x 9.5" (240 mm) lon<br>).D. x 14.5" (370 mm) lo |  |

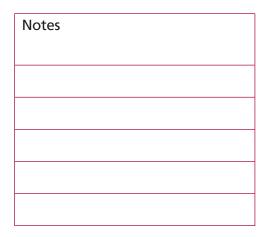
#### Medium Pressure Filter **RLT**

|   | Тур          | e Fluid Appropri    | priate Schroeder Media                          |   |           |            |           |                     |     | Fluid                | GH            |           |  |      |
|---|--------------|---------------------|---|---|-----------|------------|-----------|---------------------|-----|----------------------|---------------|-----------|--|------|
| Petrole   | eum Based    | Fluids All E medi   | ll E media (cellulose) and Z-Media® (synthetic) |   |           |            |           |                     |     |                      | Compatibility |           |  |      |
| Hig   | h Water Co   | ontent All Z-Med    | a® (sy  | nthetic)  |           |            |           |                     |     |                      |               |           |  | GHHF |
|   | Invert Emu   | ulsions 10 and 25   | μ Z-Ν   | /ledia® (sy   | nthetic)  |            |           |                     |     |                      |               |           |  |      |
|   | Water 0      | Glycols 3, 5, 10 a  | nd 25   | μ Z-Media   | a® (syntł | netic)     |           |                     |     |                      |               |           |  | RLT  |
|   | Phosphate    | Esters All Z-Med    | a® (sy  | nthetic) w  | ith H (E  | PR) seal d | esignatio | on                  |     |                      |               |           |  |      |
|   | Sk           | stainless s         |   |   |           |            |           |                     |     |                      |               |           | Skydrol® is a registered trademark of Solutia Inc. | KF5  |
| Pressure  | Series       | Element<br>Part No. |   | Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve. |           |            |           |                     |     | Element<br>Selection | SRLT          |           |  |      |
|   | E Media      | 9V3 & 14V3          |   |   | 9V3       |            |           | 14\                 | /3  | (                    | Contact       | Factory   | Based on<br>Flow Rate                              |      |
|   | LIVIEUIA     | 9V10 & 14V10        |   |   | 9         | V10        |           |                     | 14V | 10                   | Contac        | t Factory | FIOW Rate  | К9   |
| То  |              | 9VZ1 & 14VZ1        |   |   | 9VZ1      |            | 1         | 14VZ <mark>1</mark> |     | Co                   | ntact F       | actory    |  |      |
| 800 psi   | _            | 9VZ3 & 14VZ3        |   |   |           | 9VZ3       |           |                     | 14  | VZ3                  | Contac        | t Factory |  | 2K9  |
| (55 bar)  | Z-<br>Media® | 9VZ5 & 14VZ5        |   |   |           | 9VZ5       |           |                     |     |                      | 14VZ5         |           |  |      |
|   | Wiedła       | 9VZ10 & 14VZ10      |   |   |           | 9VZ10 8    | & 14VZ1   | 0                   |     |                      |               |           |  | 3K9  |
|   |              | 9VZ25 & 14VZ25      |   | 9VZ25 & 14VZ25  |           |            |           |                     |     |                      | JKJ           |           |  |      |
|   |              | gpm                 | 0   | 10  | 20        | 30         | 40        | 50                  | )   | 60                   | 7             | 0         |  |      |
|   | Flow         | (L/min)             | 0   | 50  | 10        | 00         | 150       |                     | 200 | )                    | 27            | 70        |  | QF5  |
| Shown above are the elements most commonly used in this housing. requires size 20 porting<br>Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol |              |                     |   |   |           |            |           |                     |     | 30F5                 |               |           |  |      |

| $\Delta \mathbf{P}_{housing}$  | $\Delta \mathbf{P}_{element}$  | Pressure QFD2               |
|--|--|-----------------------------|
| RLT $\Delta \mathbf{P}_{\text{housing}}$ for fluids with sp gr = 0.86: | $\underline{\Delta P_{element}}\text{= flow x element } \Delta P \text{ factor x viscosity factor}$  | Drop<br>Information OFD5    |
| Flow (L/min)   | El. $\triangle$ P factors @ 150 SUS (32 cSt):  |                             |
| (50) (150) (250)   | <u>9V</u> <u>14V</u>   | Based on<br>Flow Rate       |
| $\begin{bmatrix} 12 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\$      | 9V3       .32       14V3       .19         9V10       .24       14V10       .15         9V21       .34       14V21       .21         9V23       .21       14V23       .17         9V25       .13       14V25       .09         9V210       .11       14V210       .08         9V255       .06       14V225       .05 | and Viscosity QF15<br>QLF15 |
|  | If working in units of bars & L/min, divide above factor by 54.9.<br>Viscosity factor: Divide viscosity by 150 SUS (32 cSt).   | SSQLF15                     |
| 6 10 20 30 40 50 60 70<br>Flow gpm                                     | יזגנטאנץ זמננטר. בוויומפ יוגנטאנץ בא ובט 205 (22 ככל).   |                             |

sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.



 $\triangle \mathbf{P}_{\mathsf{filter}} = \triangle \mathbf{P}_{\mathsf{housing}} + \triangle \mathbf{P}_{\mathsf{element}}$ 

Exercise:

Determine  $\Delta P$  at 40 gpm (150 L/min) for RLT9VZ5S16D5 using 200 SUS (44 cSt) fluid.

Solution:

 $\Delta P_{\text{housing}} = 5.5 \text{ psi} [.35 \text{ bar}]$ 

△P<sub>element</sub> = 40 x .13 x (200÷150) = 6.9 psi or = [150 x (.13÷54.9) x (44÷32) = .49 bar]

 $\Delta P_{\text{total}} = 5.5 + 6.9 = 12.4 \text{ psi}$ 

= [.35 + .49 = .84 bar]

#### **RLT** Medium Pressure Filter SAME DAY SHIPMENT MODEL AVAILABLE!

| Model     BOX 1     BOX 2       lumber     RLT     Example: NOTE: One option               |  |  |   |  |
|--|--|--|---|--|
| ipment BOX 1 BOX 2<br>RLT 9  | вох з<br>– VZ10                                    |  | = RLT   | 9VZ10S20D5                               |
| Nodel<br>inside BOX 1 BOX 2  |  | BOX 3  |   | BOX 4                                    |
| Is. Filter Element<br>Series Length  |  | Element Size and Media   |   | Seal<br>Material                         |
| RLT<br>(See Section 7<br>for Water<br>Service version)<br>14<br>RLTN<br>(Non-bypassing:    | V1<br>VZ<br>VZ<br>VZ<br>VZ1                        | <ul> <li>3 = V size 3 μ E media (cellulose)</li> <li>0 = V size 10 μ E media (cellulose)</li> <li>1 = V size 1 μ Excellement<sup>®</sup> Z-Media<sup>®</sup> (synthetic)</li> <li>3 = V size 3 μ Excellement<sup>®</sup> Z-Media<sup>®</sup> (synthetic)</li> <li>5 = V size 5 μ Excellement<sup>®</sup> Z-Media<sup>®</sup> (synthetic)</li> <li>0 = V size 10 μ Excellement<sup>®</sup> Z-Media<sup>®</sup> (synthetic)</li> </ul>   | Omit = Buna N<br>H = EPR<br>V = Viton®<br>H.5 = Skydrol®<br>Compatibility |  |
| requires V5Z<br>high collapse  |  | 5 = V size 25 µ Excellement® Z-Media® (synthetic)<br>V = V size W media (water removal)  |   |  |
| elements)  | V5Z1   | <ul> <li>0 = V size 10 μ Excellement<sup>®</sup> media, 500 psid collapse</li> <li>5 = V size 25 μ Excellement<sup>®</sup> media, 500 psid collapse</li> </ul>   |   |  |
| BOX 5  |  | BOX 6  |   | BOX 7                                    |
| Porting<br>Options   |  | Dirt Alarm <sup>®</sup> Options  |   | Additional<br>Options                    |
| P16 = 1" NPTF  |  | Omit = None  |   | Omit = None                              |
| P20 = 1 <sup>1</sup> / <sub>4</sub> " NPTF   | Visual   | D5 = Visual pop-up   |   | L = Two ¼"                               |
| S16 = SAE-16<br>S20 = SAE-20<br>F20 = 1 <sup>1</sup> / <sub>4</sub> " SAE<br>4-bolt flange | Visual<br>with<br>Thermal<br>Lockout               | D8 = Visual w/ thermal lockout   |   | NPTF inl<br>and out<br>female t<br>ports |
| Code 61<br>B16 = ISO 228 G-1"<br>B20 = ISO 228 G-1¼"                                       | Electrical   | MS5 = Electrical w/ 12 in. 18 gauge<br>4-conductor cable<br>MS5LC = Low current MS5<br>MS10 = Electrical w/ DIN connector (male end<br>MS10LC = Low current MS10<br>MS11 = Electrical w/ 12 ft. 4-conductor wire<br>MS12 = Electrical w/ 5 pin Brad Harrison<br>connector (male end only)<br>MS12LC = Low current MS12<br>MS16 = Electrical w/ weather-packed sealed<br>connector<br>MS16LC = Low current MS16<br>MS17LC = Electrical w/ 4 pin Brad Harrison<br>male connector | <i>.</i> ,  |  |
| ent part<br>ination<br>J.<br>ure<br>re only<br>I 9".                                       | Electrical<br>with<br>Thermal<br>Lockout           | MS5LCT = Low current MS5T<br>MS10T = MS10 (see above) w/ thermal lockout<br>MS10LCT = Low current MS10T<br>MS12T = MS12 (see above) w/ thermal lockout<br>MS12LCT = Low current MS12T<br>MS16T = MS16 (see above) w/ thermal lockout<br>MS16LCT = Low current MS16T<br>MS17LCT = Low current MS17T   |   |  |
|  | Electrical<br>Visual                               | MS13 = Supplied w/ threaded connector & li<br>MS14 = Supplied w/ 5 pin Brad Harrison<br>connector & light (male end)   | ght   |  |
| als,<br>esh<br>ht oil<br>terior.<br>I<br>t Dow   | Electrical<br>Visual<br>with<br>Thermal<br>Lockout | MS13DCT = MS13 (see above), direct current,<br>w/ thermal lockout<br>MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current,<br>w/ thermal lockout<br>MS14DCLCT = Low current MS14DCT   |   |  |

- Box 2. Re nu of Ex
- Box 3. E on Bu V5 av
- Box 4. Fo all an Н.! th sta on coa Vit tra Elá Sky tra
- Box 5. B p metric mounting holes.

### Medium Pressure Filter KF5



#### Features and Benefits

- Meets HF4 automotive standard
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Available with NPTF inlet and outlet female test ports
- KFN5 non-bypass version with high collapse elements also available
- WKF5 model for water service also available – refer to Section 7 of this catalog
- Various Dirt Alarm<sup>®</sup> options
- Allows consolidation of inventoried replacement elements by using K-size elements
- Also available with DirtCatcher<sup>®</sup> elements (KD & KKD)
- Available with Patented GeoSeal<sup>®</sup> Elements. See Section 8 – GeoSeal Filters (page 342) for details.

Model No. of filter in photograph is KF51KZ10SD5.











MOBILE

| Applications | 3QF5    |
|--------------|---------|
|              | QFD2    |
|              | QFD5    |
|              | QF15    |
|              | QLF15   |
|              | SSQLF15 |

GH

GHHF

**RLT** 

KF5

**SRLT** 

**K9** 

2K9

3K9

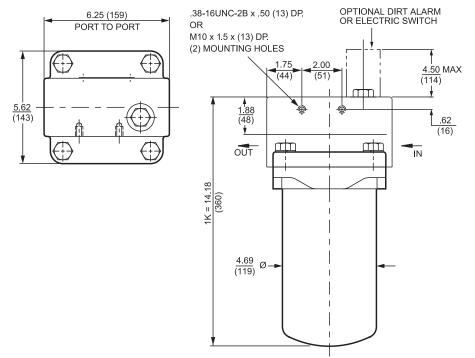
OF5

100 gpm 380 L/min

500 psi 35 bar

| Flow Rating:              | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids     | Filter         |
|---------------------------|---|----------------|
| Max. Operating Pressure:  | 500 psi (35 bar)  | Housing        |
| Min. Yield Pressure:      | 1500 psi (100 bar) , per NFPA T2.6.1                      | Specifications |
| Rated Fatigue Pressure:   | 300 psi (35 bar), per NFPA T2.6.1-2005                    |                |
| Temp. Range:              | -20°F to 225°F (-29°C to 107°C)                           |                |
| Bypass Setting:           | Cracking: 40 psi (2.8 bar)<br>Full Flow: 61 psi (4.2 bar) |                |
| Porting Head:             | Grey Cast Iron  |                |
| Element Case:             | Steel   |                |
| Weight of KF5-1K:         | 23.2 lbs. (10.5 kg)                                       |                |
| Element Change Clearance: | 2.0" (51 mm)  |                |

### **KF5** Medium Pressure Filter



Metric dimensions in ( ).

| Element<br>Performance   |                         | Filtration Ratio Per ISO 4572/NFPA T3.10.8.8         Filtration Ratio per ISO           Using automated particle counter (APC) calibrated per ISO 4402         Using APC calibrated per ISO |                      |               |                          |                           |  |
|--------------------------|-------------------------|---|----------------------|---------------|--------------------------|---------------------------|--|
| Information              | Element                 | $\beta_X \ge 75$  | B <sub>X</sub> ≥ 100 | $B_X \ge 200$ | β <sub>X</sub> (c) ≥ 200 | β <sub>X</sub> (c) ≥ 1000 |  |
|                          | К3                      | 6.8   | 7.5                  | 10.0          | N/A                      | N/A                       |  |
|                          | K10                     | 15.5  | 16.2                 | 18.0          | N/A                      | N/A                       |  |
|                          | KZ1                     | <1.0  | <1.0                 | <1.0          | <4.0                     | 4.2                       |  |
|                          | KZ3/KAS3                | <1.0  | <1.0                 | <2.0          | <4.0                     | 4.8                       |  |
|                          | KZ5/KAS5                | 2.5   | 3.0                  | 4.0           | 4.8                      | 6.3                       |  |
|                          | KZ10/KAS10              | 7.4   | 8.2                  | 10.0          | 8.0                      | 10.0                      |  |
|                          | KZ25                    | 18.0  | 20.0                 | 22.5          | 19.0                     | 24.0                      |  |
|                          | KZW1                    | N/A   | N/A                  | N/A           | <4.0                     | <4.0                      |  |
|                          | KZW3                    | N/A   | N/A                  | N/A           | 4.0                      | 4.8                       |  |
|                          | KZW5                    | N/A   | N/A                  | N/A           | 5.1                      | 6.4                       |  |
|                          | KZW10                   | N/A   | N/A                  | N/A           | 6.9                      | 8.6                       |  |
|                          | KZW25                   | N/A   | N/A                  | N/A           | 15.4                     | 18.5                      |  |
|                          |                         |   |                      |               |                          |                           |  |
| Dirt Holding             | Element                 | DHC (gm)  | Element              | DHC (gm)      | Element                  | DHC (gm)                  |  |
| Dirt Holding<br>Capacity | КЗ                      | 54  |                      |               |                          |                           |  |
| Capacity                 | К10                     | 44  |                      |               |                          |                           |  |
|                          | KZ1                     | 112   | KZW1                 | 61            | KDZ1                     | 89                        |  |
|                          | KZ3/KAS3                | 115   | KZW3                 | 64            | KDZ3                     | 71                        |  |
|                          | KZ5/KAS5                | 119   | KZW5                 | 63            | KDZ5                     | 100                       |  |
|                          | KZ10/KAS10              | 108   | KZW10                | 67            | KDZ10                    | 80                        |  |
|                          | KZ25                    | 93  | KZW25                | 79            | KDZ25                    | 81                        |  |
|                          | Element Collapse Rating | : 150 psid (10  | ) bar) for standard  | d elements    |                          |                           |  |
|                          | Flow Direction          | n: Outside In   |                      |               |                          |                           |  |
|                          |                         |   |                      |               |                          |                           |  |

## Medium Pressure Filter KF

|                     | Type Fluid   | Appropriate Sch  | oeder Media  | Fluid            | GH                   |              |                  |           |            |
|---------------------|--------------|--|--|------------------|----------------------|--------------|------------------|-----------|------------|
| Petroleum B         | ased Fluids  | All E media (cellulo   | Compatibility  |                  |                      |              |                  |           |            |
| High Wat            | ter Content  | All Z-Media® (synt   | hetic), 3, 5 and 10  | ) µ ASP® media   | a (synthet           | ic)          |                  |           | GHHF       |
| Inver               | t Emulsions  | 10 and 25 µ Z-Me   | dia® (synthetic), 1  | 0 μ ASP® medi    | ia (synthe           | tic)         |                  |           | GIIII      |
| Wa                  | ater Glycols | 3, 5, 10 and 25 $\mu$  | Z-Media® (synthet  | tic), 3, 5 and 1 | 0 μ ASP®             | media (synth | etic)            |           |            |
| Phosp               | hate Esters  | All Z-Media <sup>®</sup> (synt<br>E media (cellulose)            |  |                  |                      |              | edia (synthetic) |           | RLT        |
|                     | Skydrol®     | 3, 5, 10 and 25 µ 2<br>removal) with H.5<br>light oil coating on | Skydrol <sup>®</sup> is a registered trademark of Solutia Inc. | KF5              |                      |              |                  |           |            |
| Pressure            | E<br>Series  | lement<br>Part No.   | Element selection<br>petroleum based                           |                  | Element<br>Selection | SRLT         |                  |           |            |
|                     |              | К3   | 1K3 KF5 housing uses only one K-size element.                  |                  |                      |              | Based on         | К9        |            |
|                     | E Media      | K10  |  | 1K10             | · · ·                |              |                  | Flow Rate |            |
|                     |              | K25  | 1K25   |                  |                      |              |                  | 21/0      |            |
| То                  |              | KZ1  |  | 1KZ1             |                      | 2K9          |                  |           |            |
| 500 psi<br>(34 bar) |              | KZ3/KAS3   |  | 1KZ3             |                      |              |                  |           |            |
| (54 601)            | Z-<br>Media® | KZ5/KAS5   |  | 1KZ              | 25                   |              |                  |           | <b>3K9</b> |
|                     | IVIEUIa      | KZ10/KAS10   |  | 1KZ10            |                      |              |                  |           |            |
|                     |              | KZ25   |  | 1KZ              | 25                   |              |                  |           | QF5        |
| L                   |              | gpm (  | ) 20   | 40               | 60                   | 80           | 100              |           |            |
|                     | Flow         | (L/min) (  | 50   | 150              | 2                    | 50           | 380              |           | 3QF5       |

Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.

| $\Delta \mathbf{P}_{housing}$  | $\Delta \mathbf{P}_{element}$  | Pressure                               |
|--|--|--|
| KF5 $\Delta \mathbf{P}_{\text{housing}}$ for fluids with sp gr = 0.86: | $\Delta P_{element}$ = flow x element $\Delta P$ factor x viscosity factor   | Drop                                   |
| Flow (L/min)   | El. △P factors @ 150 SUS (32 cSt):   | Information                            |
| $\begin{array}{c} 12 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\$     | K3       .25         K10       .09         K25       .02         K21       .20       KDZ1       .24       KZW1       .43         KZ3/KAS3       .10       KDZ3       .12       KZW3       .32         KZ5/KAS5       .08       KDZ5       .10       KZW5       .28         KZ10/KAS10       .05       KDZ10       .06       KZW10       .23         KZ25       .04       KDZ25       .04       KZW25       .14         If working in units of bars & L/min, divide above factor by 54.9.         Viscosity factor: Divide viscosity by 150 SUS (32 cst). | Based on<br>Flow Rate<br>and Viscosity |

sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

| <br> |  |
|------|--|
|      |  |
| <br> |  |
| <br> |  |
|      |  |

Exercise: Determine △P at 50 gpm (189 L/min) for KF51KZ10P24D5 using 200 SUS (44 cSt) fluid.

Solution:

 $\triangle P_{\text{housing}} = 3.0 \text{ psi} [.20 \text{ bar}]$ 

 $\triangle \mathbf{P}_{\text{filter}} = \triangle \mathbf{P}_{\text{housing}} + \triangle \mathbf{P}_{\text{element}}$ 

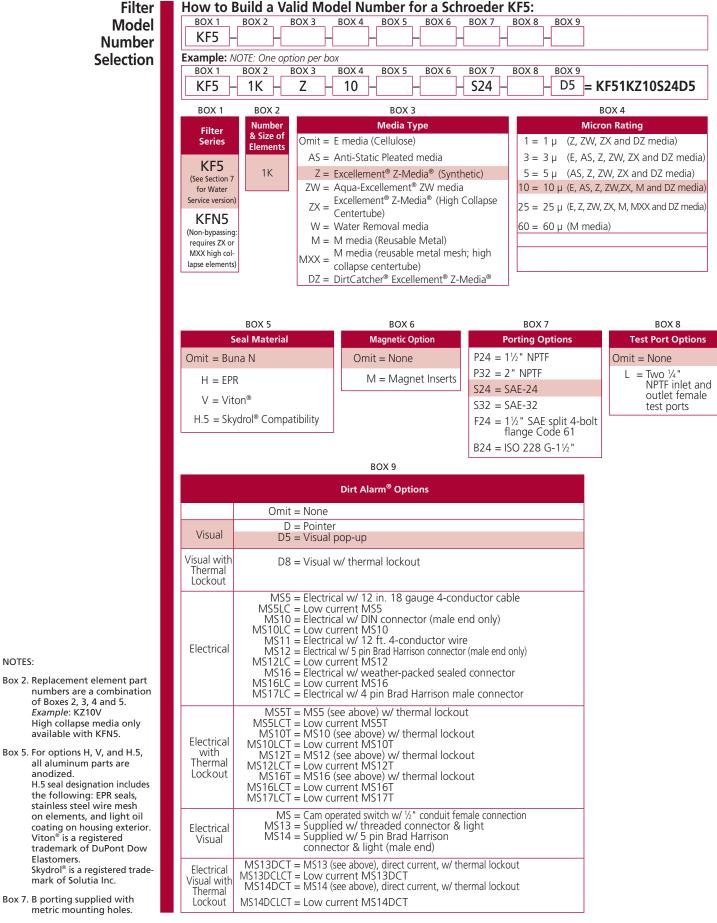
$$\Delta P_{element} = 50 \times .05 \times (200 \div 150) = 3.3 \text{ psi}$$
  
or  
= [189 x (.05 ÷ 54.9) x (44 ÷ 32) = .24 bar]  
$$\Delta P_{total} = 3.0 + 3.3 = 6.3 \text{ psi}$$
  
or  
= [.20 + .24 = .44 bar]

QFD5

**OLF15** 

SSQLF15

### Medium Pressure Filter



#### NOTES:

- numbers are a combination of Boxes 2. 3. 4 and 5. Example: KZ10V High collapse media only available with KFN5. Box 5. For options H, V, and H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh
  - coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.

Box 7. B porting supplied with metric mounting holes.

#### SAME DAY SHIPMENT MODEL AVAILABLE!

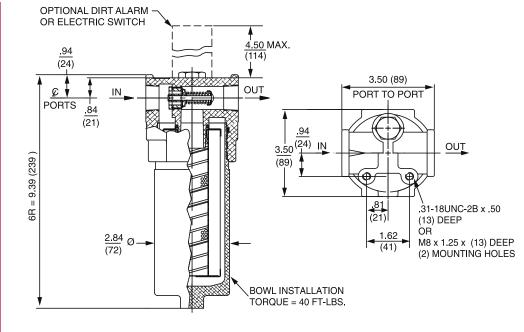
### Medium Pressure Filter SRLT

| | 25 gpm<br>100 L/min<br>1400 psi<br>100 bar       GH         1400 psi<br>100 bar       RLT         KF5       SRLT         V       SRLT         X9       3K9         QF5       QF5 |  |
|---|--|--|
| <image/>  | Applications3QF5QFD2QFD5QF15QLF15SSQLF15   |  |
| Flow Rating:Up to 25 gpm (100 L/min) for 150 SUS (32 cSt) fluidsMax. Operating Pressure:1400 psi (100 bar)Min. Yield Pressure:4000 psi (276 bar), per NFPA T2.6.1   | Filter<br>Housing<br>Specifications  |  |

| Flow Rating:              | Up to 25 gpm (100 L/min) for 150 SUS (32 cSt) fluids      | Fliter        |
|---------------------------|---|---------------|
| Max. Operating Pressure:  | 1400 psi (100 bar)  | Housing       |
| Min. Yield Pressure:      | 4000 psi (276 bar), per NFPA T2.6.1                       | Specification |
| Rated Fatigue Pressure:   | 750 psi (52 bar) per NFPA T2.6.1-R1-2005                  |               |
| Temp. Range:              | -20°F to 225°F (-29°C to 107°C)                           |               |
| Bypass Setting:           | Cracking: 40 psi (2.8 bar)<br>Full Flow: 55 psi (3.8 bar) |               |
| Porting Head:             | Aluminum  |               |
| Element Case:             | Aluminum  |               |
| Weight of SRLT-6R:        | 3.0 lbs. (1.4 kg)   |               |
| Element Change Clearance: | 2.75" (70 mm)   |               |
|                           |   |               |



#### **Medium Pressure Filter**



Metric dimensions in ( ).

| Element<br>Performance |         |                     | atio Per ISO 4572/NF<br>particle counter (APC) calib | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                          |                           |
|------------------------|---------|---------------------|--|--|--------------------------|---------------------------|
| Information            | Element | β <sub>X</sub> ≥ 75 | β <sub>X</sub> ≥ 100                                 | $\beta_X \ge 200$  | β <sub>X</sub> (c) ≥ 200 | β <sub>X</sub> (c) ≥ 1000 |
|                        | 6R3     | 6.8                 | 7.5  | 10.0   | N/A                      | N/A                       |
|                        | 6R10    | 15.5                | 16.2   | 18.0   | N/A                      | N/A                       |
|                        | 6RZ1    | <1.0                | <1.0   | <1.0   | <4.0                     | 4.2                       |
|                        | 6RZ3    | <1.0                | <1.0   | <2.0   | <4.0                     | 4.8                       |
|                        | 6RZ5    | 2.5                 | 3.0  | 4.0  | 4.8                      | 6.3                       |
|                        | 6RZ10   | 7.4                 | 8.2  | 10.0   | 8.0                      | 10.0                      |
|                        | 6RZ25   | 18.0                | 20.0   | 22.5   | 19.0                     | 24.0                      |

| Dirt Holding | Element | DHC (gm)              |  |
|--------------|---------|-----------------------|--|
| Capacity     | 6R3     | 5                     |  |
|              | 6R10    | 6                     |  |
|              | 6RZ1    | 15                    |  |
|              | 6RZ3    | 15                    |  |
|              | 6RZ5    | 17                    |  |
|              | 6RZ10   | 14                    |  |
|              | 6RZ25   | 25                    |  |
|              |         |                       |  |
|              | Elen    | nent Collapse Rating: | 150 psid (10 bar)                      |
|              |         | Flow Direction:       | Outside In                             |
|              | Element | Nominal Dimensions:   | 2.0" (50 mm) O.D. x 6.0" (150 mm) long |
|              |         |                       |  |

#### SAME DAY SHIPMENT MODEL AVAILABLE! Medium Pressure Filter SRLT

|  | Туре   | Fluid         | Appropriate S  | chroed    | der Media  |                                 |                                      |              |                            |                      | Fluid  | GH         |
|--|--|---------------|--|-----------|--|---------------------------------|--------------------------------------|--------------|----------------------------|----------------------|--|------------|
| Petrol   | eum Based I  | luids         | All E media (cel   | lulose)   | and Z-Media  | ® (synthe                       | etic)                                |              |                            |                      | Compatibility                                      |            |
| Hig  | h Water Co   | ntent         | All Z-Media <sup>®</sup> (sy   | yntheti   | c)   |                                 |                                      |              |                            |                      |  | GHHF       |
|  | Invert Emulsions 10 and 25 µ Z-Media <sup>®</sup> (synthetic)        |               |  |           |  |                                 |                                      |              |                            |                      |  |            |
|  | Water Glycols 3, 5, 10 and 25 $\mu$ Z-Media <sup>®</sup> (synthetic) |               |  |           |  |                                 |                                      |              |                            | RLT                  |  |            |
|  | Phosphate I  | sters         | All Z-Media® (sy   | yntheti   | c) with H (EPF   | R) seal de                      | esignation                           |              |                            |                      |  | <b>NLI</b> |
|  | Sky  | drol®         | 3, 5, 10 and 25 stainless steel w  |           |  |                                 |                                      |              |                            |                      | Skydrol® is a registered trademark of Solutia Inc. | KF5        |
| Pressure   | Series   | Eleme         | ent<br>Part No.  |           |  |                                 |                                      |              |                            | Element<br>Selection | SRLT   |            |
|  | <b>5 1 4</b>   | 6R3           | 3  |           |  | 6R3                             |                                      |              |                            | See RLT              | Based on   |            |
|  | E Media  | 6R1           | 0  |           |  | 6F                              | 10                                   |              |                            | See RLT              | Flow Rate  | К9         |
| То   |  | 6RZ           | <u>'</u> 1   |           | 6RZ1   |                                 |                                      | S            | ee RLT                     |                      |  |            |
| 1400 psi   |  | 6RZ           | 3  |           |  | 6RZ3                            |                                      |              | Se                         | e RLT                |  | 2K9        |
| (100 bar)  | Z-<br>Media®   | 6RZ           | .5   |           |  | 6RZ5                            |                                      |              |                            | See RLT              |  | 213        |
|  | Ivieula  | 6RZ           | 10   |           |  | 6RZ1                            | 0                                    |              |                            | See RLT              |  |            |
|  |  | 6RZ           | 25   |           |  |                                 | 6RZ25                                |              |                            |                      |  | <b>3K9</b> |
|  | -  | gpn           | n  | 0         | 5  | 10                              | 15                                   |              | 20                         | 25                   |  |            |
|  | Flow   | (L/m          | nin)   | 0         | 25   |                                 | 50                                   |              | 75                         | 100                  |  | QF5        |
| Shown abov   | e are the ele  | ments         | most commonly  | used i    | n this housing   | J.                              |                                      |              |                            |                      |  |            |
|  |  |               | r use of E media<br>tion, refer to Flu   |           |  |                                 |                                      |              |                            | col                  |  | 3QF5       |
| $\Delta \mathbf{P}_{housing}$  |  |               |  |           | $\Delta \mathbf{P}_{element}$  |                                 |                                      |              |                            |                      | Pressure   | QFD2       |
| SRLT $\Delta \mathbf{P}_{housin}$  | <sub>g</sub> for fluids w  | ith sp        | gr = 0.86:   |           | $\Delta P_{element}$ = flow x element $\Delta P$ factor x viscosity factor |                                 |                                      |              |                            | factor               | Drop   |            |
| 14   |  | L/min)<br>50) | (75) (95)  |           | El. △P factors @ 150 SUS (32 cSt):   |                                 |                                      |              |                            |                      | Information<br>Based on                            | QFD5       |
| $ \begin{array}{c} 14 \\ 12 \\ 10 \\ 8 \\ 6 \\ 6 \\ 4 \\ \end{array} $ (1.0) (0.75) (0.5 |  |               | 6R3       .45         6R10       .38         6RZ1       1.11         6RZ3       .55         6RZ5       .50         6RZ10       .46         6RZ25       .14 |           |  |                                 |                                      |              | Flow Rate<br>and Viscosity | QF15                 |  |            |
|  |  |               |  |           |  |                                 |                                      |              |                            | QLF15                |  |            |
| 2  |  |               |  |           |  |                                 |                                      | tor by 54.9. |                            | SSQLF15              |  |            |
| 0  | 5 10<br>Flow   | 15<br>r gpm   | 20 25  |           | Viscosity f  | factor: Di                      | vide viscosity b                     | y 150 SUS    | 5 (32 cSt).                |                      |  |            |
| sp gr = specif<br>Sizing of eler   | 5 ,  | be base       | ed on element flo  | w infor   | rmation provid   | led in th                       | e Element Se                         | lection o    | chart abo                  | ove.                 |  |            |
| Notos  |  |               |  |           | $\triangle \mathbf{P}_{filter} =$  | $\triangle \mathbf{P}_{housin}$ | $h_{pg} + \Delta \mathbf{P}_{eleme}$ | ent          |                            |                      |  |            |
| Notes  |  |               |  | Exercise: |  |                                 |                                      |              |                            |                      |  |            |

Exercise: Determine ∆P at 15 gpm (57 L/min) for SRLT6R3P12D5 using 200 SUS (44 cSt) fluid. Solution:

△P<sub>housing</sub> = 5.0 psi [.37 bar]

$$\begin{split} & \Delta P_{element} = 15 \times .45 \times (200 \div 150) = 9 \text{ psi} \\ & \text{or} \\ & = [57 \times (.45 \div 54.9) \times (44 \div 32) = .64 \text{ bar}] \\ & \Delta P_{total} \\ & = 5.0 + 9.0 = 14.0 \text{ psi} \\ & \text{or} \\ & = [.37 + .64 = 1.01 \text{ bar}] \end{split}$$

#### SRLT Medium Pressure Filter SAME DAY SHIPMENT MODEL AVAILABLE!

| Filter 📕 How to Build a Valid Model Number for a Schroeder SRLT: |   |   |   |                            |   |  |   |  |
|--|---|---|---|----------------------------|---|--|---|--|
| Model  | BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 |   |   |                            |   |  |   |  |
| Number SRLT  |   |   |   |                            |   |  |   |  |
| Selection  | Example: NOTE: One op                     |   |   |                            |   |  |   |  |
| Same Day   | BOX 1 BOX 2<br>SRLT - 6                   | 2 BOX 3   |   | вох 5<br>– <b>S12</b>      | BOX 6   | вох 7<br>- D5  | = SRLT6RZ10S12D5  |  |
| Shipment<br>Model  |   |   | 0 -   | - 312                      |   | - 05   | = SKLIOKZ 105 1205  |  |
| See inside<br>back cover   | See inside<br>back cover BOX 1 BO         |   |   | BOX 3                      |   |  | BOX 4   |  |
| for details.   | Filter Lengt<br>Series Elemen             |   | E   | lement Size a              | nd Media  | Seal<br>Material   |   |  |
|  | SRLT 6                                    |   | R3 = R size 3 j   |                            |   | Omit = Buna N  |   |  |
|  |   | 10 μ E media (cellulose)<br>1 μ Excellement® Z-Media® (synthetic) |   |                            | H = EPR   |  |   |  |
|  |   | u Excellement   | <sup>®</sup> Z-Media <sup>®</sup> (s  | ynthetic)                  | V = Viton®  |  |   |  |
|  |   | u Excellement   | <sup>®</sup> Z-Media <sup>®</sup> (s<br>at <sup>®</sup> Z-Media <sup>®</sup>  | ynthetic)                  | H.5 = Skydrol <sup>®</sup><br>Compatibility           |  |   |  |
|  |   | $RZ25 = R size 25 \mu$  |   |                            |   | μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)<br>μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |   |  |
|  |   | R   | W = R size W  | media (water removal)      |   |  |   |  |
|  | BOX 5                                     | BOX 6   |   | BOX                        |   | BOX 7  |   |  |
|  | Porting                                   | Add   | itional<br>tions  |                            | Dirt Alarm <sup>®</sup> Options                       |  |   |  |
|  | P12 = <sup>3</sup> / <sub>4</sub> " NPTF  | Omit = N  |   |                            | Omit  | = None   |   |  |
|  | S12 = SAE-12                              |   | NO 1/8"   | Visual                     | D5  | = Visual pop   | o-up  |  |
|  | B12 = ISO 228 G-¾"                        |   | PTF inlet<br>nd outlet  | Visual                     |   |  |   |  |
|  |   |   | female test<br>ports<br>30 = 30 psi bypass<br>setting<br>40 = 40 psi bypass<br>setting<br>50 = 50 psi bypass<br>setting<br>60 = 60 psi bypass | with<br>Thermal<br>Lockout | D8 =  | = Visual w/ thermal lockout  |   |  |
|  |   |   |   |                            |   |  | (42) 40   |  |
|  |   |   |   |                            | MS5   | gauge 4-cor  | lectrical w/ 12 in. 18<br>uge 4-conductor cable<br>ow current MS5 |  |
|  |   |   |   |                            | MS5LC   |  |   |  |
|  |   |   |   |                            | MS10  | (male end only)<br>C = Low current MS10<br>= Electrical w/ 12 ft.  |   |  |
|  |   |   |   |                            | MS10LC  |  |   |  |
|  |   |   |   |                            | MS11  |  |   |  |
|  |   | setting   |   | Electrical                 |   | = Electrical w/ 5 pin Brad   |   |  |
|  |   |   |   |                            | MS12  | <sup>2</sup> Harrison connector (male end only)  |   |  |
|  |   |   |   |                            |   | c = Low current MS12<br>= Electrical w/ weather<br>packed sealed connector<br>c = Low current MS16                         |   |  |
|  |   |   |   |                            | MS16  |  |   |  |
|  |   |   |   |                            | IVISTOLC  |  |   |  |
|  |   |   |   | MS17LC                     | = Electrical w/ 4 pin Brad<br>Harrison male connector |  |   |  |
|  |   |   |   |                            | = MS5 (see a  | above) w/ thermal lockout  |   |  |
|  |   |   |   |                            |   | = Low currer   |   |  |
| nent part  |   |   | Electrical  |                            | = MS10 (see<br>= Low currer                           | above) w/ thermal lockout  |   |  |
| nation   |   |   |   | with                       |   |  | above) w/ thermal lockout   |  |
|  |   |   |   | Thermal                    | -   | = Low currer   |   |  |
| ts are only<br>una N seals.                                      |   |   |   | Lockout                    |   |  | above) w/ thermal lockout   |  |
| /, and H.5,  |   |   |   |                            | MS16LCT   | = Low currer   | nt MS16T  |  |
| rts  |   |   |   |                            | MS17LCT   | = Low currer   | nt MS17T  |  |
| d. H.5 seal<br>ncludes the                                       |   |   | Electrical  | MS13                       | = Supplied v  | v/ threaded connector &  |   |  |
| R seals,<br>wire mesh  |   |   |   | Visual                     | MS14  | = Supplied v   | v/ 5 pin Brad Harrison<br>light (male end)                        |  |
| ght oil<br>exterior.   |   |   |   |                            |   | connector &  | light (male end)<br>above), direct current, w/                    |  |
| ered<br>Pont Dow   |   |   |   | Electrical                 | MS13DCT   | thermal lock   | out   |  |
|  |   |   |   | Visual<br>with             | MS13DCLCT   | = Low currer   |   |  |
| stered<br>lutia Inc.   |   |   |   | Thermal                    | MS14DCT   | thermal lock   | above), direct current,w/<br>out                                  |  |
| n supplied   |   |   |   | Lockout                    | MS14DCLCT   | = Low currer   | nt MS14DCT  |  |
| metric mounting holes.   |   |   |   |                            |   |  |   |  |

#### SAME DAY SHIPMENT MODEL AVAILABLE!

#### **Medium Pressure Filter K9**

Patent No. 7,604,738 for connecting end cap



#### Extremely versatile multiple inlet and outlet ports; can be used alone or in series with another K9

- Top loading for easy access for element change-out
- Allows consolidation of inventoried replacement elements by using K-size elements
- Multiple inlet and outlet porting options reduce the need for additional adaptors on installation
- Can be fitted with test ports for oil sampling
- Small profile allows filter to be mounted in tight areas
- Various Dirt Alarm<sup>®</sup> options

**Features and Benefits** 

- Meets HF4 automotive standard
- Available with Patented GeoSeal® Elements. See Section 8 - GeoSeal Filters (page 342) for details.
- Same day shipment model available

#### Model No. of filter in photograph is K91KZ5BP20NP20ND5C.



INDUSTRIAL



AGRICULTURE



POWER

GENERATION

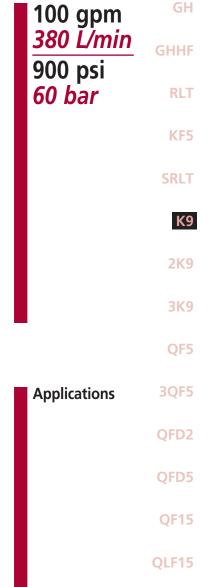


MACHINE

TOOL



MOBILE VEHICLES



SSQLF15

| Flow Rating:              | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids                 | Filter         |
|---------------------------|---|----------------|
| Max. Operating Pressure:  | 900 psi (60 bar)  | Housing        |
| Min. Yield Pressure:      | 3200 psi (220 bar), per NFPA T2.6.1                                   | Specifications |
| Rated Fatigue Pressure:   | 750 psi (52 bar) per NFPA T2.6.1-R1-2005                              |                |
| Temp. Range:              | -20°F to 225°F (-29°C to 107°C)                                       |                |
| Bypass Setting:           | Cracking: 40 psi (2.8 bar)<br>Full Flow: 80 psi (5.5 bar)             |                |
| Porting Head & Cap:       | Cast Aluminum   |                |
| Element Case:             | Steel   |                |
| Weight of K9-1K:          | 19 lbs. (8.6 kg)  |                |
| Weight of K9-2K:          | 30 lbs. (13.6 kg)   |                |
| Weight of K9-3K:          | 41 lbs. (18.6 kg)   |                |
| Element Change Clearance: | 8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K |                |
|                           |   |                |



#### SAME DAY SHIPMENT MODEL AVAILABLE!

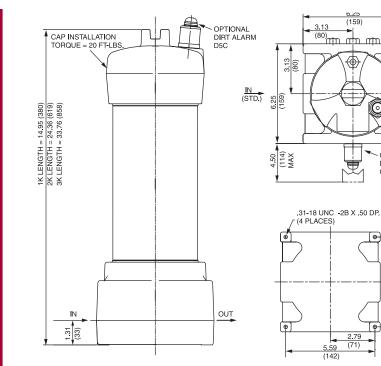
OUT

(STD.)

OPTIONAL DIRT ALARM OR ELECTRIC SWITCH

This filter is available in additional porting options not explicitly shown here. Contact factory for details.

2.81 .63 143) 1



**Medium Pressure Filter** 

Patent No. 7,604,738 for connecting end cap

#### Element Performance Information

|  |                     | o Per ISO 4572/NI<br>rticle counter (APC) cali | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                          |                           |
|--|---------------------|--|--|--------------------------|---------------------------|
| Element                                | β <sub>X</sub> ≥ 75 | β <sub>X</sub> ≥ 100                           | $\beta_X \ge 200$  | β <sub>χ</sub> (c) ≥ 200 | β <sub>X</sub> (c) ≥ 1000 |
| K3/KK3/27K3                            | 6.8                 | 7.5  | 10.0   | N/A                      | N/A                       |
| K10/KK10/27K10                         | 15.5                | 16.2   | 18.0   | N/A                      | N/A                       |
| KZ1/KKZ1/27KZ1                         | <1.0                | <1.0   | <1.0   | <4.0                     | 4.2                       |
| KZ3/KAS3/KKZ3/KKAS3/27KZ3/27KAS3       | <1.0                | <1.0   | <2.0   | <4.0                     | 4.8                       |
| KZ5/KAS5/KKZ5/KKAS5/27KZ5/27KAS5       | 2.5                 | 3.0  | 4.0  | 4.8                      | 6.3                       |
| KZ10/KAS10/KKZ10/KKAS10/27KZ10/27KAS10 | 7.4                 | 8.2  | 10.0   | 8.0                      | 10.0                      |
| KZ25/KKZ25/27KZ25                      | 18.0                | 20.0   | 22.5   | 19.0                     | 24.0                      |
| KZW1                                   | N/A                 | N/A  | N/A  | <4.0                     | <4.0                      |
| KZW3/KKZW3                             | N/A                 | N/A  | N/A  | 4.0                      | 4.8                       |
| KZW5/KKZW5                             | N/A                 | N/A  | N/A  | 5.1                      | 6.4                       |
| KZW10/KKZW10                           | N/A                 | N/A  | N/A  | 6.9                      | 8.6                       |
| KZW25/KKZW25                           | N/A                 | N/A  | N/A  | 15.4                     | 18.5                      |

| Dirt Holding | Element    | DHC (gm) | Element      | DHC (gm) | Element        | DHC (gm) | Element | DHC (gm) | Element | DHC (gm) |
|--------------|------------|----------|--------------|----------|----------------|----------|---------|----------|---------|----------|
| Capacity     | К3         | 54       | ККЗ          | 108      | 27K3           | 162      |         |          |         |          |
|              | K10        | 44       | KK10         | 88       | 27K10          | 132      |         |          |         |          |
|              | KZ1        | 112      | KKZ1         | 224      | 27KZ1          | 336      | KZW1    | 61       |         |          |
|              | KZ3/KAS3   | 115      | KKZ3/KKAS3   | 230      | 27KZ3/27KAS3   | 345      | KZW3    | 64       | KKZW3   | 128      |
|              | KZ5/KAS5   | 119      | KKZ5/KKAS5   | 238      | 27KZ5/27KAS5   | 357      | KZW5    | 63       | KKZW5   | 126      |
|              | KZ10/KAS10 | 108      | KKZ10/KKAS10 | 216      | 27KZ10/27KAS10 | 324      | KZW10   | 57       | KKZW10  | 114      |
|              | KZ25       | 93       | KKZ25        | 186      | 27KZ25         | 279      | KZW25   | 79       | KKZW25  | 158      |
|              |            |          |              |          |                |          |         |          |         |          |

Element Collapse Rating: 150 psid (10 bar) for standard elements Flow Direction: Outside In Element Nominal Dimensions:

K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long

27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

Metric dimensions in ( ).

#### **Medium Pressure Filter K9**

Patent No. 7,604,738 for connecting end cap

| Petroleun   | Type Fluid Appropriate Schroeder N  |   |   |  |  |   |  | Fluid  | GH                    |
|---|---|---|---|--|--|---|--|--|-----------------------|
| Petroleum Based Fluids All E media (cellulose), Z-M<br>High Water Content All Z-Media <sup>®</sup> (synthetic), 3,  |   |   |   |  |  |   |  | Compatibility  |                       |
| -   |   |   |   |  |  |   |  |  | GHHF                  |
|   |   |   |   | thetic), 10 μ ASP®   |  |   |  |  |                       |
| Water Glycols       3, 5, 10 and 25 µ Z-Media® (         Phosphate Esters       All Z-Media® (synthetic) with E media (cellulose) with H (Ell   |   |   |   |  |  | thetic)   |  | DIT  |                       |
|   |   |   |   |  |  | nedia (synthetic)   |  | RLT  |                       |
|   | Skydro  | removal)  | with H.5 seal desig   | <sup>®</sup> (synthetic) with H.<br>gnation (EPR seals a<br>using exterior), 3, 5  | nd stainles  | s steel wire me   | sh in element,   | Skydrol <sup>®</sup> is a registered trademark of Solutia Inc. | KF5                   |
| Pressure  | Elen<br>Series  | ient<br>Part No.  |   | ns are predicated o<br>d fluid and a 40 psi (  |  |   | St)  | Element<br>Selection   | SRLT                  |
|   |   | К3  |   | 1K3  |  | 2K3 <sup>†</sup>  | 3K3  | Based on   |                       |
|   | E   | K10   |   | 1K1  | 0  |   |  | Flow Rate  | К9                    |
|   | Media   | K25   | -   | 1K2  | 25   |   |  |  |                       |
| То  |   | KZ1   | -   | 1KZ1   |  | 2KZ   | 1 <sup>†</sup>   |  | 2K9                   |
| 900 psi   |   | KZ3   | -   | 1KZ3/KAS3/KI   | (73/27KAS  |   |  |  |                       |
| (60 bar)  | Z-  | KZ5   |   | 1KZ5/KAS5/KI   |  |   |  |  | 3K9                   |
|   | Media®  | KZ10  | -   | 1KZ10/KAS10/KI   |  |   |  |  | JRJ                   |
|   |   | KZ10  |   | 1KZ 10/KA310/KI  |  | 4310  |  |  | QF5                   |
|   |   | -   | 0 20  | 40   | 60   | 80  | 100  |  | QFS                   |
|   | Flow  | 512   | 0 50  | 150  |  | 250   | 380  |  |                       |
|   |   |   |   | replaced by single   | KK & 27K   | elements, resp  | ectively.  |  |                       |
| ote: Conta<br>pplication  | act factory red   | ments most<br>arding use o  | commonly used ir<br>of E media in Higl  | n this housing.<br>In Water Content, Ir<br>patibility: Fire Resi:  | nvert Emul   | sion and Wate   | r Glycol   | Pressure   | QFD2                  |
| ote: Conta<br>oplication<br><b>P<sub>housing</sub></b>  | act factory reg<br>s. For more in   | ments most<br>garding use of<br>formation, r  | commonly used ir<br>of E media in Higl<br>refer to Fluid com  | n this housing.<br>In Water Content, Ir<br>patibility: Fire Resis  | nvert Emul<br>stant Fluid  | lsion and Wate<br>ls, page 21 and   | r Glycol<br>22.  | Pressure   | QFD2<br>QFD5          |
| ote: Conta<br>pplication<br><b>P</b> <sub>housing</sub>   | act factory reg<br>s. For more in<br>for fluids wit   | ments most<br>garding use of<br>formation, r<br>h sp gr = 0.8   | commonly used ir<br>of E media in Higl<br>refer to Fluid com  | h this housing.<br>h Water Content, Ir<br>patibility: Fire Resis<br>ΔP <sub>element</sub><br>ΔP <sub>element</sub> = flow  | nvert Emul<br>stant Fluid<br>x element   | lsion and Wate<br>ls, page 21 and<br>∆P factor x visc   | r Glycol<br>22.  | Drop   |                       |
| ote: Conta<br>oplication<br>Phousing<br>∂ ∆P <sub>housing</sub><br>(50)   | act factory reg<br>s. For more in   | ments most<br>garding use of<br>formation, r<br>h sp gr = 0.8   | commonly used ir<br>of E media in Higl<br>refer to Fluid com  | n this housing.<br>In Water Content, Ir<br>patibility: Fire Resis  | nvert Emul<br>stant Fluid<br>x element<br>150 SUS (.   | lsion and Wate<br>ls, page 21 and<br>∆P factor x visc<br>32 cSt):   | r Glycol<br>22.<br>osity factor  |  |                       |
| te: Conta<br>pplication<br>$P_{housing}$<br>$\partial \Delta P_{housing}$<br>10<br>(50)   | act factory reg<br>s. For more in<br>for fluids wit<br>Flow (L  | ments most<br>garding use of<br>formation, r<br>h sp gr = 0.8<br>/min)  | commonly used ir<br>of E media in Higl<br>refer to Fluid com<br>36:   | this housing.<br>The Water Content, Ir<br>patibility: Fire Resist<br>$\Delta \mathbf{P}_{element}$ $\frac{\Delta \mathbf{P}_{element} = flow}{El. \ \Delta P \ factors \ @}$   | x element<br>550 SUS (.<br><u>1K</u>   | lsion and Wate<br>ls, page 21 and<br>∆P factor x visc<br>(32 cSt):<br><u>2K</u>   | r Glycol<br>22.<br>osity factor<br><u>3K</u>   | Drop<br>Information<br>Based on<br>Flow Rate                   | QFD5                  |
| ote: Conta<br>oplication<br>Phousing<br>∂ ∆P <sub>housing</sub><br>(50)   | act factory reg<br>s. For more in<br>for fluids wit<br>Flow (L  | ments most<br>garding use of<br>formation, r<br>h sp gr = 0.8<br>/min)  | commonly used ir<br>of E media in High<br>refer to Fluid com<br>36:   | h this housing.<br>h Water Content, Ir<br>patibility: Fire Resis<br>ΔP <sub>element</sub><br>ΔP <sub>element</sub> = flow  | nvert Emul<br>stant Fluid<br>x element<br>150 SUS (.   | lsion and Wate<br>ls, page 21 and<br>∆P factor x visc<br>32 cSt):   | r Glycol<br>22.<br>osity factor  | Drop<br>Information<br>Based on                                | QFD5<br>QF15          |
| bete: Conta<br>pplication<br>housing<br>) △Phousing<br>10 (50)<br>10 8  | act factory reg<br>s. For more in<br>for fluids wit<br>Flow (L  | ments most<br>garding use of<br>formation, r<br>h sp gr = 0.8<br>/min)  | commonly used ir<br>of E media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)                                      | this housing.<br>The Water Content, Ir<br>patibility: Fire Resist<br>$\Delta P_{element}$ $\Delta P_{element} = flow$ $El. \Delta P factors @$ $K3$ $K10$ $K25$  | x element<br>2 150 SUS (.<br>1 <b>K</b><br>.25<br>.09<br>.02   | lsion and Wate.<br>ls, page 21 and<br>∆P factor x visc<br>(32 cSt):<br>2K<br>.12<br>.05<br>.01  | r Glycol<br>22.<br>osity factor<br><u>3K</u><br>.08<br>.03<br>.01                                    | Drop<br>Information<br>Based on<br>Flow Rate                   | QFD5<br>QF15          |
| te: Conta<br>pplication<br>housing  | act factory reg<br>s. For more in<br>for fluids wit<br>Flow (L  | ments most<br>garding use of<br>formation, r<br>h sp gr = 0.8<br>/min)  | commonly used ir<br>of E media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)                                      | this housing.<br>The Water Content, Ir<br>patibility: Fire Resist<br>$\Delta P_{element}$<br>$\Delta P_{element} = flow$<br>EI. $\Delta P$ factors @<br>K3<br>K10<br>K25<br>KZ1  | x element<br><b>150 SUS (.</b><br><b>1K</b><br>.25<br>.09<br>.02<br>.20  | Ision and Wate<br>Is, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10   | r Glycol<br>22.<br>osity factor<br><u>3K</u><br>.08<br>.03<br>.01<br>.05                             | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| te: Conta<br>plication<br>housing<br>$\Delta P_{housing}$   | act factory reg<br>s. For more in<br>for fluids wit<br>Flow (L  | ments most<br>garding use of<br>formation, r<br>h sp gr = 0.8<br>/min)  | commonly used ir<br>of E media in High<br>refer to Fluid com<br>36:   | this housing.<br>The bound of the bound of th  | x element<br><b>150 SUS (.</b><br><b>1K</b><br>.25<br>.09<br>.02<br>.20<br>.10   | Ision and Wate<br>Is, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10<br>.05  | r Glycol<br>22.<br>osity factor<br><u>3K</u><br>.08<br>.03<br>.01<br>.05<br>.03                      | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| te: Conta<br>plication<br>housing<br>$\Delta P_{housing}$   | act factory reg<br>s. For more in<br>for fluids wit<br>Flow (L  | ments most<br>garding use of<br>formation, r<br>h sp gr = 0.8<br>/min)  | commonly used ir<br>of E media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(tropped)<br>a                    | this housing.<br>The Water Content, Ir<br>patibility: Fire Resist<br>$\Delta P_{element}$<br>$\Delta P_{element} = flow$<br>EI. $\Delta P$ factors @<br>K3<br>K10<br>K25<br>KZ1  | x element<br><b>150 SUS (.</b><br><b>1K</b><br>.25<br>.09<br>.02<br>.20  | Ision and Wate<br>Is, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10   | r Glycol<br>22.<br>osity factor<br><u>3K</u><br>.08<br>.03<br>.01<br>.05                             | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| te: Conta<br>pplication<br>housing  | act factory reg<br>s. For more in<br>for fluids wit<br>Flow (L  | ments most<br>garding use of<br>formation, r<br>h sp gr = 0.8<br>/min)  | commonly used ir<br>of E media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(tropped)<br>a                    | A this housing.<br>A Water Content, Ir<br>patibility: Fire Resis<br>ΔP <sub>element</sub><br>EI. ΔP factors @<br>K3<br>K10<br>K25<br>KZ1<br>KZ3/KAS3<br>KZ5/KAS5   | x element<br><b>150 SUS (.</b><br><b>1K</b><br>.25<br>.09<br>.02<br>.20<br>.10<br>.08  | Ision and Wate.<br>Is, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10<br>.05<br>.04  | r Glycol<br>22.<br>osity factor<br><u>3K</u><br>.08<br>.03<br>.01<br>.05<br>.03<br>.02               | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| te: Conta<br>pplication<br>housing<br>10 Phousing<br>10 (50)<br>10 (   | for fluids wit<br>Flow (L<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>( | ments most<br>formation, r<br>h sp gr = 0.8<br>(min)<br>(250)   | commonly used ir<br>of <i>E</i> media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(0.50)<br>(0.25)           | A this housing.<br>A Water Content, Ir<br>patibility: Fire Resis<br>ΔP <sub>element</sub><br>EI. ΔP factors @<br>K3<br>K10<br>K25<br>KZ1<br>KZ3/KAS3<br>KZ5/KAS5<br>KZ10/KAS10   | x element<br>2 150 SUS (.<br>150 S | lsion and Wate,<br>ls, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10<br>.05<br>.04<br>.03<br>.02  | r Glycol<br>22.<br>osity factor<br>.08<br>.03<br>.01<br>.05<br>.03<br>.02<br>.02                     | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| te: Conta<br>pplication<br>housing<br>10 Phousing<br>10 (50)<br>10 (   | for fluids wit<br>Flow (L<br>(150)  | ments most<br>formation, r<br>h sp gr = 0.8<br>(min)<br>(250)   | commonly used ir<br>of <i>E</i> media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(0.50)<br>(0.25)           | this housing.<br>$\Delta P_{element}$<br>$\Delta P_{element} = flow$<br><i>El.</i> $\Delta P$ factors @<br>K3<br>K10<br>K25<br>KZ1<br>KZ3/KAS3<br>KZ5/KAS5<br>KZ10/KAS10<br>KZ25   | x element<br><b>150 SUS (.</b><br><b>1K</b><br>.25<br>.09<br>.02<br>.20<br>.10<br>.08<br>.05<br>.04<br><b>1K</b>   | Ision and Wate.<br>Is, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10<br>.05<br>.04<br>.03   | r Glycol<br>22.<br>osity factor<br>.08<br>.03<br>.01<br>.05<br>.03<br>.02<br>.02                     | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| te: Conta<br>plication<br>housing<br>) △Phousing<br>(50)<br>10<br>8<br>6<br>4<br>2<br>0<br>0  | for fluids wit<br>Flow (L<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>(150)<br>( | ments most<br>formation, r<br>h sp gr = 0.8<br>(min)<br>(250)   | commonly used ir<br>of <i>E</i> media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(0.50)<br>(0.25)           | A this housing.<br>A Water Content, Ir<br>patibility: Fire Resis<br>ΔP <sub>element</sub><br>EI. ΔP factors @<br>K3<br>K10<br>K25<br>KZ1<br>KZ3/KAS3<br>KZ5/KAS5<br>KZ10/KAS10   | x element<br>2 150 SUS (.<br>150 S | lsion and Wate,<br>ls, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10<br>.05<br>.04<br>.03<br>.02  | r Glycol<br>22.<br>osity factor<br>.08<br>.03<br>.01<br>.05<br>.03<br>.02<br>.02                     | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| pte: Conta<br>pplication<br>housing<br>$\Delta P_{housing}$<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50)<br>(50  | for fluids wit<br>Flow (L<br>(150)<br>Flow (L<br>(150)<br>Flow (L<br>(150)<br>Flow (L<br>Flow (L<br>Flow (L)<br>Flow (L)<br>Fl  | ments most<br>formation, r<br>h sp gr = 0.8<br>(min)<br>(250)<br>60 80<br>pm 80   | commonly used ir<br>of <i>E</i> media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(0.25)<br>(0.25)<br>(0.25) | this housing.<br>A Water Content, Ir<br>patibility: Fire Resis<br>△Pelement<br>CPelement = flow<br>EI. △P factors @<br>K3<br>K10<br>K25<br>K21<br>KZ3/KAS3<br>KZ5/KAS5<br>KZ10/KAS10<br>KZ25<br>KZW1<br>KZW3<br>KZW3<br>KZW5   | nvert Emul<br>stant Fluid<br>x element<br>2 150 SUS (<br>150 SUS (<br>150 SUS (<br>20<br>.09<br>.02<br>.20<br>.10<br>.08<br>.05<br>.04<br><b>1K</b><br>.43<br>.32<br>.28   | lsion and Wate,<br>ls, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10<br>.05<br>.04<br>.03<br>.02<br>2K<br>.16<br>.14                                    | r Glycol<br>22.<br>osity factor<br>.08<br>.03<br>.01<br>.05<br>.03<br>.02<br>.02                     | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| bote: Conta<br>polication<br>Phousing<br>D 	Phousing<br>D 	Phousing<br>0 	Phousing   | for fluids wit<br>Flow (L<br>(150)<br>Flow (L<br>(150)<br>Flow (L<br>(150)<br>Flow (L<br>Flow (L<br>Flow (L)<br>Flow (L)<br>Fl  | ments most<br>formation, r<br>h sp gr = 0.8<br>(min)<br>(250)<br>60 80<br>pm 80   | commonly used ir<br>of E media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(0.25)                            | a this housing.<br>b Water Content, Ir<br>patibility: Fire Resis<br>$\Delta P_{element}$<br>$\Delta P_{element} = flow$<br>EI. $\Delta P$ factors @<br>K3<br>K10<br>K25<br>KZ1<br>KZ3/KAS3<br>KZ5/KAS5<br>KZ10/KAS10<br>KZ25<br>KZW1<br>KZW3<br>KZW5<br>KZW10  | nvert Emul<br>stant Fluid<br>x element<br>2 150 SUS (<br>150 SUS (<br>150 SUS (<br>20<br>.09<br>.02<br>.20<br>.10<br>.08<br>.05<br>.04<br><b>1K</b><br>.43<br>.32<br>.28<br>.23  | lsion and Wate,<br>ls, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10<br>.05<br>.04<br>.03<br>.02<br>2K<br>.16<br>.14<br>.12                             | r Glycol<br>22.<br>osity factor<br>.08<br>.03<br>.01<br>.05<br>.03<br>.02<br>.02                     | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| ote: Conta<br>pplication<br>Phousing<br>9 ΔPhousing<br>10 (50)<br>10 | for fluids wit<br>Flow (L<br>(150)<br>Flow (L)<br>(150)<br>Flow (L)<br>Flow (L)<br>(150)<br>Flow (L)<br>(150)<br>(150)<br>Flow (L)<br>(150)<br>Flow (L)<br>(150)<br>Flo  | ments most<br>parding use of<br>formation, r<br>h sp gr = 0.8<br>(min)<br>(250)<br>60<br>80<br>pm<br>be based on<br>he Element So                       | commonly used ir<br>of <i>E</i> media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(0.25)<br>(0.25)<br>(0.25) | A this housing.<br>A Water Content, Ir<br>patibility: Fire Resis<br>ΔP <sub>element</sub><br>ΔP <sub>element</sub> = flow<br>El. ΔP factors @<br>K3<br>K10<br>K25<br>KZ1<br>KZ3/KAS3<br>KZ5/KAS5<br>KZ10/KAS10<br>KZ25<br>KZW1<br>KZW3<br>KZW5<br>KZW1<br>KZW3<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW25  | x element<br>2 150 SUS (.<br>1K<br>.25<br>.09<br>.02<br>.20<br>.10<br>.08<br>.05<br>.04<br>1K<br>.43<br>.32<br>.28<br>.23<br>.14   | Ision and Wates (s, page 21 and 0) △P factor x visc (32 cSt): 2K .12 .05 .01 .10 .05 .01 .01 .03 .02 2K .16 .14 .12 .07   | r Glycol<br>22.<br>osity factor<br><u>3K</u><br>.08<br>.03<br>.01<br>.05<br>.03<br>.02<br>.02<br>.01 | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| ote: Conta<br>pplication<br>Phousing<br>$9 \Delta P_{housing}$<br>10 (50)<br>10 (5  | for fluids wit<br>Flow (L<br>(150)<br>Flow (L<br>(150)<br>Flow (L<br>(150)<br>Flow (L<br>Flow (L<br>Flow (L)<br>Flow (L)<br>Fl  | ments most<br>parding use of<br>formation, r<br>h sp gr = 0.8<br>(min)<br>(250)<br>60<br>80<br>pm<br>be based on<br>he Element So                       | commonly used ir<br>of <i>E</i> media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(0.25)<br>(0.25)<br>(0.25) | A this housing.<br>A Water Content, Ir<br>patibility: Fire Resis<br>ΔPelement<br>ΔPelement = flow<br>EI. ΔP factors @<br>K3<br>K10<br>K25<br>K21<br>K23/KAS3<br>K25/KAS5<br>K210/KAS10<br>K225<br>KZW1<br>KZW3<br>KZW5<br>KZW1<br>KZW3<br>KZW5<br>KZW10<br>KZW25<br>If working in unit   | x element<br>5 150 SUS (.<br>1K<br>.25<br>.09<br>.02<br>.20<br>.10<br>.08<br>.05<br>.04<br>1K<br>.43<br>.32<br>.28<br>.23<br>.14<br>sof bars & L   | lsion and Wates<br>(s, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10<br>.05<br>.04<br>.03<br>.02<br>2K<br>.16<br>.14<br>.12<br>.07<br>/min, divide abox | r Glycol<br>22.<br>osity factor<br><u>3K</u><br>.08<br>.03<br>.01<br>.05<br>.03<br>.02<br>.02<br>.01 | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15<br>QLF15 |
| ote: Conta<br>pplication<br>$P_{housing}$<br>9 $\Delta P_{housing}$<br>10 (50)<br>10 (50)  | act factory reg<br>s. For more in<br>for fluids wit<br>Flow (L<br>(150)<br>20 40<br>Flow g<br>cific gravity<br>ments should<br>provided in th<br>Phousing + ΔP  | ments most<br>parding use of<br>formation, r<br>h sp gr = 0.8<br>(min)<br>(250)<br>60<br>80<br>be based on<br>the Element So<br>element<br>n (303 L/mir | commonly used ir<br>of E media in High<br>refer to Fluid com<br>36:<br>(350)<br>(0.50)<br>(0.25)<br>100                     | a this housing.<br>b Water Content, Ir<br>patibility: Fire Resis<br>$\Delta P_{element}$<br>$\Delta P_{element} = flow$<br>El. $\Delta P$ factors @<br>K3<br>K10<br>K25<br>KZ1<br>KZ3/KAS3<br>KZ5/KAS5<br>KZ10/KAS10<br>KZ25<br>KZW1<br>KZW3<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW10<br>KZW5<br>KZW7<br>KZW5<br>KZW10<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW7<br>KZW5<br>KZW7<br>KZW7<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW5<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZW7<br>KZY7<br>KZW7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7<br>KZY7 | x element<br>5 150 SUS (.<br>1K<br>.25<br>.09<br>.02<br>.20<br>.10<br>.08<br>.05<br>.04<br>1K<br>.43<br>.32<br>.28<br>.23<br>.14<br>sof bars & L   | lsion and Wates<br>(s, page 21 and<br>△P factor x visc<br>32 cSt):<br>2K<br>.12<br>.05<br>.01<br>.10<br>.05<br>.04<br>.03<br>.02<br>2K<br>.16<br>.14<br>.12<br>.07<br>/min, divide abox | r Glycol<br>22.<br>osity factor<br><u>3K</u><br>.08<br>.03<br>.01<br>.05<br>.03<br>.02<br>.02<br>.01 | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity  | QFD5<br>QF15          |

Solution:

$$\Delta P_{\text{housing}} = 6.0 \text{ psi } [.41 \text{ bar}]$$
  

$$\Delta P_{\text{element}} = 80 \times .03 \times (200 \div 150) = 3.2 \text{ psi}$$
  
or  
= [303 x (.03 \div 54.9) x (44 \div 32) = .23 \text{ bar}]  

$$\Delta P_{\text{total}} = 6.0 + 3.2 = 9.2 \text{ psi}$$
  
or  
= [.41 + .23 = .64 \text{ bar}]



### **Medium Pressure Filter**

Patent No. 7,604,738 for connecting end cap

#### Filter Model Number Selection

| How to Build a Valid Model Number for a Schroeder 2K9: |                |                               |                   |         |  |  |  |
|--|----------------|-------------------------------|-------------------|---------|--|--|--|
| вох 1 е<br>К9 –  | BOX 2 BOX 3    | BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 |                   |         |  |  |  |
| Example:   | NOTE: One opti | on per box                    |                   |         |  |  |  |
| вох 1 е<br>К9 –  |                |                               | 05 = K91KZ10BP16K | NP16ND5 |  |  |  |
| BOX 1  | BOX 2          | BOX 3                         | BOX 4             | BOX 5   |  |  |  |

| BOX I BOX     |                               | BOX 3  | BOX 4  | BOX 3                                       |
|---------------|-------------------------------|--|--|---|
| Filte<br>Seri |                               | Media Type   | Micron Rating  | Seal<br>Material                            |
| K             | <b>)</b> <sup>1</sup> К,КК,27 | Omit = E-media (cellulose)   | 1 = 1 µ Z, ZW, ZX media  | B = Buna N                                  |
|               | 2 K<br>3 K                    | Z = Excellement® Z-Media®<br>AS = Anti-Stat Pleat media (synthetic)                          | $3 = 3 \mu$ AS, E, Z, ZW, ZX media<br>$5 = 5 \mu$ AS, Z, ZW, ZX media  | V = Viton®<br>H = EPR                       |
| Ро            | rting Options                 | ZW = Aqua-Excellement®ZW media<br>ZX = Excellement® Z-Media®                                 | $10 = 10 \mu AS, E, M, Z, ZW,$<br>ZX media   | H.5 = Skydrol <sup>®</sup><br>Compatibility |
|               |                               | (high collapse centertube)<br>W = W media (water removal)<br>M = media (reusable metal mesh) | 25 = 25 $\mu$ E, M, Z, ZW, ZX media<br>60 = 60 $\mu$ M media<br>150 = 150 $\mu$ M media<br>260 = 260 $\mu$ M media |   |

|   | BOX 6 Specification  | of all 4 ports is re   | quired   | BOX 7   |
|---|--|--|--|---|
|   | Рог  | rting  |  | Options   |
| Port 1 (standard)   | Port 2   | Port 3   | Port 4   | Omit=None   |
| N = None  | N = None   | N = None   | N = None   | X=Blocked bypass  |
| P16 = 1" NPTF<br>P20 = 1 <sup>1</sup> / <sub>4</sub> " NPTF<br>P24 = 1 <sup>1</sup> / <sub>2</sub> " NPTF |  | P16 = 1 " NPTF<br>P20 = 1 <sup>1</sup> / <sub>4</sub> " NPTF<br>P24 = 1 <sup>1</sup> / <sub>2</sub> " NPTF | P16 = 1" NPTF<br>P20 = 1¼" NPTF<br>P24 = 1½" NPTF  | U=Test point in cap<br>(upstream)<br>UU=Test points in  |
|   | F16 = 1" SAE 4-bolt flange Code 61<br>F20 = $1\frac{1}{4}$ " SAE 4-bolt flange Code 61<br>F24 = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61 | S16 = SAE-16<br>S20 = SAE-20<br>S24 = SAE-24   | F16 = 1" SAE 4-bolt flange Code 61<br>F20 = $1\frac{1}{4}$ " SAE 4-bolt flange Code 61<br>F24 = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61 | block (upstream<br>and downstream<br>10 = 10 psi bypass |
| B16 = ISO 228<br>G-1"<br>B20 = ISO 228  | S16 = SAE-16<br>S20 = SAE-20<br>S24 = SAE-24   | B16 = ISO 228<br>G-1"<br>B20 = ISO 228   | S16 = SAE-16<br>S20 = SAE-20<br>S24 = SAE-24   | 20=20 psi bypass<br>setting                             |
| B24 = 150 228<br>G=11/2"  | B16 = ISO 228 G-1"<br>B20 = ISO 228 G-1¼"<br>B24 = ISO 228 G-1½"   | G-1¼"<br>B24 = ISO 228<br>G-1½"  | B16 = ISO 228 G-1"<br>B20 = ISO 228 G-1¼"<br>B24 = ISO 228 G-1½"   | 25 = 25 psi bypass<br>setting<br>30 = 30 psi bypass     |
|   |  |  |  | cotting   |

| <ul> <li>X=Blocked bypass</li> <li>U=Test point in cap<br/>(upstream)</li> <li>UU=Test points in<br/>block (upstream<br/>and downstream</li> <li>10 psi bypass<br/>setting</li> <li>20 = 20 psi bypass<br/>setting</li> <li>25 = 25 psi bypass<br/>setting</li> <li>30 = 30 psi bypass<br/>setting</li> <li>40 = 40 psi bypass<br/>setting</li> <li>60 = 60 psi bypass<br/>setting</li> <li>75 = 75 psi bypass</li> </ul> |                                   |
|---|-----------------------------------|
| (upstream)<br>UU=Test points in<br>block (upstream<br>and downstream<br>10=10 psi bypass<br>setting<br>20=20 psi bypass<br>setting<br>30=30 psi bypass<br>setting<br>40=40 psi bypass<br>setting<br>60=60 psi bypass<br>setting   | X=Blocked bypass                  |
| block (upstream<br>and downstream<br>10 = 10 psi bypass<br>setting<br>20 = 20 psi bypass<br>setting<br>25 = 25 psi bypass<br>setting<br>30 = 30 psi bypass<br>setting<br>40 = 40 psi bypass<br>setting<br>60 = 60 psi bypass<br>setting   | U=Test point in cap<br>(upstream) |
| setting<br>20 = 20 psi bypass<br>setting<br>25 = 25 psi bypass<br>setting<br>30 = 30 psi bypass<br>setting<br>40 = 40 psi bypass<br>setting<br>60 = 60 psi bypass<br>setting  | block (upstream                   |
| setting<br>25=25 psi bypass<br>setting<br>30=30 psi bypass<br>setting<br>40=40 psi bypass<br>setting<br>60=60 psi bypass<br>setting   | 10 = 10 psi bypass<br>setting     |
| setting<br>30 = 30 psi bypass<br>setting<br>40 = 40 psi bypass<br>setting<br>60 = 60 psi bypass<br>setting  |                                   |
| setting<br>40 = 40 psi bypass<br>setting<br>60 = 60 psi bypass<br>setting   |                                   |
| setting<br>60=60 psi bypass<br>setting  |                                   |
| setting   | 40 = 40 psi bypass<br>setting     |
| 75 = 75 psi bypass  |                                   |
|   | 75 = 75 psi bypass                |

setting

- NOTES:
- Box 2. Double and triple stacking of K-size elements can be replaced by KK and 27K elements, respectively. Number of elements must equal 1 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5. ZW media not available in 27K length.
- Box 5. For options H, V, and H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trade-mark of Solutia Inc.
- Box 8. If location 1 is used as inlet port, dirt alarm will occupy location 2. If location 2 is used as inlet port, dirt alarm will occupy location 1. If dual inlet ports are specified, the only dirt alarm option is pop-up indicator in cap (D5C).

|  | Dirt Alarm <sup>®</sup> Options  |
|--|--|
|  | Omit = <sup>None</sup>   |
| Visual                                       | D5 = Visual pop-up<br>D5C = D5 in cap  |
| Visual with Thermal<br>Lockout               | <sub>D8 =</sub> Visual w/ thermal lockout<br><sub>D8C =</sub> D8 in cap  |
| Electrical                                   | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5<br>MS10_E Electrical w/ DIN connector (male end only)<br>MS10LC = Low current MS10<br>MS11_E Electrical w/ 12 ft. 4-conductor wire<br>MS12_E Electrical w/ 5 pin Brad Harrison connector (male end only)<br>MS12LC = Low current MS12<br>MS16_E Electrical w/ weather-packed sealed connector<br>MS16LC = Low current MS16<br>MS17LC = Electrical w/ 4 pin Brad Harrison male connector |
| Electrical with<br>Thermal<br>Lockout        | MS5T = MS5 (see above) w/ thermal lockout<br>MS5LCT = Low current MS5T<br>MS10T = MS10 (see above) w/ thermal lockout<br>MS10LCT = Low current MS10T<br>MS12T = MS12 (see above) w/ thermal lockout<br>MS12LCT = Low current MS12T<br>MS16T = Low current MS16T<br>MS16LT = Low current MS16T<br>MS17LCT = Low current MS17T   |
| Electrical<br>Visual                         | MS13 = Supplied w/ threaded connector & light<br>MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)   |
| Electrical Visual<br>with Thermal<br>Lockout | MS13DCT = MS13 (see above), direct current, w/ thermal lockout<br>MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current, w/ thermal lockout<br>MS14DCLCT = Low current MS14DCT   |

BOX 8

### Single Pass Filter Kit **2K9** Patent No. 7,604,738 for connecting end cap





Custom 2K9, contact factory for details.

AUTOMOTIVE MANUFACTURING

POWER

GENERATION

INDUSTRIAL

AGRICULTURE

| Features and Benefits   | 100 gpm<br><i>380 L/min</i> | GH         |
|---|-----------------------------|------------|
| Two patent-pending K9 filters supplied<br>in series as a single filter assembly<br>providing in-line single pass particulate    | 900 psi                     | GHHF       |
| and water filtration <ul> <li>Meets HF4 automotive standard</li> </ul>  | 60 bar                      | RLT        |
| <ul> <li>900 psi rating covers almost all transfer<br/>line pressure specs including air driven<br/>transfer systems</li> </ul> |                             | KF5        |
| <ul> <li>Top loading for easy access for element<br/>changeout</li> </ul>   |                             | SRLT       |
| <ul> <li>Allows consolidation of inventoried<br/>elements by using K-size elements</li> </ul>                                   |                             | K9         |
| <ul> <li>Can be fitted with test points for oil<br/>sampling</li> </ul>   |                             |            |
| <ul> <li>Available with Patented GeoSeal<sup>®</sup></li> <li>Elements. See Section 8 – GeoSeal</li> </ul>                      |                             | 2K9        |
| Filters (page 343) for details.   |                             | <b>3K9</b> |
|   | •                           | QF5        |
|   | Applications                | 3QF5       |
| STEEL MOBILE  |                             | QFD2       |
| MAKING VEHICLES   |                             | QFD5       |
|   |                             | QF15       |
|   |                             | QLF15      |
|   | s                           | SQLF15     |
|   |                             |            |
|   |                             |            |

| Flow Rating              | : Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids                   | Filter         |
|--------------------------|---|----------------|
| Max. Operating Pressure  | : 900 psi (60 bar)  | Housing        |
| Min. Yield Pressure      | : 3200 psi (220 bar), per NFPA T2.6.1                                     | Specifications |
| Rated Fatigue Pressure   | : 750 psi (52 bar) per NFPA T2.6.1-R1-2005                                |                |
| Temp. Range              | : -20°F to 225°F (-29°C to 107°C)   |                |
| Bypass Setting           | : Cracking: 40 psi (2.8 bar) each filter housing                          |                |
| Porting Base & Cap       | : Cast Aluminum   |                |
| Element Case             | : Steel   |                |
| Element Change Clearance | : 8.50" (215 mm) for 1K; 17.5" (445 mm) for KK;<br>26.5" (673 mm) for 27K |                |

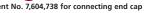
MACHINE TOOL

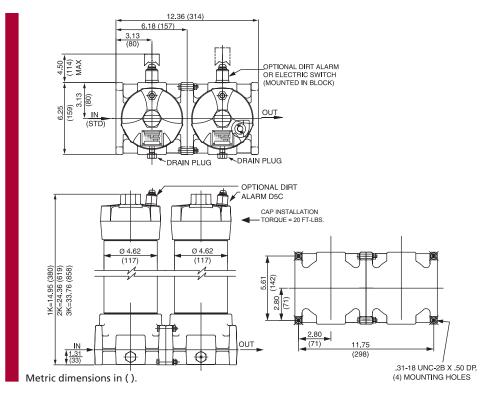
PULP & PAPER

0  $\odot$ 0 O



Single Pass Filter Kit Patent No. 7,604,738 for connecting end cap





| Element<br>Performance |  |                  | io Per ISO 4572/N<br>article counter (APC) ca |                   |                      | <b>per ISO 16889</b><br>ted per ISO 11171 |
|------------------------|--|------------------|---|-------------------|----------------------|---|
| Information            | Element                                    | $\beta_X \ge 75$ | $\beta_X \ge 100$                             | $\beta_X \ge 200$ | $\beta_X(c) \ge 200$ | $\beta_X(c) \ge 1000$                     |
|                        | KZ1/KKZ1/27KZ1                             | <1.0             | <1.0  | <1.0              | <4.0                 | 4.2                                       |
|                        | KZ3/KKZ3/27KZ3/KAS3/<br>KKAS3/27KAS3       | <1.0             | <1.0  | <2.0              | <4.0                 | 4.8                                       |
|                        | KZ5/KKZ5/27KZ5/KAS5/<br>KKAS5/27KAS5       | 2.5              | 3.0   | 4.0               | 4.8                  | 6.3                                       |
|                        | KZ10/KKZ10/27KZ10/KAS10/<br>KKAS10/27KAS10 | 7.4              | 8.2   | 10.0              | 8.0                  | 10.0                                      |
|                        | KZ25/KKZ25/27KZ25                          | 18.0             | 20.0  | 22.5              | 19.0                 | 24.0                                      |
|                        | KZW1                                       | N/A              | N/A   | N/A               | <4.0                 | <4.0                                      |
|                        | KZW3/KKZW3                                 | N/A              | N/A   | N/A               | 4.0                  | 4.8                                       |
|                        | KZW5/KKZW5                                 | N/A              | N/A   | N/A               | 5.1                  | 6.4                                       |
|                        | KZW10/KKZW10                               | N/A              | N/A   | N/A               | 6.9                  | 8.6                                       |
|                        | KZW25/KKZW25                               | N/A              | N/A   | N/A               | 15.4                 | 18.5                                      |

| Dirt Holding | Element                     | DHC (gm)   | Element          | DHC (gm)  | Element            | DHC (gm)                         | Element | DHC (gm) | Element | DHC (gm) |
|--------------|-----------------------------|------------|------------------|-----------|--------------------|----------------------------------|---------|----------|---------|----------|
| Capacity     | KZ1                         | 112        | KKZ1             | 224       | 27KZ1              | 336                              | KZW1    | 61       |         |          |
|              | KZ3/<br>KAS3                | 115        | KKZ3/<br>KKAS3   | 230       | 27KZ3/<br>27KAS3   | 345                              | KZW3    | 64       | KKZW3   | 128      |
|              | KZ5/<br>KAS5                | 119        | KKZ5/<br>KKAS5   | 238       | 27KZ5/<br>27KAS5   | 357                              | KZW5    | 63       | KKZW5   | 126      |
|              | KZ10/<br>KAS10              | 108        | KKZ10/<br>KKAS10 | 216       | 27KZ10/<br>27KAS10 | 324                              | KZW10   | 57       | KKZW10  | 114      |
|              | KZ25                        | 93         | KKZ25            | 186       | 27KZ25             | 279                              | KZW25   | 79       | KKZW25  | 158      |
|              |                             | Element Co | llapse Ratii     | ng: 150 p | sid (10 bar) fo    | r standard eler                  | ments   |          |         |          |
|              | on: Outsic                  | le In      |                  |           |                    |                                  |         |          |         |          |
|              | Element Nominal Dimensions: |            |                  |           |                    | n) O.D. x 9.0'<br>n) O.D. x 18.( | . ,     | 5        |         |          |

27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

# Single Pass Filter Kit **2K9**

Pressure

Based on

Flow Rate

and Viscosity

Information

Drop

**K9** 

SSQLF15

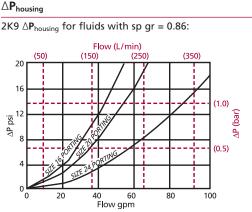
| Type Fluid             | Appropriate Schroeder Media  | Fluid   | GH   |
|------------------------|--|---|------|
| Petroleum Based Fluids | All Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic)  | Compatibility   |      |
| High Water Content     | All Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic)  |   | GHHF |
| Invert Emulsions       | 10 and 25 $\mu$ Z-Media® and 10 $\mu$ ASP® media (synthetic)   |   |      |
| Water Glycols          | 3, 5, 10 and 25 $\mu$ Z-Media®, 3, 5 and 10 $\mu$ ASP® media (synthetic)   |   | RLT  |
| Phosphate Esters       | All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 $\mu$ E media (cellulose) with H (EPR) seal designation  |   | RL I |
| Skydrol®               | 3, 5, 10 and 25 $\mu$ Z-Media <sup>®</sup> (synthetic) with H.5 seal designation and W media (water removal) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior), 3, 5 and 10 $\mu$ ASP <sup>®</sup> Media (synthetic) | Skydrol® is a registered<br>trademark of Solutia Inc. | KF5  |

Element Element selections are predicated on the use of 150 SUS (32 cSt) Element petroleum based fluid and a 40 psi (2.8 bar) bypass valve. Pressure Series Part No. Selection KZ1 1KZ1  $2KZ1^{\dagger}$ Based on KZ3 1KZ3/KAS3/KKAS3/27KAS3 Flow Rate **2K**9 То Z-KZ5 1KZ5/KAS5/KKAS5/27KAS5 900 psi Media® (60 bar) KZ10 1KZ10/KAS10/KKAS10/27KAS10 **3K9** KZ25 1KZ25 gpm 0 20 40 60 80 100 Flow Ò (L/min) 50 150 250 380

†Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively. Same flow rate applies.

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.

 $\triangle \mathbf{P}_{element}$ 



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.  $\triangle P_{element}$ = flow x element  $\triangle P$  factor x viscosity factor El. △P factors @ 150 SUS (32 cSt): 1K 2K/KK 3K/27K K25 .02 .01 .01 KZ1 .20 .10 .05 KZ3/KAS3 .10 .05 .03 KZ5/KAS5 .08 .04 .02 KZ10/KAS10 .05 .03 .02 KZ25 04 .02 01 1K 2K KZW1 .43 KZW3 .32 .16 KZW5 .28 .14 .23 .12 **KZW10** KZW25 14 .07

If working in units of bars & L/min, divide above factor by 54.9. Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

 $\triangle \mathbf{P}_{\text{filter}} = \triangle \mathbf{P}_{\text{housing}} + \triangle \mathbf{P}_{\text{element}}$ 

#### Exercise:

Determine △P at 80 gpm (303 L/min) for 2K9209DBBP24P24 using 150 SUS (32 cSt) fluid.

#### Solution:

 $\Delta P_{\text{housing}} = 12.0 \text{ psi} [0.8 \text{ bar}]$ 

$$\Delta P_{\text{element1}} = 80 \text{ x } .03 = 2.4 \text{ psi } [0.2 \text{ bar}]$$

 $\Delta P_{total}$ = 12.0 + 2.4 + 4.0 = 18.4 psi [1.3 bar]



# Single Pass Filter Kit Patent No. 7,604,738 for connecting end cap

| Filter<br>Model   | BOX 1 BOX 2 B       | a Valid N     |  | mber for a Schroe   | eder 2K9:<br>BOX 9 BOX 10   |                    |
|---|---------------------|---------------|--|---|---|--------------------|
| Number  | 2K9                 |               |  |   | F   |                    |
| Selection   | Example: NOTE: C    | One option pe |  | DX 6 BOX 7 BOX 8  | BOX 9 BOX 10  |                    |
|   |                     | 09 – D        |  | B – P16 – P16 –   |   | 9109DBBP16P16D5    |
|   | BOX 1 BOX 2         |               | BOX 3  | BOX 4   | BOX 5   |                    |
|   | Filter Number       |               | ngth of  | First Housing   | Second Housing  | Element            |
|   | Series Elemen       | nts El        | ements   | Element Micron Rating   | Micron Rat<br>A = 1 μ Z-Media   | ing                |
|   | 2K9 1               |               | Size Element                                     | $A = 1 \mu Z$ -Media <sup>®</sup> $A = 1 \mu Z$ -Media <sup>®</sup> $B = 3 \mu Z$ -Media <sup>®</sup> |   |                    |
|   | 3                   |               | 'K Size Element                                  | $C = 5 \mu Z$ -Media®   | $C = 5 \mu Z$ -Media  |                    |
|   |                     |               |  | D = 10 µ Z-Media <sup>®</sup>   | D = 10 µ Z-Medi   |                    |
|   |                     |               |  | $E = 25 \ \mu Z$ -Media <sup>®</sup><br>F = W Water Removal   | E = 25 µ Z-Medi<br>F = W Water Rei  |                    |
|   |                     |               |  | $G = 1 \mu ZW$ -media   |   |                    |
|   |                     |               |  | $H = 3 \mu$ ZW-media  | G = 1 μ ZW-med<br>H = 3 μ ZW-med  |                    |
|   |                     |               |  | J = 5 µ ZW-media  | $J = 5 \mu$ ZW-med  |                    |
|   |                     |               |  | $K = 10 \mu$ ZW-media   | $K = 10 \mu ZW$ -med  |                    |
|   |                     |               |  | L = 25 µ ZW-media<br>M = 3 µ AS-media   | L = 25 $\mu$ ZW-me<br>M = 3 $\mu$ AS-media  |                    |
|   |                     |               |  | $N = 5 \mu AS-media$<br>N = 5 $\mu AS-media$  | $N = 5 \mu$ AS-media  |                    |
|   |                     |               |  | $O = 10 \mu$ AS-media   | $O = 10 \mu$ AS-med   |                    |
|   | BOX 6               |               |  | BOX 7   | BOX   | . 8                |
|   | Seal Mate           | rial          |  | "In"<br>Porting   | "Ou<br>Porti  |                    |
|   | B = Buna N          |               | P16 = 1" NPT                                     | F   | P16 = 1" NPTF   |                    |
|   | V = Viton®          |               | $P20 = 1^{1}_{.4}$ " N<br>P24 = $1^{1}_{.2}$ " N |   | $P20 = 1^{1}_{4}$ " NPTF<br>$P24 = 1^{1}_{2}$ " NPTF  |                    |
|   | H = EPR             |               | B16 = ISO 22                                     | 8 G-1"  | B16 = ISO 228 G-1   |                    |
|   | H.5 = Skydrol® C    | ompatible     | B20 = ISO 22<br>B24 = ISO 22                     |   | B20 = ISO 228 G-1<br>B24 = ISO 228 G-1  |                    |
|   |                     |               | F20 = 1 <sup>1</sup> /4" SA                      | 4-bolt flange Code 61<br>AE 4-bolt flange Code 61<br>AE 4-bolt flange Code 61                         | F16 = 1" SAE 4-bol<br>F20 = $1^{1}_{4}$ " SAE 4-bol<br>F24 = $1^{1}_{2}$ " SAE 4-bol<br>SAE 4-bol | olt flange Code 61 |
|   |                     |               | S16 = SAE-16<br>S20 = SAE-20<br>S24 = SAE-24     | S20 = SAE-20  |   |                    |
|   |                     |               | BOX  | 9   | BOX 10  |                    |
|   |                     |               |  | Options   |   |                    |
|   |                     | Omit = None   |  |   |   |                    |
| e and triple stacking                                     | Visual              |               | = Visual pop-u                                   | ıp  | U = Test point in cap   |                    |
| ize elements can be                                       | Visual with Thermal |               | = D5 in cap<br>= Visual w/ the                   | ermal lockout   | (upstream)  |                    |
| ed by KK and 27K<br>ents, respectively.                   | Lockout             | D8C           | = D8 in cap                                      |   | UU = Test points in block<br>(upstream and  |                    |
| er of elements must<br>1 when using KK or                 |                     |               | = Electrical w/                                  | 12 in. 18 gauge 4-conductor<br>MS5  | cable   | downstream)        |
| lements. ZW media not<br>ble in 27K length.               |                     |               | = Electrical w/ I<br>= Low current               | DIN connector (male end onl<br>MS10   | y)  |                    |
| cement element part                                       | Electrical          |               |  | 12 ft. 4-conductor wire<br>pin Brad Harrison connector (n   | nale and only)  |                    |
| ers are identical to K9                                   |                     | MS12LC        | = Low current                                    | MS12  | <i>,</i> ,  |                    |
| cement parts. Please<br>ence page 184.                    |                     |               | = Electrical w/v<br>= Low current                | weather-packed sealed conn<br>MS16  | ector   |                    |
| ptions H, V, and H.5,                                     |                     |               |  | 4 pin Brad Harrison male con  | nector  |                    |
| uminum parts are<br>ized.                                 |                     | MS5LCT        | = Low current                                    |   |   |                    |
| al designation includes<br>blowing: EPR seals,            | Electrical          |               | = MS10 (see at<br>= Low current                  | oove) w/ thermal lockout<br>MS10T   |   |                    |
| ess steel wire mesh                                       | with<br>Thermal     | MS12T         |  | oove) w/ thermal lockout  |   |                    |
| ements, and light oil<br>og on housing exterior.          | Lockout             | MS16T         | = MS16 (see ab                                   | oove) w/ thermal lockout  |   |                    |
| <sup>®</sup> is a registered<br>mark of DuPont Dow        |                     |               | = Low current                                    |   |   |                    |
| omers.  | Electrical          | MS13          | = Supplied w/ th                                 | readed connector & light  | aht (mala and)  |                    |
| ol <sup>®</sup> is a registered trade-<br>of Solutia Inc. | Visual              |               |  | pin Brad Harrison connector & li<br>pove), direct current, w/ theri                                   | -   |                    |
|   | Electrical Visual   |               |  |   |   |                    |
| on UU not available in ination with indicator             | with Thermal        |               | = Low current                                    | MS13DCT<br>pove), direct current, w/ theri  | mal lockout   |                    |

#### NOTES:

- Box 2. Double of K-siz replace elemen Numbe equal 1 27K ele availab
- Box 4 Replace & 5. numbe replace referen
- Box 6. For op all alu anodiz H.5 sea the fol stainle on ele coating Viton traden Elasto Skydro mark c
- Box 10. Option combin in bloc

### Single Pass Filter Kit 3K9 Patent No. 7,604,738 for connecting end cap



#### **Features and Benefits**

- Three patent-pending K9 filters supplied in series as a single filter assembly providing in-line single pass particulate and water filtration
- Meets HF4 automotive standard
- 900 psi rating covers almost all transfer line pressure specs including air driven transfer systems
- Top loading for easy access for element changeout
- Allows consolidation of inventoried elements by using K-size elements
- Can be fitted with test points for oil sampling
- Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 343) for details.

Model No. of filter in photograph is 3K9127EDBBP20P20UUD5C.



INDUSTRIAL



AGRICULTURE



MANUFACTURING



POWER GENERATION



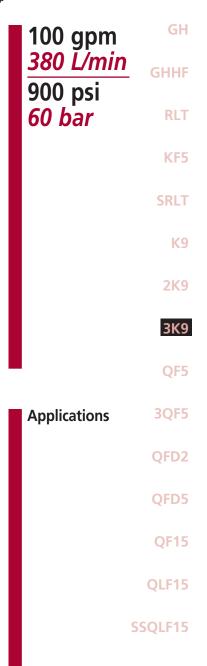


PULP & PAPER



MOBILE

VEHICLES



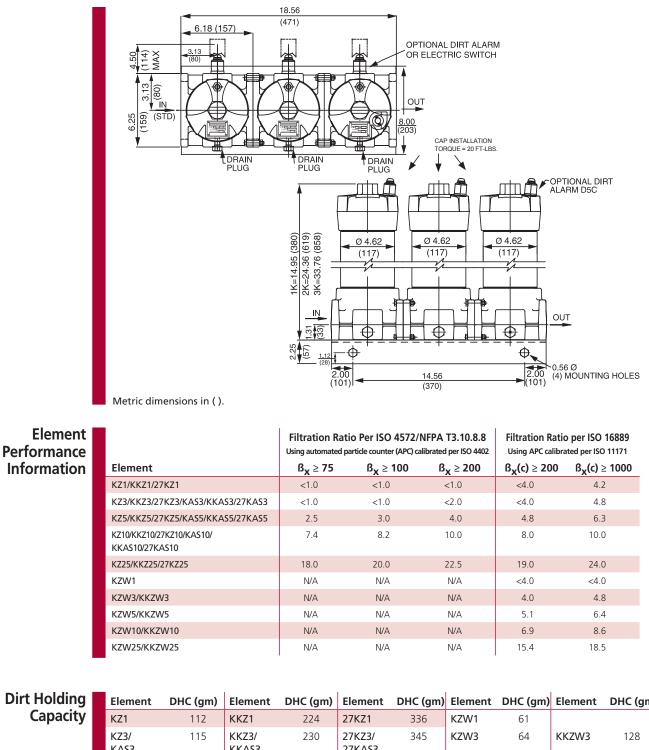
| Flow Rating:              | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids                 | Filter         |
|---------------------------|---|----------------|
| Max. Operating Pressure:  | 900 psi (60 bar)  | Housing        |
| Min. Yield Pressure:      | 3200 psi (220 bar), per NFPA T2.6.1                                   | Specifications |
| Rated Fatigue Pressure:   | 750 psi (52 bar) per NFPA T2.6.1-R1-2005                              |                |
| Temp. Range:              | -20°F to 225°F (-29°C to 107°C)                                       |                |
| Bypass Setting:           | Cracking: 40 psi (2.8 bar)  |                |
| Porting Base & Cap:       | Cast Aluminum   |                |
| Element Case:             | Steel   |                |
| Element Change Clearance: | 8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K |                |



Information

### **Single Pass Filter Kit**





| Dirt Holding | Element        | DHC (gm)     | Element         | DHC (gm)                                | Element   | DHC (gm)   | Element | DHC (gm) | Element | DHC (gm) |  |
|--------------|----------------|--------------|-----------------|---|---|------------|---------|----------|---------|----------|--|
| Capacity     | KZ1            | 112          | KKZ1            | 224                                     | 27KZ1   | 336        | KZW1    | 61       |         |          |  |
|              | KZ3/<br>KAS3   | 115          | KKZ3/<br>KKAS3  | 230                                     | 27KZ3/<br>27KAS3                                | 345        | KZW3    | 64       | KKZW3   | 128      |  |
|              | KZ5/<br>KAS5   | 119          | KKZ5/<br>KKAS5  | 238                                     | 27KZ5/<br>27KAS5                                | 357        | KZW5    | 63       | KKZW5   | 126      |  |
|              | KZ10/<br>KAS10 | 108          | KKZ10<br>KKAS10 | 216                                     | 27KZ10/<br>27KAS10                              | 324        | KZW10   | 57       | KKZW10  | 114      |  |
|              | KZ25           | 93           | KKZ25           | 186                                     | 27KZ25  | 279        | KZW25   | 79       | KKZW25  | 158      |  |
|              | E              | ement Collap | ose Rating:     | 150 psid (10 bar) for standard elements |   |            |         |          |         |          |  |
|              |                | Flow         | Direction:      | Outside In                              |   |            |         |          |         |          |  |
|              | nt Nominal D   | imensions:   | KK: 3.9"        | (99 mm) O                               | .D. x 9.0" (2<br>.D. x 18.0" (<br>.D. x 27.0" ( | 460 mm) lo | ong     |          |         |          |  |

# Single Pass Filter Kit 3K

**K9** 

SSQLF15

Pressure

Based on

Flow Rate and Viscosity

Information

Drop

 Patent No. 7,604,738 for connecting end cap
 Fluid
 GH

 Type Fluid
 Appropriate Schroeder Media
 GH

 Petroleum Based Fluids
 All Z-Media® and ASP® media (synthetic)
 Compatibility

 High Water Content
 All Z-Media® and ASP® media (synthetic)
 GHHF

 Invert Emulsions
 10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
 GHHF

 Water Glycols
 3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)
 GHHF

 Phosphate Esters
 All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 μ
 RLT

 Skydrol®
 3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation and M media (synthetic)
 KF5

 removaly with H.3 seal designation (Err seals and stamless steel wire mesh in element, and light oil coating on housing exterior) and all ASP® media (synthetic)
 skydrol® is a registered trademark of Solutia Inc.

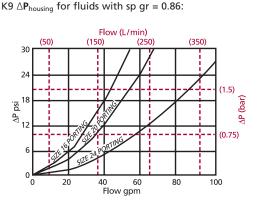
 Element
 Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve.
 Element Selection Based on Based State State

|  |                           |               | KZ1     |   | 11       | (Z1          |            | 2KZ1 <sup>+</sup> |     | Based on<br>Flow Rate |      |
|--|---------------------------|---------------|---------|---|----------|--------------|------------|-------------------|-----|-----------------------|------|
|  | To<br>900 psi<br>(60 bar) | Z-<br>Media®  | KZ3     |   | 1        | KZ3/KAS3/KI  | KAS3/27KAS | 3                 |     | now nate              | 2K9  |
|  |                           |               | KZ5     |   | 1        | KZ5/KAS5/KI  | KAS5/27KAS | 5                 |     |                       |      |
|  |                           |               | KZ10    |   | 1KZ10/KA | \$3/KKA\$3/2 | 7KAS3      |                   |     |                       | 3K9  |
|  |                           |               | KZ25    |   |          | 1KZ          | 225        |                   |     |                       | 5113 |
|  |                           | <b>F</b> lave | gpm     | 0 | 20       | 40           | 60         | 80                | 100 |                       | 055  |
|  |                           | Flow          | (L/min) | 0 | 50       | 150          | 250        | C                 | 380 |                       | QF5  |
|  |                           |               |         |   |          |              |            |                   |     |                       |      |

**†**Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively. Same flow rate applies.

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.

Pressure



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

 $\triangle \mathbf{P}_{\text{filter}} = \triangle \mathbf{P}_{\text{housing}} + \triangle \mathbf{P}_{\text{element}}$ 

#### Exercise:

Determine △P at 80 gpm (303 L/min) for 3K9209EDBBP24P24 using 150 SUS (32 cSt) fluid.

#### Solution:

- $\Delta P_{housing}$  = 18.0 psi [1.2 bar]  $\Delta P_{element1}$  = 80 x .02 = 1.6 psi [0.1 bar]
- $\Delta P_{element2} = 80 \text{ x} .03 = 2.4 \text{ psi} [0.2 \text{ bar}]$

$$\Delta P_{\text{algments}} = 80 \text{ x} .05 = 4.0 \text{ psi} [0.3 \text{ bar}]$$

 $\Delta P_{\text{total}} = 18.0 + 1.6 + 2.4 + 4.0 = 26.0 \text{ psi} [1.8 \text{ bar}]$ 

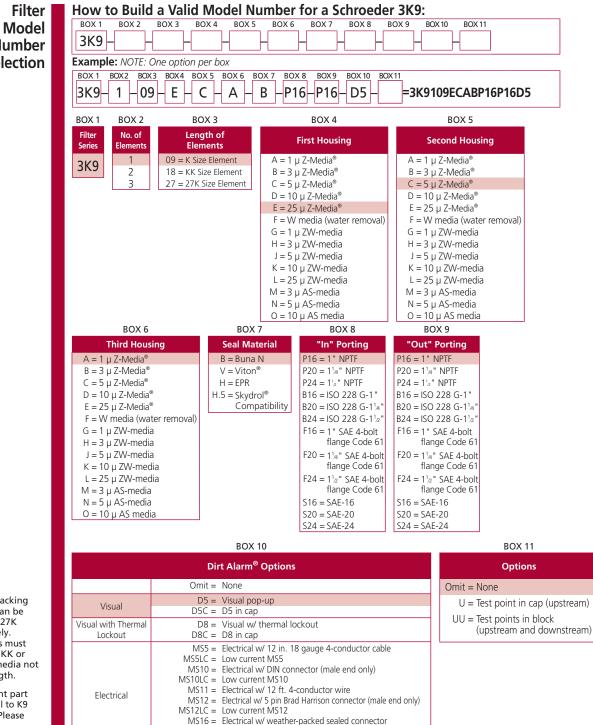
| $\Delta \mathbf{P}_{element}$ |             |                             |               |
|-------------------------------|-------------|-----------------------------|---------------|
| $\Delta P_{element}$ = flow   | x element   | $\triangle P$ factor x visc | osity factor  |
| El. △P factors @              | 2 150 SUS ( | ′32 cSt):                   |               |
|                               | <u>1K</u>   | <u>2K/KK</u>                | <u>3K/27K</u> |
| К25                           | .02         | .01                         | .01           |
| KZ1                           | .20         | .10                         | .05           |
| KZ3/KAS3                      | .10         | .05                         | .03           |
| KZ5/KAS5                      | .08         | .04                         | .02           |
| KZ10/KAS10                    | .05         | .03                         | .02           |
| KZ25                          | .04         | .02                         | .01           |
|                               | <u>1K</u>   | <u>2K</u>                   |               |
| KZW1                          | .43         |                             |               |
| KZW3                          | .32         | .16                         |               |
| KZW5                          | .28         | .14                         |               |
| KZW10                         | .23         | .12                         |               |
| KZW25                         | .14         | .07                         |               |

If working in units of bars & L/min, divide above factor by 54.9. *Viscosity factor:* Divide viscosity by 150 SUS (32 cst).



### **Single Pass Filter Kit**

atent No. 7,604,738 for connecting end ca



MS16LC = Low current MS16

MS5LCT = Low current MS5T

MS10LCT = Low current MS10T

MS12LCT = Low current MS12T

MS16LCT = Low current MS16T

MS17LCT = Low current MS17T

MS13DCLCT = Low current MS13DCT

MS14DCLCT = Low current MS14DCT

MS17LC = Electrical w/ 4 pin Brad Harrison male connector

MS5T = MS5 (see above) w/ thermal lockout

MS10T = MS10 (see above) w/ thermal lockout

MS12T = MS12 (see above) w/ thermal lockout

MS16T = MS16 (see above) w/ thermal lockout

MS13 = Supplied w/ threaded connector & light

MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)

MS13DCT = MS13 (see above), direct current, w/ thermal lockout

MS14DCT = MS14 (see above), direct current, w/ thermal lockout

Number Selection

NOTES:

- Box 2. Double and triple stacking of K-size elements can be replaced by KK and 27K elements, respectively. Number of elements must equal 1 when using KK or 27K elements. ZW media not available in 27K length.
- Box 4, Replacement element part 5 & 6 . numbers are identical to K9 replacement parts. Please reference page 184.
- Box 7. For options H, V, and H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 11. Option UU not available in combination with indicator in block.

#### **192 SCHROEDER INDUSTRIES**

Electrical

with

Thermal

Lockout

Electrical

Visual

**Flectrical Visual** 

with Thermal

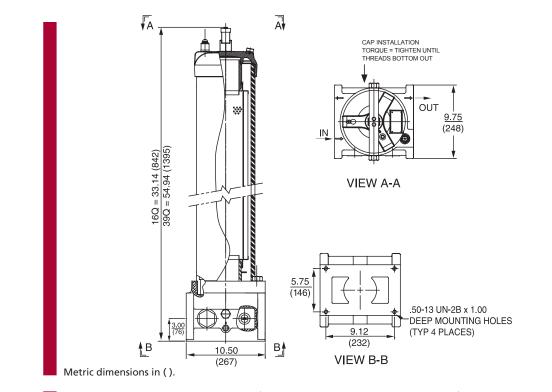
Lockout

In-Line Filter **QF5** 



| Model No. of filter in photogram         Image: District         Image: District <t< th=""><th>TVE MACHINE<br/>TOOL STEEL<br/>MAKING<br/>PULP &amp; PAPER<br/>DULK FUEL</th><th>GH<br/>1135 L/min<br/>500 psi<br/>35 bar<br/>RLT<br/>KF5<br/>SRLT<br/>(9<br/>2K9<br/>2K9<br/>3K9<br/>3K9<br/>3K9<br/>CF5<br/>Applications<br/>QFD2<br/>QFD5<br/>QFD5<br/>QFD5<br/>QF15</th><th></th></t<> | TVE MACHINE<br>TOOL STEEL<br>MAKING<br>PULP & PAPER<br>DULK FUEL   | GH<br>1135 L/min<br>500 psi<br>35 bar<br>RLT<br>KF5<br>SRLT<br>(9<br>2K9<br>2K9<br>3K9<br>3K9<br>3K9<br>CF5<br>Applications<br>QFD2<br>QFD5<br>QFD5<br>QFD5<br>QF15 |  |
|---|--|---|--|
|   |  | SSQLF15   |  |
| Max. Operating Pressure:<br>Min. Yield Pressure:<br>Rated Fatigue Pressure:<br>Temp. Range:<br>Bypass Setting:<br>Porting Base:<br>Element Case:  | 2500 psi (172 bar), per NFPA T2.6.1-R1-2005<br>Contact Factory<br>-20°F to 225°F (-29°C to 107°C)<br>Cracking: 30 psi (2.1 bar)<br>Full Flow: 55 psi (3.8 bar)<br>Cast Aluminum<br>Steel<br>Ductile Iron<br>185 lbs. (84 kg) | Filter<br>Housing<br>Specifications   |  |





| Element<br>Performance<br>Information |                                   |                                   | o Per ISO 4572/N<br>ed particle counter (A<br>per ISO 4402 |                      | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                          |                           |
|---------------------------------------|-----------------------------------|-----------------------------------|--|----------------------|--|--------------------------|---------------------------|
| internation                           | Ele                               | ement                             | β <sub>X</sub> ≥ 75  | β <sub>X</sub> ≥ 100 | $\beta_X \ge 200$  | β <sub>χ</sub> (c) ≥ 200 | β <sub>X</sub> (c) ≥ 1000 |
|                                       |                                   | Z1/CLQFZ1/PMLZ1                   | <1.0   | <1.0                 | <1.0   | <4.0                     | 4.2                       |
|                                       |                                   | Z3/CLQFZ3/PMLZ3/PMLAS3V/AS3V      | <1.0   | <1.0                 | <2.0   | <4.0                     | 4.8                       |
|                                       | 16Q                               | 16Q Z5/CLQFZ5/PMLZ5/PMLAS5V/AS5V  |  | 3.0                  | 4.0  | 4.8                      | 6.3                       |
|                                       |                                   | Z10/CLQFZ10/PMLZ10/PMLAS10V/AS3V  | 7.4  | 8.2                  | 10.0   | 8.0                      | 10.0                      |
|                                       |                                   | Z25/CLQFZ25/PMLZ25                | 18.0   | 20.0                 | 22.5   | 19.0                     | 24.0                      |
|                                       |                                   | Z1/CLQFZ1/PMLZ1                   | <1.0   | <1.0                 | <1.0   | <4.0                     | 4.2                       |
|                                       |                                   | Z3/CLQFZ3/PMLZ3/PMLAS3V/AS3V      | <1.0   | <1.0                 | <2.0   | <4.0                     | 4.8                       |
|                                       | <sup>39Q</sup> Z5/CLQFZ5/PMLZ5/PI |                                   | 2.5  | 3.0                  | 4.0  | 4.8                      | 6.3                       |
|                                       |                                   | Z10/CLQFZ10/PMLZ10/PMLAS10V/AS10V | 7.4  | 8.2                  | 10.0   | 8.0                      | 10.0                      |

| Dirt Holding | Ele    | ment                 | DHC            | (gm)    | Eleme   | ent                                       | DHC (gm)        | Element                 | DHC (gm) |
|--------------|--------|----------------------|----------------|---------|---------|---|-----------------|-------------------------|----------|
| Capacity     |        | Z1                   | 27             |         | CLQFZ   | .1  | 307             | PMLZ1                   | 307      |
|              |        | Z3/AS3V              | 28             | 3       | CLQFZ   | 3   | 315             | PMLZ3/PMLAS3V           | 315      |
|              | 16Q    | Z5/AS5V              | 351            |         | CLQFZ5  |   | 364             | PMLZ5/PMLAS5V           | 364      |
|              |        | <b>Z10/AS10V</b> 280 |                | 0       | CLQFZ   | 10  | 306             | PMLZ10/PMLAS10V         | 330      |
|              |        | Z25                  | <b>255</b> 254 |         | CLQFZ   | 25  | 278             | PMLZ25                  | 299      |
|              | Z1     |                      | 974            |         | CLQFZ   | .1  | 1259            | PMLZ1                   | 1485     |
|              |        | Z3/AS3V              | 1001           |         | CLQFZ   | 3   | 1293            | PMLZ3/PMLAS3            | 1525     |
|              | 39Q    | Z5/AS5V              | 954            |         | CLQFZ   | .5  | 1302            | PMLZ5/PMLAS5            | 1235     |
|              |        | Z10/AS10V            | 940<br>853     |         | CLQFZ   | 10  | 1214            | PMLZ10/PMLAS10          | 1432     |
|              |        | Z25                  |                |         | CLQFZ   | 25  | 1102            | PMLZ25                  | 1299     |
|              |        | Element Collapse F   | Rating:        | Q and   | d QPML: | 150 psi                                   | id (10 bar), QC | _QF: 100 psid (7 bar)   |          |
|              |        | Flow Dir             | ection:        | Outsi   | de In   |   |                 |                         |          |
|              |        | Element Nominal Dime | nsions:        | 39Q:    |         | 6.0" (                                    | 150 mm) O.D.    | x 38.70" (985 mm) long  |          |
|              |        |                      |                | 39QC    | •       |   | ,               | x 40.01" (1016 mm) long |          |
|              |        |                      |                | 39QPML: |         | 6.0" (150 mm) O.D. x 37.80" (960 mm) long |                 | x 37.80" (960 mm) long  |          |
|              | 104 55 |                      |                |         |         |   |                 |                         |          |



Pressure

Based on

Flow Rate

and Viscosity

Information

**OLF15** 

SSQLF15

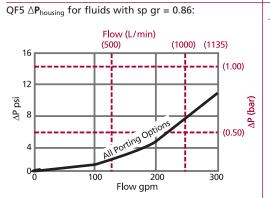
Drop

|           | Тур  | e Fluid  | Appropriat    | e Schroeder Media  |             |                        | Fluid         | GH          |
|-----------|--|----------|---------------|--|-------------|------------------------|---------------|-------------|
| Petroleu  | m Based  | d Fluids | All Z-Media   | <sup>®</sup> and ASP <sup>®</sup> media (synthetic)                                    |             |                        | Compatibility |             |
| High      | Water C  | ontent   | All Z-Media   | <sup>®</sup> and ASP <sup>®</sup> media (synthetic)                                    |             |                        |               | СППЕ        |
| In        | vert Em  | ulsions  |               | GHHF   |             |                        |               |             |
|           |  |          |               | l 25 μ Z-Media <sup>®</sup> and all ASP <sup>®</sup> Me                                |             |                        |               |             |
| Ph        | Phosphate Esters All Z-Media <sup>®</sup> (synthetic) with H (EPR) seal designation and all ASP <sup>®</sup> media (synthetic) |          |               |  |             |                        |               | RLT         |
|           | -  |          |               | -  | -           | -                      |               |             |
|           | 2  | kyuror-  |               | 25 μ Z-Media <sup>®</sup> (synthetic) with H.5<br>element, and light oil coating on he |             |                        |               |             |
|           | 1  |          | Whethesh h    |  |             | media (synthetic)      | -             | KF5         |
|           |  | Eleme    | ent           | Element selections are predicate   | Element     |                        |               |             |
| Pressure  | Series   | Pa       | art No.       | based fluid and 3" flange por  | Selection   | SRLT                   |               |             |
|           |  | 16 & 39  |               | 16QZ1  | 39QZ1       |                        | Based on      | SKLI        |
|           |  | 16 & 39  |               | 16Q2   | Flow Rate   |                        |               |             |
|           |  | 16 & 39  | <u>`</u>      | 16Q2   |             | К9                     |               |             |
|           |  | 16 & 39  |               |  | 16QZ10      |                        |               |             |
|           |  | 16 & 39  |               | · · ·  | 25 & 39QZ25 |                        |               |             |
|           |  |          | 9QCLQFZ1      | 16QCLQFZ1  | 39QCLQFZ1   | 39QCLQFZ3<br>39QCLQFZ3 |               | 2K9         |
| То        | Z-   |          | 9QCLQFZ3      | 16QCLQ   |             |                        |               |             |
| 500 psi   | Media®   |          | 9QCLQFZ5      | 16QCLQ   |             | 39QCLQFZ5              |               |             |
| (35 bar)  |  | 10 & 3   | 9QCLQFZ10     | 16QCLC   |             |                        |               | 3K9         |
|           |  |          | 9QCLQFZ25     |  | QCLQFZ25    |                        |               |             |
|           |  |          | 9QPMLZ1       | 16QPMLZ1   | 39QPMLZ     |                        |               |             |
|           |  |          | 9QPMLZ3       | 16QPML   |             | 39QPMLZ3               |               | QF5         |
|           |  |          | 9QPMLZ5       | 16QPML   |             | 39QPMLZ5               |               |             |
|           |  |          | 9QPMLZ10      | 16QPM  |             |                        |               |             |
|           |  | 16 & 39  | 9QPMLZ25      | 16QPMLZ25  |             |                        |               | <b>3QF5</b> |
|           | Flow   | gpm      | (             | 0 100  | 200         | 300                    |               |             |
|           | TIOW   | (L/min)  |               |  |             |                        |               |             |
| Shown abo | ve are t   | ne eleme | ents most com | monly used in this housing.  |             |                        |               | QFD2        |

Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.

#### $\bigtriangleup \bm{P}_{\text{housing}}$



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

 $\triangle \mathbf{P}_{\mathsf{filter}} = \triangle \mathbf{P}_{\mathsf{housing}} + \triangle \mathbf{P}_{\mathsf{element}}$ 

#### Exercise:

Determine  $\triangle P$  at 150 gpm (570 L/min) for QF516QZ3VF40D5 using 200 SUS (44 cSt) fluid. Solution:

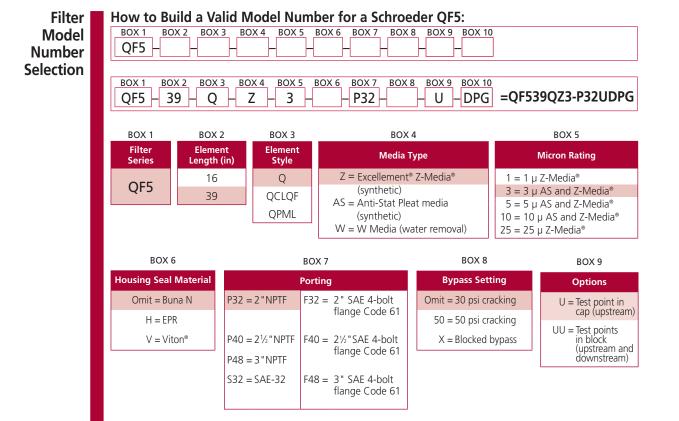
 $\Delta P_{\text{housing}} = 3 \text{ psi } [.21 \text{ bar}]$ 

$$\Delta P_{element} = 150 \times .04 \times (200 \div 150) = 8.0 \text{ psi} or = [570 \times (.04 \div 54.9) \times (44 \div 32) = .57 \text{ bar}] \Delta P_{total} = 3.0 + 8.0 = 11.0 \text{ psi} or = [.21 + .57 = .78 \text{ bar}]$$

| $\begin{tabular}{lllllllllllllllllllllllllllllllllll$   |
|---|
| 16QZ1       .09       39QZ1       .03         16QZ3/       39QZ3/       .01         16QAS3V       .04       39QAS3V       .01         16QZ5/       39QZ5/       .01         16QAS5V       .04       39QAS5V       .01         16QZ10/       39QZ10/       .01       .03         16QZ10/       39QZ10/       .01       .01         16QZ25       .01       39QZ25       .01         16QCLQFZ1       .07       39QCLQFZ1       .03         16QCLQFZ5       .05       39QCLQFZ3       .02         16QCLQFZ5       .05       39QCLQFZ5       .02         16QCLQFZ5       .05       39QCLQFZ5       .02         16QCLQFZ5       .05       39QCLQFZ5       .02         16QCLQFZ5       .05       39QCLQFZ5       .01         16QCLQFZ5       .05       39QCLQFZ5       .01         16QCLQFZ5       .03       39QCLQFZ5     |
| 16QZ3/       39QZ3/         16QAS3V       .04       39QAS3V       .01         16QZ5/       39QZ5/       .01         16QAS5V       .04       39QAS5V       .01         16QZ10/       39QAS10V       .01         16QZ25       .01       39QZ10/         16QZ55       .01       39QZ25       .01         16QCLQFZ1       .07       39QCLQFZ1       .03         16QCLQFZ3       .05       39QCLQFZ3       .02         16QCLQFZ5       .05       39QCLQFZ5       .02         16QCLQFZ10       .04       39QCLQFZ5       .02         16QCLQFZ5       .05       39QCLQFZ5       .02         16QCLQFZ10       .04       39QCLQFZ5       .01         16QCLQFZ5       .03       39QCLQFZ25       .01         16QCLQFZ4       .04       39QCLQFZ5       .01         16QCLQFZ5       .03       39QCLQFZ25       .01         16QCLQFZ10       .04       39QCLQFZ25       .01         16QCLQFZ5       .03       39QCLQFZ25       .01         16QCLQFZ10       .03       .03       .03   |
| 16QAS3V       .04       39QAS3V       .01         16QZ5/       39QZ5/       .01         16QAS5V       .04       39QAS5V       .01         16QZ10/       39QZ10/       .01       .01         16QZ25       .01       39QZ5/       .01         16QZ10/       39QAS10V       .01       .01         16QZ25       .01       39QZ25       .01         16QCLQFZ1       .07       39QCLQFZ1       .03         16QCLQFZ3       .05       39QCLQFZ3       .02         16QCLQFZ5       .05       39QCLQFZ5       .01         16QCLQFZ10       .04       39QCLQFZ5       .02         16QCLQFZ5       .05       39QCLQFZ5       .02         16QCLQFZ5       .03       39QCLQFZ5       .01         16QCLQFZ5       .03 |
| 16QZ5/       39QZ5/         16QAS5V       .04       39QAS5V       .01         16QZ10/       39QX10/       .01         16QAS5V       .01       .01       .01         16QAS10V       .03       .08X510V       .01         16QCLQFZ1       .07       .02       .01         16QCLQFZ3       .05       .02       .02         16QCLQFZ5       .05       .02       .02         16QCLQFZ5       .05       .02       .01         16QCLQFZ5       .05       .02       .01         16QCLQFZ5       .03       .0  |
| 16QAS5V       .04       39QAS5V       .01         16QZ10/       39QZ10/         16QAS10V       .03       39QAS10V       .01         16QZ25       .01       39QZ25       .01         16QCLQFZ1       .07       39QCLQFZ1       .03         16QCLQFZ3       .05       39QCLQFZ3       .02         16QCLQFZ5       .05       39QCLQFZ5       .02         16QCLQFZ10       .04       39QCLQFZ10       .01         16QCLQFZ5       .03       39QCLQFZ25       .01         16QCLQFZ25       .03       39QCLQFZ25       .01         16QCLQFZ25       .03       39QCLQFZ25       .01  |
| 16QZ10/         39QZ10/           16QAS10V         .03         39QAS10V         .01           16QZ25         .01         39QZ25         .01           16QCLQFZ1         .07         39QCLQFZ1         .03           16QCLQFZ3         .05         39QCLQFZ3         .02           16QCLQFZ5         .05         39QCLQFZ5         .02           16QCLQFZ10         .04         39QCLQFZ10         .01           16QCLQFZ5         .03         39QCLQFZ25         .01           16QCLQFZ25         .03         39QCLQFZ25         .01           16QCLQFZ10         .04         39QCLQFZ25         .01           16QCLQFZ25         .03         39QCLQFZ25         .01  |
| 16QAS10V         .03         39QAS10V         .01           16QZ25         .01         39QZ25         .01           16QCLQFZ1         .07         39QCLQFZ1         .03           16QCLQFZ3         .05         39QCLQFZ3         .02           16QCLQFZ5         .05         39QCLQFZ5         .02           16QCLQFZ10         .04         39QCLQFZ10         .01           16QCLQFZ5         .03         39QCLQFZ25         .01           16QCLQFZ10         .04         39QCLQFZ25         .01           16QCLQFZ25         .03         39QCLQFZ25         .01           16QPMLZ1         .08         39QPMLZ1         .03  |
| 16QCLQFZ1         .07         39QCLQFZ1         .03           16QCLQFZ3         .05         39QCLQFZ3         .02           16QCLQFZ5         .05         39QCLQFZ5         .02           16QCLQFZ5         .05         39QCLQFZ5         .02           16QCLQFZ5         .04         39QCLQFZ10         .01           16QCLQFZ25         .03         39QCLQFZ25         .01           16QPMLZ1         .08         39QPMLZ1         .03  |
| 16QCLQFZ3         .05         39QCLQFZ3         .02           16QCLQFZ5         .05         39QCLQFZ5         .02           16QCLQFZ10         .04         39QCLQFZ10         .01           16QCLQFZ25         .03         39QCLQFZ25         .01           16QPMLZ1         .08         39QPMLZ1         .03   |
| 16QCLQFZ5         .05         39QCLQFZ5         .02           16QCLQFZ10         .04         39QCLQFZ10         .01           16QCLQFZ25         .03         39QCLQFZ25         .01           16QPMLZ1         .08         39QPMLZ1         .03   |
| 16QCLQFZ10         .04         39QCLQFZ10         .01           16QCLQFZ25         .03         39QCLQFZ25         .01           16QPMLZ1         .08         39QPMLZ1         .03   |
| 16QCLQFZ25         .03         39QCLQFZ25         .01           16QPMLZ1         .08         39QPMLZ1         .03   |
| <b>16QPMLZ1</b> .08 <b>39QPMLZ1</b> .03   |
|   |
|   |
| <b>16QPMLAS3V</b> .05 <b>39QPMLAS3V</b> .02   |
| 16QPMLZ5/ 39QPMLZ5/   |
| <b>16QPMLAS5V</b> .05 <b>39QPMLAS5V</b> .02   |
| 16QPMLZ10/ 39QPMLZ10/   |
| 16QPMLAS10V         .04         39QPMLAS10V         .01           16OPMLZ25         .02         39OPMLZ25         .01   |
|   |
| If working in units of bars & L/min, divide above factor by 54.9.   |

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).





| DUA IU | BOX | 10 |
|--------|-----|----|
|--------|-----|----|

|  | Dirt Alarm <sup>®</sup> Options  |
|--|--|
|  | Omit = None  |
| Visual                                       | DPG = Standard differential pressure gauge<br>D5 = Visual pop-up<br>D5C = D5 in cap<br>D5R = D5 mounted opposite standard location   |
| Visual with Thermal<br>Lockout               | D8 = Visual w/ thermal lockout<br>D8C = D8 in cap<br>D8R = D8 mounted opposite standard location   |
| Electrical                                   | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5<br>MS10 = Electrical w/ DIN connector (male end only)<br>MS10LC = Low current MS10<br>MS11 = Electrical w/ 12 ft. 4-conductor wire<br>MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)<br>MS12LC = Low current MS12<br>MS16 = Electrical w/ weather-packed sealed connector<br>MS16LC = Low current MS16<br>MS17LC = Electrical w/ 4 pin Brad Harrison male connector |
| Electrical<br>with<br>Thermal<br>Lockout     | MS5T = MS5 (see above) w/ thermal lockout<br>MS5LCT = Low current MS5T<br>MS10T = MS10 (see above) w/ thermal lockout<br>MS10LCT = Low current MS10T<br>MS12T = MS12 (see above) w/ thermal lockout<br>MS12LCT = Low current MS12T<br>MS16T = MS16 (see above) w/ thermal lockout<br>MS16LCT = Low current MS16T<br>MS17LCT = Low current MS16T  |
| Electrical<br>Visual                         | MS13 = Supplied w/ threaded connector & light<br>MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)   |
| Electrical Visual<br>with Thermal<br>Lockout | MS13DCT = MS13 (see above), direct current, w/ thermal lockout<br>MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current, w/ thermal lockout<br>MS14DCLCT = Low current MS14DCT   |

#### NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5 plus the letter V. *Example*: 39QZ10V
- Box 3. QCLQF are CoreCentric<sup>®</sup> coreless elements – housing includes rigid metal core. QPML are deep-pleated elements with more media and higher dirt holding capacity.
- Box 4. For option W, Box 3 must equal Q.

Box 6. All elements for this filter are supplied with Viton<sup>®</sup> seals. Seal designation in Box 6 applies to housing only. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

In-Line Filter 3QF5



500 psi 35 bar

300 gpm <sup>GH</sup> 1135 L/min <sub>GHHF</sub>

**RLT** 

KF5

**SRLT** 

**K9** 

**2K9** 



#### **Features and Benefits**

- Element changeout from the top minimizes oil spillage
- Available with optional core assembly to accommodate coreless elements
- Offered with standard Q, QPML deep-plated and QCLQF coreless elements in 16" and 39" lengths with standard Viton<sup>®</sup> seals
- Offered in pipe, SAE straight thread, and flange porting
- Optional inlet and outlet test points
- Various Dirt Alarm® options

Model No. of filter in photograph is 3QF539QEDBP40P40.



INDUSTRIAL



MINING TECHNOLOGY



POWER GENERATION



 $\odot$ IC

PULP & PAPER

STEEL

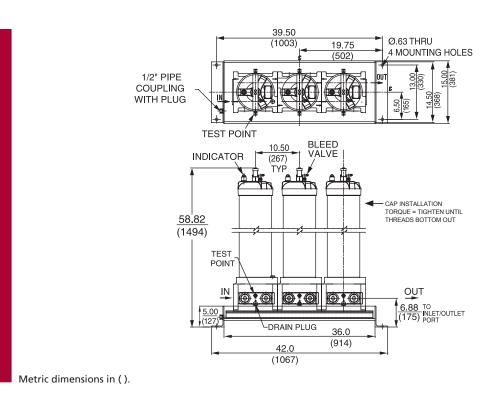
MAKING



3K9 Viton<sup>®</sup> is a registered QF5 trademark of DuPont Dow Elastomers. 3QF5 **Applications QFD2** QFD5 **OLF15** SSQLF15

| Flow Rating:              | Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids    | Filter         |
|---------------------------|---|----------------|
| Max. Operating Pressure:  | 500 psi (35 bar)  | Housing        |
| Min. Yield Pressure:      | 2500 psi (172 bar), per NFPA T2.6.1                       | Specifications |
| Rated Fatigue Pressure:   | Contact Factory   |                |
| Temp. Range:              | -20°F to 225°F (-29°C to 107°C)                           |                |
| Bypass Setting:           | Cracking: 30 psi (2.1 bar)<br>Full Flow: 55 psi (3.8 bar) |                |
| Porting Base:             | Cast Aluminum   |                |
| Element Case:             | Steel   |                |
| Cap:                      | Ductile Iron  |                |
| Weight of 3QF5:           | 655 lbs. (298 kg)   |                |
| Element Change Clearance: | 33.8" (859 mm)  |                |





| Element<br>Performance |       |                                       |                     | Per ISO 4572/NF   |                   |                           | o per ISO 16889<br>ated per ISO 11171 |
|------------------------|-------|---------------------------------------|---------------------|-------------------|-------------------|---------------------------|---------------------------------------|
| Information            | Eleme | ent                                   | β <sub>X</sub> ≥ 75 | $\beta_X \ge 100$ | $\beta_X \ge 200$ | $\beta_{\chi}(c) \ge 200$ | β <sub>X</sub> (c) ≥ 1000             |
|                        |       | Z1/CLQFZ1/PMLZ1/                      | <1.0                | <1.0              | <1.0              | <4.0                      | 4.2                                   |
|                        | 39Q   | Z3/CLQFZ3/PMLZ3/<br>AS3V/PMLAS3V      | <1.0                | <1.0              | <2.0              | <4.0                      | 4.8                                   |
|                        |       | Z5/CLQFZ5/PMLZ5/<br>AS5V/PMLAS5V      | 2.5                 | 3.0               | 4.0               | 4.8                       | 6.3                                   |
|                        |       | Z10/CLQFZ10/PMLZ10/<br>AS10V/PMLAS10V | 7.4                 | 8.2               | 10.0              | 8.0                       | 10.0                                  |
|                        |       | Z25/CLQFZ25/PMLZ25                    | 18.0                | 20.0              | 22.5              | 19.0                      | 24.0                                  |

| Dirt Holding |   |           | DHC ( | gm)   | Element      | DHC (gm)           | Element            | DHC (gm) |
|--------------|---|-----------|-------|-------|--------------|--------------------|--------------------|----------|
| Capacity     |   | Z1        | 974   |       | CLQFZ1       | 1259               | PMLZ1              | 1485     |
|              |   | Z3/AS3V   | 1001  |       | CLQFZ3       | 1293               | PMLZ3/PMLAS3       | 1525     |
|              | 39Q   | Z5/AS5V   | 954   |       | CLQFZ5       | 1302               | PMLZ5/PMLAS5       | 1235     |
|              |   | Z10/AS10V | 940   |       | CLQFZ10      | 1214               | PMLZ10/PMLAS10     | 1432     |
|              |   | Z25       | 853   |       | CLQFZ25      | 1102               | PMLZ25             | 1299     |
|              | Element Collapse Rating: Q and QPML: 150 psid (10 bar), QCLQF: 100 psid (7 bar) |           |       |       |              |                    |                    |          |
|              | Flow Direction: Outside In  |           |       |       |              |                    |                    |          |
|              | Element Nominal Dimensions: 16Q: 6.0" (150 mm) O.D. x 16.85" (430 mm) long      |           |       |       |              |                    |                    |          |
|              |   |           |       | 16QCL | •            | 0 mm) O.D. x 18.2  | , , ,              |          |
|              |   |           |       | 16QPN | 1L: 6.0" (15 | 0 mm) O.D. x 16.00 | )" (405 mm) long   |          |
|              |   |           |       | 39QCL | QF: 6.0" (15 | 0 mm) O.D. x 40.01 | I " (1016 mm) long |          |
|              |   |           |       | 39QPN | 1L: 6.0" (15 | 0 mm) O.D. x 37.80 | )" (960 mm) long   |          |

### In-Line Filter **3QF5**

|          | Тур          | e Fluid   | Appropriat  | e Schroeder Media   |                            |             |           |    | Fluid         | GH         |
|----------|--------------|-----------|---|---|----------------------------|-------------|-----------|----|---------------|------------|
| Petroleu | m Based      | l Fluids  | All Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic) |   |                            |             |           |    | Compatibility |            |
| High     | Water C      | ontent    | All Z-Media   | and ASP <sup>®</sup> media (synthetic)                                    |                            |             |           |    |               | GHHF       |
| In       | vert Em      | ulsions   | 10 and 25 µ   | Z-Media <sup>®</sup> and 10 µ ASP <sup>®</sup> media                      | a (synthetic)              |             |           |    |               | бинг       |
|          | Water        | Glvcols   | 3, 5, 10 and  | 25 µ Z-Media <sup>®</sup> and all ASP <sup>®</sup> me                     | edia (synthetic)           |             |           |    |               |            |
| Ph       |              |           |   | (synthetic) with H (EPR) seal de  |                            | media (sv   | (nthetic) |    |               | RLT        |
|          |              |           | 3, 5, 10 and  | 25 μ Z-Media® (synthetic) with H.<br>sh in element, and light oil coating | 5 seal designation (EPR se | eals and st | ainless   |    |               | KF5        |
|          |              | Eleme     | ent   | Element selections are predicat   |                            | • •         |           | m  | Element       |            |
| Pressure | Series       |           | art No.   | based fluid and 3" flange porti   |                            |             | valve.    |    | Selection     | SRLT       |
|          |              | 16 & 39   |   | 16QZ1   | 39QZ                       | 21          |           | _  | Based on      | JALI       |
|          |              | 16 & 39   |   | 16Q<br>16Q  |                            |             |           | _  | Flow Rate     |            |
|          |              | 16 & 39   |   | וטע   | 16QZ10                     |             |           |    |               | К9         |
|          |              | 16 & 39   |   | 1602  | Z25 & 39QZ25               |             |           |    |               |            |
|          |              |           | 9QCLQFZ1  | 16QCLQFZ1   | 39QCLQFZ1                  |             |           |    |               | 01/0       |
| То       | 7            |           | 9QCLQFZ3  | 16QCLQ  |                            | 39          | QCLQFZ    | 3  |               | <b>2K9</b> |
| 500 psi  | Z-<br>Media® | 16 & 39   | 9QCLQFZ5  | 16QCLQ  | FZ5                        | 39          | QCLQFZ    | 5  |               |            |
| (35 bar) | IVICUIU      |           | 9QCLQFZ10   | 16QCL0  |                            |             |           |    |               | 3K9        |
|          |              |           | OQCLQFZ25   |   | SQCLQFZ25                  |             |           | _  |               | JKJ        |
|          |              |           | 9QPMLZ1   | 16QPMLZ1  | 39QPM                      | 1           |           | _  |               |            |
|          |              |           | POPMLZ3   | 16QPML  |                            | · · · ·     | MLZ3      | _  |               | QF5        |
|          |              |           | 9QPMLZ5<br>9QPMLZ10   | 16QPML<br>16OPM   |                            | 39QP        | MLZ5      | -  |               |            |
|          |              |           | OQPMLZ25  |   | 6QPMLZ25                   |             |           |    |               |            |
|          |              | gpm       |   | ) 100   | 200                        |             | 30        | 0  |               | 3QF5       |
|          | Flow         | (L/min)   | (   | )   | 500                        | 100         | 0 113     | 35 |               |            |
| Shown ab |              | ( · · · / |   | nmonly used in this housing.  |                            |             |           |    |               | OFD2       |
|          | ove are t    | ne cielli | ents most col   | innomy used in this nousing.  |                            |             |           |    |               | <b>X</b> · |

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.

| $\Delta \mathbf{P}_{housing}$ |                                    |               | $\Delta \mathbf{P}_{element}$ |                         |                           |              |
|-------------------------------|------------------------------------|---------------|-------------------------------|-------------------------|---------------------------|--------------|
| 3QF5 ∆P <sub>housin</sub>     | <sub>ng</sub> for fluids with sp g | gr = 0.86:    | $\Delta P_{element} = flow$   | x element $\triangle P$ | factor x viscosity factor | actor        |
|                               |                                    |               | El. △P factors @              | 9 150 SUS (32           | cSt):                     |              |
|                               | Flow (L/min)                       | (1000) (1125) | 16QZ1                         | .09                     | 39QZ1                     | .03          |
| 20                            | (500)                              | (1000) (1135) | 16QZ3/16QAS3                  | <b>V</b> .04            | 39QZ3/39QAS3V             | .01          |
|                               |                                    |               | 16QZ5/16QAS5                  | <b>V</b> .04            | 39QZ5/39QAS5V             | .01          |
| 16                            |                                    | (1.25)        | 16QZ10/16QAS10                | <b>V</b> .03            | 39QZ10/39QAS10            | <b>V</b> .01 |
| 10                            |                                    |               | 16QZ25                        | .01                     | 39QZ25                    | .01          |
|                               | Porting Options                    | (1.00)        | 16QCLQFZ1                     | .07                     | 39QCLQFZ1                 | .03          |
| · <u>sa</u> 12                |                                    | ar)           | 16QCLQFZ3                     | .05                     | 39QCLQFZ3                 | .02          |
| P                             | ing ing                            | △P (bar)      | 16QCLQFZ5                     | .05                     | 39QCLQFZ5                 | .02          |
| ~ 8                           |                                    | •             | 16QCLQFZ10                    | .04                     | 39QCLQFZ10                | .01          |
|                               |                                    | (0.50)        | 16QCLQFZ25                    | .03                     | 39QCLQFZ25                | .01          |
| 4                             |                                    | (0.50)        | 16OPMLZ1                      | .08                     | 39OPMLZ1                  | .03          |
|                               |                                    |               | 16QPMLZ3/                     |                         | 39QPMLZ3/                 |              |
|                               |                                    |               | 16QPMLAS3V                    | .05                     | 39QPMLAS3V                | .02          |
| 0                             | 100 20                             | 0 300         | 16QPMLZ5/                     |                         | 39QPMLZ5/                 |              |
|                               | Flow gpm                           |               | 16QPMLAS5V                    | .05                     | 39QPMLAS5V                | .02          |
|                               | 51                                 |               | 16QPMLZ10/                    |                         | 39QPMLZ10/                |              |
|                               |                                    |               |                               |                         |                           |              |

sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

 $\triangle \mathbf{P}_{\text{filter}} = \triangle \mathbf{P}_{\text{housing}} + \triangle \mathbf{P}_{\text{element}}$ 

Determine △P at 150 gpm (570 L/min) for 3QF516QZ3F40D5 using 200 SUS (44 cSt) fluid.

**16QPMLAS10V** .04 **16QPMLZ25** .02

#### Solution:

| $\Delta \mathbf{P}_{housing}$                                  | = 9.5 psi [.67 bar]   |
|--|---|
| $\Delta \mathbf{P}_{element1}$                                 | = 150 x .01 x (200 ÷ 150) = 2.0 psi or [570 x (.01 ÷ 54.9) x (44 ÷ 32) = .14 bar] |
| ${\boldsymbol \bigtriangleup} {\boldsymbol P}_{{}_{element2}}$ | = 150 x .03 x (200 ÷ 150) = 6.0 psi or [570 x (.03 ÷ 54.9) x (44 ÷ 32) = .42 bar] |
| $\Delta \mathbf{P}_{element3}$                                 | = 150 x .04 x (200 ÷ 150) = 8.0 psi or [570 x (.04 ÷ 54.9) x (44 ÷ 32) = .56 bar] |
| $\Delta \mathbf{P}_{total}$                                    | = 9.5 + 2.0 + 6.0 + 8.0 = 25.5 psi or [.67 + .14 + .42 + .56 = 1.79 bar]          |

| Information           | QF15    |
|-----------------------|---------|
| Based on<br>Flow Rate |         |
| and Viscosity         | QLF15   |
|                       | SSQLF15 |

**Pressure** Drop

.01

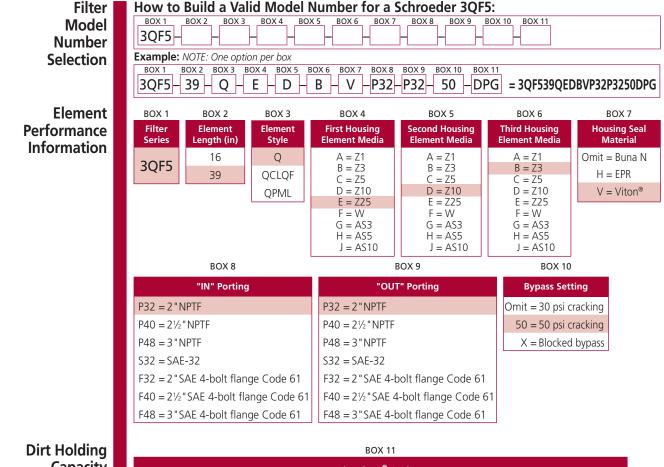
.01

If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

39QPMLAS10V 39QPMLZ25





| DI | ιποι | aing  |
|----|------|-------|
|    | Capa | acity |

NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4, plus the letter V. Example: 39QZ10V
- Box 3. QCLQF are CoreCentric® coreless elements - housing includes rigid metal core. QPML are deep-pleated elements with more media and higher dirt holding capacity.
- Box 4. For option F, Box 3 must equal Q.
- Box 7. All elements for this filter are supplied with Viton<sup>®</sup> seals. Seal designation in Box 5 applies to housing only. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

| Dirt Alarm <sup>®</sup> Options              |  |  |  |  |  |
|--|--|--|--|--|--|
|  | Omit = None  |  |  |  |  |
| Visual                                       | DPG = Standard differential pressure gauge<br>D5 = Visual pop-up<br>D5C = D5 in cap<br>D5R = D5 mounted opposite standard location   |  |  |  |  |
| Visual with<br>Thermal<br>Lockout            | D8 = Visual w/ thermal lockout<br>D8C = D8 in cap<br>D8R = D8 mounted opposite standard location   |  |  |  |  |
| Electrical                                   | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5<br>MS10 = Electrical w/ DIN connector (male end only)<br>MS10LC = Low current MS10<br>MS11 = Electrical w/ 12 ft. 4-conductor wire<br>MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)<br>MS12LC = Low current MS12<br>MS16 = Electrical w/ weather-packed sealed connector<br>MS16LC = Low current MS16<br>MS17LC = Electrical w/ 4 pin Brad Harrison male connector |  |  |  |  |
| Electrical<br>with<br>Thermal<br>Lockout     | MS5T = MS5 (see above) w/ thermal lockout<br>MS5LCT = Low current MS5T<br>MS10T = MS10 (see above) w/ thermal lockout<br>MS10LCT = Low current MS10T<br>MS12T = MS12 (see above) w/ thermal lockout<br>MS12LCT = Low current MS12T<br>MS16T = MS16 (see above) w/ thermal lockout<br>MS16LCT = Low current MS16T<br>MS17LCT = Low current MS17T  |  |  |  |  |
| Electrical<br>Visual                         | MS13 = Supplied w/ threaded connector & light<br>MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)   |  |  |  |  |
| Electrical Visual<br>with Thermal<br>Lockout | MS13DCT = MS13 (see above), direct current, w/ thermal lockout<br>MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current, w/ thermal lockout<br>MS14DCLCT = Low current MS14DCT   |  |  |  |  |

# In-Line Filter **QFD2**

#### **Features and**



| <ul> <li>Features and Benefits</li> <li>Duplex filter design</li> <li>Element changeout from the top minimizes oil spillage</li> <li>Available with optional core assembly to accommodate coreless elements</li> <li>Offered with standard Q, QPML deep-pleated and QCLQF coreless elements in 16" and 39" lengths with Viton® seals as the standard</li> <li>Integral inlet and outlet test points are standard on all models</li> <li>Various Dirt Alarm® options</li> <li>Also available in 4, 6 or 8 housing modular designs (contact factory)</li> </ul> | 300 gpm<br><u>1135 L/min</u><br>200 psi<br>14 bar | GH<br>C GHHF<br>RLT<br>KF5<br>SRLT<br>K9<br>2K9<br>3K9 |
|---|---|--|
| A48.  | Applications                                      | QF5<br>3QF5<br>QFD2                                    |
| ING   |   | OFDE   |

Model No. of filter in photograph is QFD216QZ10FA48.







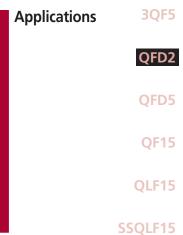
MAKING



POWER GENERATION



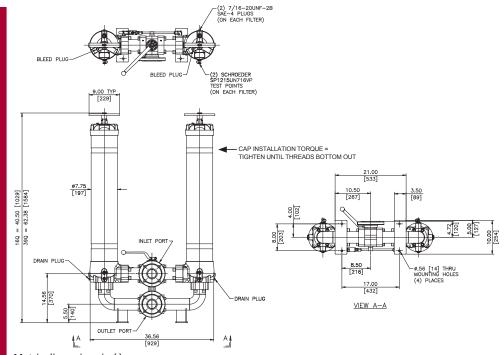
PULP & PAPER



| Flow Rating:                   | Up to 300 gpm (1135 L/min) for<br>150 SUS (32 cSt) fluids | Filter<br>Hous |
|--------------------------------|---|----------------|
| Max. Operating Pressure:       | 200 psi (14 bar)  | Speci          |
| Min. Yield Pressure:           | 600 psi (41 bar), per NFPA T2.6.1                         |                |
| Rated Fatigue Pressure:        | Contact Factory   |                |
| Temp. Range:                   | -15°F to 200°F (-26°C to 93°C)                            |                |
| Bypass Setting:                | Cracking: 30 psi (2.1 bar)<br>Full Flow: 38 psi (2.6 bar) |                |
| Porting Base & Cap:            | Ductile Iron  |                |
| Element Case & Transfer Valve: | Steel   |                |
| Weight of QFD2-16Q:            | 375 lbs. (170 kg)   |                |
| Weight of QFD2-39Q:            | 500 lbs. (227 kg)   |                |
| Element Change Clearance:      | 16Q 12.00" (305 mm)<br>39Q 33.80" (859 mm)                |                |

r sing cifications

# QFD2 In-Line Filter



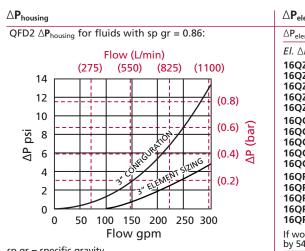
| Metric dimensions in ( ). |  |
|---------------------------|--|
|---------------------------|--|

| Element<br>Performance |  |                 |              | Filtration Ratio Per ISO 4572/NFPA T3.10.8.8<br>Using automated particle counter (APC) calibrated per ISO 4402 |  |   |  |  | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171  |                           |
|------------------------|--|-----------------|--------------|--|--|---|--|--|---|---------------------------|
| Information            | Elen   | ment            |              | ß <sub>x</sub>   | ≥ 75   | $\beta_X \ge 100$   | β <sub>X</sub> ≥   | 200  | β <sub>X</sub> (c) ≥ 200  | β <sub>X</sub> (c) ≥ 1000 |
|                        |  | Z1/CLQFZ1/PMLZ1 |              | <  | 1.0  | <1.0  | <1   | .0   | <4.0  | 4.2                       |
|                        |  | Z3/CLQ          | FZ3/PMLZ3    | <  | 1.0  | <1.0  | <2   | .0   | <4.0  | 4.8                       |
|                        | 16Q  | Z5/CLQ          | FZ5/PMLZ5    | 2  | 5  | 3.0   | 4  | .0   | 4.8   | 6.3                       |
|                        |  | Z10/CL0         | QFZ10/PMLZ10 | 7  | .4   | 8.2   | 10   | 0.0  | 8.0   | 10.0                      |
|                        |  | Z25/CL0         | QFZ25/PMLZ25 | 1  | 8.0  | 20.0  | 22   | .5   | 19.0  | 24.0                      |
|                        |  | Z1/CLQ          | FZ1/PMLZ1    | <  | 1.0  | <1.0  | <1   | .0   | <4.0  | 4.2                       |
|                        |  | Z3/CLQ          | FZ3/PMLZ3    | <  | 1.0  | <1.0  | <2   | 2.0  | <4.0  | 4.8                       |
|                        | 39Q  | Z5/CLQ          | FZ5/PMLZ5    | 2  | 5  | 3.0   | 4  | .0   | 4.8   | 6.3                       |
|                        |  | Z10/CL0         | QFZ10/PMLZ10 | 7  | .4   | 8.2   | 10   | 0.0  | 8.0   | 10.0                      |
|                        |  | Z25/CL0         | QFZ25/PMLZ25 | 1  | 8.0  | 20.0  | 22   | .5   | 19.0  | 24.0                      |
| Dirt Holding           | Elen   | nent            | DHC (gm      | )  | Element  | DH  | C (gm)   | Eleme  | nt  | DHC (gm)                  |
| Capacity               |  | Z1              | 276          |  | CLQFZ1   | 30  | 07   | PMLZ   | 1   | 307                       |
|                        |  | Z3              | 283          |  | CLQFZ3   | 3   | 15   | PMLZ3  | 3   | 315                       |
|                        | 16Q  | Z5              | 351          |  | CLQFZ5   | 36  | 64   | PMLZ   | 5   | 364                       |
|                        |  | Z10             | 280          |  | CLQFZ10  | 30  | 06   | PMLZ   | 10  | 330                       |
|                        |  | Z25             | 254          |  | CLQFZ25  | 27  | 78   | PMLZ   | 25  | 299                       |
|                        |  | Z1              | 974          |  | CLQFZ1   | 125   | 59   | PMLZ   | 1   | 1485                      |
|                        |  | Z3              | 1001         |  | CLQFZ3   | 129   | 93   | PMLZ   | 3   | 1525                      |
|                        | 39Q  | Z5              | 954          |  | CLQFZ5   | 130   | 02   | PMLZ   | 5   | 1235                      |
|                        |  | Z10             | 940          |  | CLQFZ10  | 121   | 14   | PMLZ   | 10  | 1432                      |
|                        |  | Z25             | 853          |  | CLQFZ25  | 11(   | 02   | PMLZ2  | 25  | 1299                      |
|                        | Element Collapse Rating:<br>Flow Direction:<br>Element Nominal Dimensions: |                 |              | tion:  | Q and QPML<br>Outside In<br>16Q:<br>16QCLQF:<br>16QPML:<br>39Q:<br>39QCLQF:<br>39QPML: | 6.0" (150 r<br>6.0" (150 r<br>6.0" (150 r<br>6.0" (150 r<br>6.0" (150 r | nm) O.D. x<br>nm) O.D. x<br>nm) O.D. x<br>nm) O.D. x<br>nm) O.D. x | : 16.85" (<br>: 18.21" (<br>: 16.00" (<br>: 38.70" (<br>: 40.01" ( | psid (7 bar)<br>430 mm) long<br>463 mm) long<br>405 mm) long<br>985 mm) long<br>1016 mm) long<br>960 mm) long | )                         |

## In-Line Filter **QFD2**

|  | Ту   | pe Fluid        | Appropria    | te Schroeder Media                         | a             |         |                                  |         | Fluid     | GH           |
|--|--|-----------------|--------------|--|---------------|---------|----------------------------------|---------|-----------|--------------|
| Petrol   | eum Base   | d Fluids        | All Z-Media  | <sup>®</sup> and ASP <sup>®</sup> media (s | Compatibility |         |                                  |         |           |              |
| High Water Content All Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic) |  |                 |              |  |               |         |                                  |         | CUUE      |              |
|  |  |                 |              | u Z-Media <sup>®</sup> (syntheti           |               | (synthe | etic)                            |         |           | GHHF         |
|  |  |                 | -            | d 25 µ Z-Media® (syr                       |               | -       |                                  | c)      |           |              |
|  | water  | arycors         | 5, 5, 10 and |  |               | meala   | Syntheti                         | C)      |           | RLT          |
| Pressure   | Element         Element selections are predicated on the use of 150 SUS (32 cSt)           Pressure         Part No. |                 |              |  |               |         | Element<br>Selection<br>Based on | KF5     |           |              |
|  |  | 16 & 39         |              | 16QZ1                                      | 390           | Z1      |                                  |         | Flow Rate |              |
|  |  | 16 & 39QZ3      |              |  | 16QZ3 39QZ3   |         |                                  |         |           | SRLT         |
|  |  | 16 & 39         |              |  |               |         | 39QZ5                            |         | JALI      |              |
|  |  | 16 & 39         |              |  | 16QZ10        |         | 39QZ10                           |         |           |              |
|  |  | 16 & 39         |              |  | 16QZ25 & 39   | QZ25    |                                  |         |           | К9           |
|  |  | 16 & 39         | QCLQFZ1      | 16QCLQFZ1                                  | 39Q(          | LQFZ1   |                                  |         |           | K5           |
| То   | Z-   |                 | QCLQFZ3      |  | LQFZ3         |         |                                  | LQFZ3   |           |              |
| 200 psi  | Media®   |                 | QCLQFZ5      | · · ·                                      | LQFZ5         |         | 39QCLQFZ5                        |         |           | 2K9          |
| (14 bar)   | incula   |                 | QCLQFZ10     | 16QCLQFZ10                                 |               |         | 39QCLQFZ10                       |         |           | 213          |
|  |  | 16 & 39QCLQFZ25 |              |  | 16QCLQFZ25    |         | 39QCLQFZ25                       |         |           |              |
|  |  |                 | QPMLZ1       | 16QPMLZ1                                   | 39QPN         | LZ1     |                                  |         |           | 3K9          |
|  |  |                 | QPMLZ3       |  | MLZ3          | _       | 39QPMLZ3                         |         |           | <b>D</b> ICO |
|  |  |                 | QPMLZ5       |  | 16QPMLZ5      |         | 39QPMLZ5                         |         |           |              |
|  |  |                 | QPMLZ10      | 16   | QPMLZ10       |         | 39                               | QPMLZ10 |           | QF5          |
|  |  | 16 & 39         | QPMLZ25      |  | 16QPML2       | 25      |                                  |         |           |              |
|  | Flaur  | gpm             | (            | Ċ  | 200           |         | 3                                | 00      |           |              |
|  | Flow   | (L/min)         | (            | ວ່ 50                                      | 0 '           | 000     |                                  |         |           | <b>3QF5</b>  |
| Shown aboy   | ve are the   | elements        | most commo   | only used in this hou                      | isina.        |         |                                  |         |           |              |

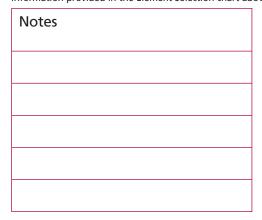
Shown above are the elements most commonly used in this housing. Note: For more information, refer to Fluid compatibility: Fire Resistant Fluids, Page 21 and 22



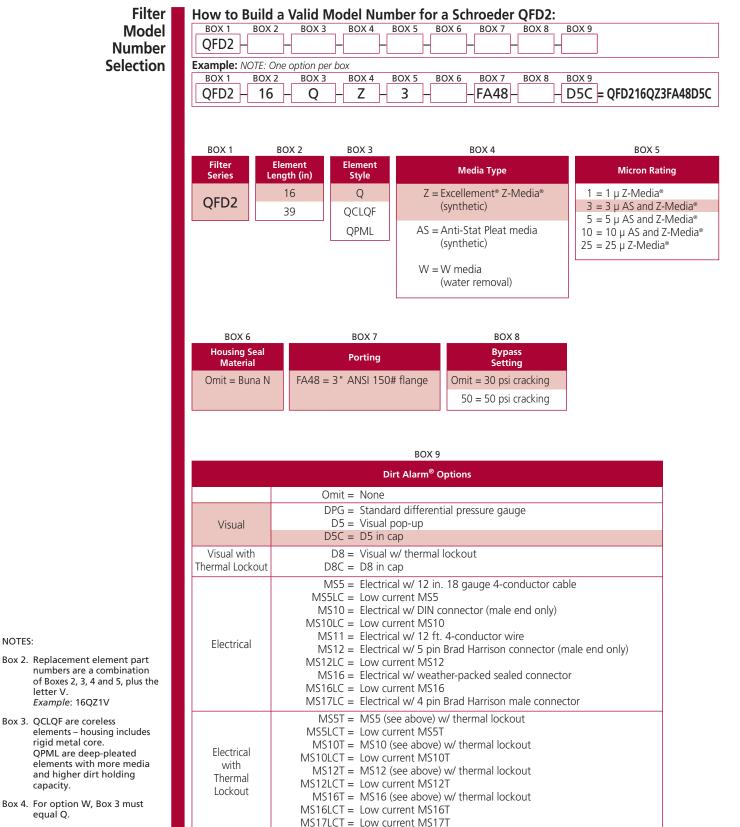
| isistant nan  | as, rage 21 ana 22  | -   |                                 | -                     | 0503        |  |  |  |
|---|---|---|---------------------------------|-----------------------|-------------|--|--|--|
| $\triangle \mathbf{P}_{element}$                    | t   |   |                                 | Pressure              | QFD2        |  |  |  |
| $\Delta P_{element}$                                | = flow x element  | $\Delta P$ factor x viscosity                                   | / factor                        | Drop                  |             |  |  |  |
| El. ∆P fao  | tors @ 150 SUS (3   | 32 cSt):  | Information                     | QFD5                  |             |  |  |  |
| 16QZ1<br>16QZ3<br>16QZ5                             | .09<br>.04<br>.04   | 39QZ1<br>39QZ3<br>39QZ5   | .03<br>.01<br>.01               | Based on<br>Flow Rate | <b>OF15</b> |  |  |  |
| 16QZ10<br>16QZ25                                    | .03<br>.01  | 39QZ10<br>39QZ25  | .01<br>.01                      | and Viscosity         | Q. IS       |  |  |  |
| 16QCLQI<br>16QCLQI<br>16QCLQI<br>16QCLQI<br>16QCLQI | <b>Z3</b> .05<br><b>Z5</b> .05<br><b>Z10</b> .04                    | 39QCLQFZ1<br>39QCLQFZ3<br>39QCLQFZ5<br>39QCLQFZ10<br>39QCLQFZ25 | .03<br>.02<br>.02<br>.01<br>.01 |                       | QLF15       |  |  |  |
| 16QPML<br>16QPML<br>16QPML<br>16QPML<br>16QPML      | <b>Z1</b> .08<br><b>Z3</b> .05<br><b>Z5</b> .05<br><b>Z10</b> .04   | 39QPMLZ1<br>39QPMLZ3<br>39QPMLZ5<br>39QPMLZ10<br>39QPMLZ25      | .03<br>.02<br>.02<br>.01<br>.01 |                       | SSQLF15     |  |  |  |
| •   |   | L/min, divide above   |                                 |                       |             |  |  |  |
| -   | factor: Divide viscos   | ity by 150 SUS (32 cSt).  |                                 |                       |             |  |  |  |
|   | $\Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\epsilon}$ | element   |                                 |                       |             |  |  |  |
|   | ne ∆P at 150 gpm<br>Z3FA48D5C usin                                  | n (570 L/min) for<br>g 200 SUS (44 cSt)                         | fluid.                          |                       |             |  |  |  |
| Solution  | :   |   |                                 |                       |             |  |  |  |
| $\Delta P_{housing}$                                | , = 2.5 psi [.17 b  | ar]   |                                 |                       |             |  |  |  |
| ∆P <sub>element</sub>                               | t = 150 x .04 x (2<br>or  | 200÷150) = 8.0 psi  |                                 |                       |             |  |  |  |
| = [570 x (.04÷54.9) x (44÷32) = .57 bar]            |   |   |                                 |                       |             |  |  |  |
| $\Delta P_{total}$                                  | = 2.5 + 8.0 = 10<br>or<br>= [.17 + .57 = .7                         |   |                                 |                       |             |  |  |  |

sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.







MS13 = Supplied w/ threaded connector & light

MS13DCLCT = Low current MS13DCT

MS14DCLCT = Low current MS14DCT

MS13DCT = MS13 (see above), direct current, w/ thermal lockout

MS14DCT = MS14 (see above), direct current, w/ thermal lockout

MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)

NOTES:

Integral inlet and outlet test points are standard on all models.

housing only.

#### **204 SCHROEDER INDUSTRIES**

Electrical

Visual

**Electrical Visual** 

with Thermal

Lockout

### In-Line Filter **QFD5**



350 gpm <sup>GH</sup> 1325 L/min <sub>GHHF</sub>



#### **Features and Benefits**

- Duplex filter design
- Approved for API 5L use
- Element changeout from the top minimizes oil spillage
- Available with optional core assembly to accommodate coreless elements
- Offered with standard Q, QPML deep-pleated and QCLQF coreless elements in 16" and 39" lengths with Viton® seals as the standard
- Offered in 2" and 3" SAE J518 4-bolt flange Code 61 and ANSI 300# flange porting
- Integral inlet and outlet test points are standard on all models
- Various Dirt Alarm<sup>®</sup> options
- Also available in 4, 6 or 8 housing modular design (contact factory)

Model No. of filter in photograph is QFD516QZ10F48DPG.



INDUSTRIAL







POWER GENERATION

MACHINE

TOOL

 $\odot$ 

PULP & PAPER



MAKING

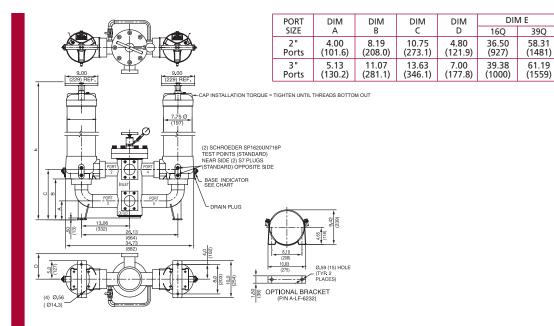
MOBILE VEHICLES

| 500 psi  | GHHF              |
|--|-------------------|
| 35 bar   | RLT               |
|  | KF5               |
|  | SRLT              |
|  | К9                |
|  | 2K9               |
| Viton® is a registered<br>trademark of DuPont Dow<br>Elastomers. | <b>3K9</b>        |
|  | QF5               |
| Applications   | 3QF5              |
|  | QFD2              |
|  | QFD5              |
|  | QF15              |
|  | QLF15             |
| SS   | SQLF15            |
|  | Soo psi<br>35 bar |

| Flow Rating:                   | Up to 175 gpm (675 L/min) for 2";<br>350 gpm (1325 L/min) for 3" for 150 SUS (32 cSt) fluids | Filter<br>Housing |
|--------------------------------|--|-------------------|
| Max. Operating Pressure:       | 500 psi (34.5 bar)   | Specifica         |
| Min. Yield Pressure:           | Contact Factory  |                   |
| Rated Fatigue Pressure:        | Contact Factory  |                   |
| Temp. Range:                   | -15°F to 200°F (-26°C to 93°C)   |                   |
| Bypass Setting:                | Cracking: 30 psi (2.1 bar)<br>Full Flow: 33 psi (2.3 bar) for 2"; 38 psi (2.6 bar) for 3"    |                   |
| Porting Base & Cap:            | Ductile Iron   |                   |
| Element Case & Transfer Valve: | Steel  |                   |
| Weight of QFD5-16Q:            | 410.0 lbs. (186.0 kg) for 2"; 455.0 (206.0 kg) for 3"  |                   |
| Weight of QFD5-39Q:            | 562.0 lbs. (255.0 kg) for 2"; 607.0 (275.0 kg) for 3"  |                   |
| Element Change Clearance:      | 16Q 12.00" (305 mm)<br>39Q 33.80" (859 mm)   |                   |
|                                |  |                   |

### g cations

# QFD5 In-Line Filter



Metric dimensions in ( ).

| Element<br>Performance   |      |                           |   |   | atio Per ISO 4572/N<br>I particle counter (APC) cal                                 |  |                                  | per ISO 16889<br>ted per ISO 11171 |
|--|------|---------------------------|---|---|---|--|----------------------------------|------------------------------------|
| Information  | Eler | nent                      |   | β <sub>x</sub> ≥ 75                       | β <sub>x</sub> ≥ 100  | β <sub>x</sub> ≥ 200                                     | β <sub>x</sub> (c) ≥ 200         | β <sub>x</sub> (c) ≥ 1000          |
|  |      | Z1/CLQFZ1/PMLZ1           |   | <1.0                                      | <1.0  | <1.0   | <4.0                             | 4.2                                |
|  |      | Z3/CLQFZ3/PMLZ3/          | PMLAS3V/AS3V                                  | <1.0                                      | <1.0  | <2.0   | <4.0                             | 4.8                                |
|  | 16Q  | Z5/CLQFZ5/PMLZ5/          | PMLAS5V/AS5V                                  | 2.5                                       | 3.0   | 4.0  | 4.8                              | 6.3                                |
|  |      | Z10/CLQFZ10/PMLZ10/       | PMLAS10V/AS10V                                | 7.4                                       | 8.2   | 10.0   | 8.0                              | 10.0                               |
|  |      | Z25/CLQFZ25/PMLZ          | 25  | 18.0                                      | 20.0  | 22.5   | 19.0                             | 24.0                               |
|  |      | Z1/CLQFZ1/PMLZ1           |   | <1.0                                      | <1.0  | <1.0   | <4.0                             | 4.2                                |
|  |      | Z3/CLQFZ3/PMLZ3/          | PMLAS3V/AS3V                                  | <1.0                                      | <1.0  | <2.0   | <4.0                             | 4.8                                |
|  | 390  | Z5/CLQFZ5/PMLZ5/          | PMLAS5V/AS5V                                  | 2.5                                       | 3.0   | 4.0  | 4.8                              | 6.3                                |
|  | 554  | Z10/CLQFZ10/PMLZ<br>AS10V | 10/PMLAS10V/                                  | 7.4                                       | 8.2   | 10.0   | 8.0                              | 10.0                               |
|  |      | Z25/CLQFZ25/PMLZ          | 25  | 18.0                                      | 20.0  | 22.5   | 19.0                             | 24.0                               |
| <b>N</b> (11 11  | Eler | nent                      | DHC (gm)                                      | Element                                   | DHC (gm)  | Element  |                                  | DHC (gm)                           |
| Dirt Holding   | 16Q  | Z1                        | 276   | CLQFZ1                                    | 307   | PMLZ1  |                                  | 307                                |
| Capacity   |      | Z3/AS3V                   | 283   | 3 CLQFZ3 315 PMLZ3/PMLAS3V                |   | AS3V   | 315                              |                                    |
|  |      | <b>Z5/AS5V</b> 351        |   | CLQFZ5                                    | 364   | PMLZ5/PML  | AS5V                             | 364                                |
|  |      | Z10/AS10V                 | 280   | CLQFZ10                                   | 306   | PMLZ10/PMLAS10V  |                                  | 330                                |
|  |      | Z25                       | 254   | CLQFZ25                                   | 278   | PMLZ25   |                                  | 299                                |
|  |      | Z1                        | 974   | CLQFZ1                                    | 1259  | PMLZ1  |                                  | 1485                               |
|  |      | Z3/AS3V                   | 1001  | CLQFZ3                                    | 1293  | PMLZ3/PML  | AS3V                             | 1525                               |
|  | 39Q  | Z5/AS5V                   | 954   | CLQFZ5                                    | 1302  | PMLZ5/PML  | AS5V                             | 1235                               |
|  |      | Z10/AS10V                 | 940   | CLQFZ10                                   | 1214  | PMLZ10/PM  | LAS10V                           | 1432                               |
|  |      | Z25                       | 853   | CLQFZ25                                   | 1102  | PMLZ25   |                                  | 1299                               |
|  |      |                           | lapse Rating:<br>ow Direction:<br>Dimensions: | Outside In<br>16Q:<br>16QCLQF:<br>16QPML: | 150 psid (10 bar), C<br>6.0" (150 mm) O.E<br>6.0" (150 mm) O.E<br>6.0" (150 mm) O.E | D. x 16.85" (430<br>D. x 18.21" (463<br>D. x 16.00" (405 | mm) long<br>mm) long<br>mm) long |                                    |
|  |      |                           |   | 39Q:<br>39QCLQF:<br>39QPML:               | 6.0" (150 mm) O.E<br>6.0" (150 mm) O.E<br>6.0" (150 mm) O.E                         | D. x 40.01" (101   | 6 mm) long                       |                                    |
| 39QPML:         6.0 " (150 mm) O.D. x 37.80 " (960 mm) long           206 SCHROEDER INDUSTRIES |      |                           |   |   |   |  |                                  |                                    |

## In-Line Filter **QFD5**

| Type Fluid Appropriate Schroeder Media   |  |                      |                |                      |   |              |  |            |               | GH             |  |
|--|--|----------------------|----------------|----------------------|---|--------------|--|------------|---------------|----------------|--|
| Petrol   | eum Bas  | ed Fluids            | All E medi     | a (cellulose), Z-Me  | edia <sup>®</sup> and ASP <sup>®</sup> me | edia (synth  | etic)  |            | Compatibility |                |  |
| Hig  | High Water Content       All Z-Media® and ASP® media (synthetic)         Invert Emulsions       10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic) |                      |                |                      |   |              |  |            |               |                |  |
|  | Invert E   | mulsions             | 10 and 25      | μ Z-Media® and       |   |              | GHHF   |            |               |                |  |
|  | Wate   | er Glycols           |                |                      | RLT                                       |              |  |            |               |                |  |
| Phosphate Esters All Z-Media <sup>®</sup> (synthetic) with H (EPR) seal designation and all ASP <sup>®</sup> media (synthetic) |  |                      |                |                      |   |              |  |            |               |                |  |
|  |  | Element              | :              | Element selection    | s are predicated c                        | on the use   | of 150 SUS (32 cSt) p                              | etroleum   | Element       |                |  |
| Pressure   | Series   | Part                 | No.            | based fluid and 3    | " flange porting v                        | vith a 30 p  | si (2.1 bar) bypass.                               |            | Selection     | KF5            |  |
|  |  | 16 & 39Q             |                | 16QZ1                |   | 39QZ1        |  |            | Based on      |                |  |
|  |  | 16 & 39Q             |                |                      | 16QZ3                                     |              | 39QZ3  |            | Flow Rate     |                |  |
|  |  | 16 & 39Q<br>16 & 39Q |                |                      | 16QZ5<br>16QZ10                           |              | 39QZ5<br>39QZ                                      | 10         |               | SRLT           |  |
|  |  | 16 & 39Q             |                |                      |   | & 39QZ25     |  |            |               |                |  |
|  |  | 16 & 39Q             |                | 16QCLQFZ             |   | 9QCLQFZ      |  |            |               | К9             |  |
| То   | _  | 16 & 39Q             |                |                      | CLQFZ3                                    |              | 39QCLQFZ3  |            |               | R9             |  |
| 500 psi  | Z-<br>Media®   | 16 & 39Q             |                |                      | CLQFZ5                                    |              | 39QCLQFZ5  |            |               |                |  |
| (35 bar)   | Ivieula-   | 16 & 39Q             | CLQFZ10        | 1                    | 6QCLQFZ10                                 |              | 39QCLQFZ10   | )          |               | 2K9            |  |
|  |  | 16 & 39Q             |                |                      | 16QCLQFZ25                                |              | 39QCLQ   | FZ25       |               |                |  |
|  |  | 16 & 39Q             |                | 16QPMLZ1             |   | PMLZ1        |  |            |               |                |  |
|  |  | 16 & 39Q             |                |                      | QPMLZ3                                    |              | 39QPMLZ3   |            |               | 3K9            |  |
|  |  | 16 & 39Q             |                |                      | QPMLZ5                                    |              | 39QPMLZ5   |            |               |                |  |
|  |  | 16 & 39Q<br>16 & 39Q |                |                      | I6QPMLZ10                                 | MLZ25        | 39QPMLZ10  |            |               | QF5            |  |
|  |  | gpm                  | (              | )                    | 200                                       |              | 300  | 350        |               | CID            |  |
|  | Flow   |                      | (              | -                    |   | 100          |  | 550        |               |                |  |
|  |  | (L/min)              |                |                      |   | 100          | 0  |            |               | 3QF5           |  |
| Note: Con  | tact fact  | ory regardi          | ng use of E    |                      | ater Content, Inv                         |              | on and Water Glycol                                |            |               |                |  |
|  | ons. For n   | nore inform          | nation, refe   | er to Fluid compat   | -   | ant Fluids,  | page 21 and 22.                                    | _          |               | QFD2           |  |
| $\Delta \mathbf{P}_{housing}$  |  |                      |                | -                    | $\Delta \mathbf{P}_{element}$             |              |  |            | Pressure      |                |  |
| QFD5 ∆P <sub>ho</sub>  |  | fluids with          | sp gr = 0.8    | 6:                   | $\triangle P_{element}$ = flow x          | element ∆    | P factor x viscosity fa                            | ctor       | Drop          |                |  |
| 20   | Flow (L<br>(200)   | ./min)<br>(500)      |                |                      | El. △P factors @ 1                        | 50 SUS (32   | ? cSt):  |            | Information   | QFD5           |  |
|  |  |                      |                |                      | 16QZ1                                     | .09          | 39QZ1  | .03        | Based on      |                |  |
| 16   | ·  |                      | (1.00)         |                      | 16QZ3/16QAS3V<br>16QZ5/16QAS5V            |              | 39QZ3/39QAS3V<br>39QZ5/39QAS5V                     | .01<br>.01 | Flow Rate     | QF15           |  |
| isd 12<br>d⊽   |  | CATION               | ∆P (bar)       |                      | 16QZ10/16QAS10                            | <b>V</b> .03 | 39QZ10/39QAS10V                                    | .01        | and Viscosity | QFIS           |  |
| 8  |  | TELEMENT SIZING      | (0.50)         |                      | 16QZ25<br>16QCLQFZ1                       | .01<br>.07   | 39QZ25<br>39QCLQFZ1                                | .01<br>.03 |               |                |  |
| 4  | +  | 2" ELEMENT           | (0.50)         |                      | 16QCLQFZ3                                 | .07          | 39QCLQFZ3  | .03        |               | OLF15          |  |
| 0  | 50 100   | 150                  | 200            |                      | 16QCLQFZ5                                 | .05<br>.04   | 39QCLQFZ5<br>39QCLQFZ10                            | .02<br>.01 |               | <b>Q</b> =1.10 |  |
|  | Flow   | gpm                  | Flow (L/m      |                      | 16QCLQFZ10<br>16QCLQFZ25                  | .04<br>.03   | 39QCLQFZ10   | .01        |               |                |  |
|  |  | 14                   | (200) (500) (8 | 300) (1000)          | 16QPMLZ1                                  | .08          | 39QPMLZ1   | .03        |               | SSQLF15        |  |
|  |  |                      |                |                      | 16QPMLZ3/<br>16QPMLAS3V                   | .05          | 39QPMLZ3/<br>39QPMLAS3V                            | .02        |               |                |  |
|  |  | 8                    |                | (0.5) (0.5)          | 16QPMLZ5/                                 |              | 39QPMLZ5/  |            |               |                |  |
|  |  | isd 4                | MFIG           |                      | 16QPMLAS5V<br>16QPMLZ10/                  | .05          | 39QPMLAS5V<br>39QPMLZ10/                           | .02        |               |                |  |
|  |  | 2                    | 3 2            | ELEMENT SLEIN (0.25) | 16QPMLAS10V                               | .04          | 39QPMLAS10V  | .01        |               |                |  |
|  |  | ۰                    | 50 150         | 250 350              | 16QPMLZ25                                 | .02          | 39QPMLZ25  | .01        |               |                |  |
|  | odifie and   | ·                    | Flow g         | om .                 |   |              | hin, divide above factor<br>y by 150 SUS (32 cSt). | by 54.9.   |               |                |  |
| sp gr = sp<br>Sizing of e  | -  | -                    | ased on ela    | ment flow inform     | ,   |              | y by 150 SUS (32 CSt).<br>ht Selection chart abo   | ove        |               |                |  |
| 5121119 01 0   |  |                      |                |                      | actori provided III                       |              |  |            |               |                |  |

#### $\triangle \mathbf{P}_{\mathsf{filter}} = \triangle \mathbf{P}_{\mathsf{housing}} + \triangle \mathbf{P}_{\mathsf{element}}$

Exercise: Determine △P at 150 gpm (570 L/min) for QFD516QZ3VF48D5 using 200 SUS (44 cSt) fluid.

#### Solution:

 $\Delta P_{\text{housing}} = 2.5 \text{ psi} [.17 \text{ bar}]$ 

$$\Delta P_{element} = 150 \times .04 \times (200 \div 150) = 8.0 \text{ psi}$$
  
or  
= [570 × (.04÷54.9) × (44÷32) = .57 bar]  
$$\Delta P_{total} = 2.5 + 8.0 = 10.5 \text{ psi}$$
  
or



| Filter<br>Model<br>Number<br>Selection | How to Build a Valid Model Number for a Schroeder QFD5:<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9<br>QFD5 |                    |   |  |  |  |  |  |  |  |
|--|--|--------------------|---|--|--|--|--|--|--|--|
|  | BOX 1 BOX 2  | BOX 3              | BOX 4   | BOX 5  |  |  |  |  |  |  |
|  | Filter Element<br>Series Length (in)   | Element<br>Style   | Media Type  | Micron Rating  |  |  |  |  |  |  |
|  | QFD5 16<br>39  | Q<br>QCLQF<br>QPML | Z = Excellement® Z-Media®<br>(synthetic)<br>AS = Anti-Stat Pleat media<br>(synthetic)<br>W = W media<br>(water removal) | $1 = 1 \mu Z-Media^{\circ}$ $3 = 3 \mu AS and Z-Media^{\circ}$ $5 = 5 \mu AS and Z-Media^{\circ}$ $10 = 10 \mu AS and Z-Media^{\circ}$ $25 = 25 \mu Z-Media^{\circ}$ |  |  |  |  |  |  |
|  | BOX 6  |                    | BOX 7   | BOX 8  |  |  |  |  |  |  |
|  | Housing Seal<br>Material   |                    | Porting   | Bypass<br>Setting  |  |  |  |  |  |  |
|  | Omit = Buna N  |                    | AE 4-bolt flange Code 61  | Omit = 30 psi cracking   |  |  |  |  |  |  |
|  | V = Viton®   | FA32 = 2 " AN      | AE 4-bolt flange Code 61<br>NSI 300# flange   | 50 = 50 psi cracking   |  |  |  |  |  |  |
|  |  | F48M = 3" SA       | NE 4-bolt flange Code 61<br>NE 4-bolt flange Code 61<br>NSI 300# flange   | X = Blocked bypass   |  |  |  |  |  |  |
|  |  |                    | POX 0   |  |  |  |  |  |  |  |

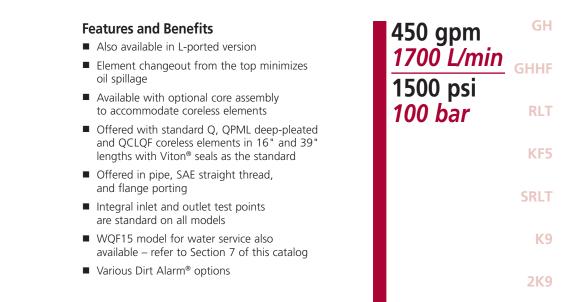
|                        | Dirt Alarm <sup>®</sup> Options   |
|------------------------|---|
|                        | Omit = None   |
| Visual                 | DPG = Standard differential pressure gauge<br>D5 = Visual pop-up<br>D5C = D5 in cap |
| Visual with Thermal    | DS = Visual w/ thermal lockout  |
| Lockout                | D8 = VISUAI W (Hernial lockout)<br>D8C = D8 in cap                                  |
| LUCKUUL                |   |
|                        | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5    |
|                        | MS10 = Electrical w/ DIN connector (male end only)                                  |
|                        | MSTO = Electrical W Div Connector (male end only)MSTOLC = Low current MSTO          |
|                        | MS10EC = Elow current MS10MS11 = Electrical w/ 12 ft. 4-conductor wire              |
| Electrical             | MSTT = Electrical W/5 pin Brad Harrison connector (male end only)                   |
|                        | MS12L = Low current MS12  |
|                        | MS16 = Electrical w/ weather-packed sealed connector                                |
|                        | MS16LC = Low current MS16   |
|                        | MS10LC = Electrical w/ 4 pin Brad Harrison male connector                           |
|                        | MSST = MSS (see above) w/ thermal lockout   |
|                        | MS5LCT = Low current MS5T   |
|                        | MS10T = MS10 (see above) w/ thermal lockout   |
| Electrical             | MS10LCT = Low current MS10T   |
| with                   | MS12T = MS12 (see above) w/ thermal lockout   |
| Thermal                | MS12LCT = Low current MS12T   |
| Lockout                | MS16T = MS16 (see above) w/ thermal lockout   |
|                        | MS16LCT = Low current MS16T   |
|                        | MS17LCT = Low current MS17T   |
| Electrical             | MS13 = Supplied w/ threaded connector & light                                       |
| Visual                 | MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)                 |
|                        | MS13DCT = MS13 (see above), direct current, w/ thermal lockout                      |
| Electrical Visual with | MS13DCLCT = Low current MS13DCT   |
| Thermal Lockout        | MS14DCT = MS14 (see above), direct current, w/ thermal lockout                      |
|                        | MS14DCLCT = Low current MS14DCT   |

#### NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4, and 5 plus the letter V. *Example*: 16QZ1V
- Box 3. QCLQF are coreless elements – housing includes rigid metal core. QPML are deep-pleated elements with more media and higher dirt holding capacity.
- Box 4. For option W, Box 3 must equal Q.
- Box 6. All elements for this filter are supplied with Viton® seals. Seal designation in Box 6 applies to housing only. Viton® is a registered trademark of DuPont Dow Elastomers.
- Box 7. F32M and F48M are supplied with metric flange mounting holes.

Integral inlet and outlet test points are standard on all models.

### In-Line Filter **QF15**



Model No. of filter in photograph is QF1516QZ10P24MS10AC.



INDUSTRIAL



MINING





POWER GENERATION



MACHINE

PULP & PAPER



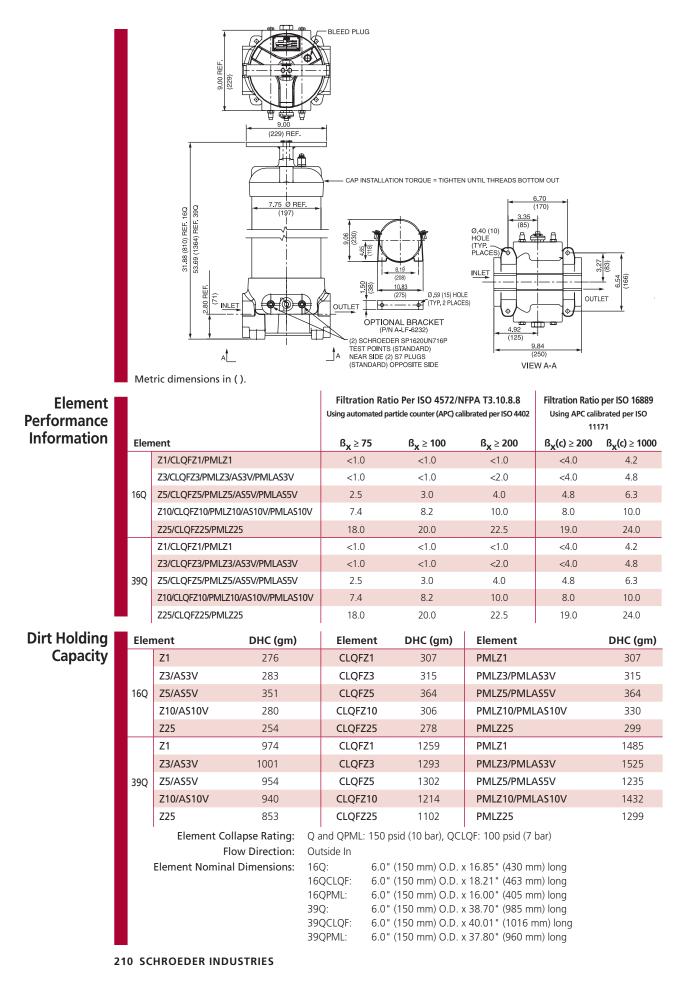
STEEL MAKING



|  | SRLT       |
|--|------------|
|  | К9         |
|  | 2K9        |
| Viton <sup>®</sup> is a registered<br>trademark of DuPont<br>Dow Elastomers. | <b>3K9</b> |
|  | QF5        |
| Applications   | 3QF5       |
|  | QFD2       |
|  | QFD5       |
|  | QF15       |
|  | QLF15      |
|  | SSQLF15    |

| Flow Rating:              | Up to 450 gpm (1700 L/min) for 150 SUS (32 cSt) fluids    | Filter         |
|---------------------------|---|----------------|
| Max. Operating Pressure:  | 1500 psi (100 bar)  | Housing        |
| Min. Yield Pressure:      | 4900 psi (340 bar), per NFPA T2.6.1                       | Specifications |
| Rated Fatigue Pressure:   | 800 psi (55 bar), per NFPA T2.6.1-R1-2005                 |                |
| Temp. Range:              | -20°F to 225°F (-29°C to 107°C)                           |                |
| Bypass Setting:           | Cracking: 30 psi (2.1 bar)<br>Full Flow: 55 psi (3.8 bar) |                |
| Porting Base & Cap:       | Ductile Iron  |                |
| Element Case:             | Steel   |                |
| Weight of QF15-16Q:       | 139.0 lbs. (63.0 kg)                                      |                |
| Weight of QF15-39Q:       | 198.0 lbs. (90.0 kg)                                      |                |
| Element Change Clearance: | 16Q 12.0" (305 mm)<br>39Q 33.8" (859 mm)                  |                |
|                           |   |                |

# QF15 In-Line Filter



### In-Line Filter **QF1**

**QFD2** 

QF15

**OLF15** 

SSQLF15

Pressure

Based on

Flow Rate

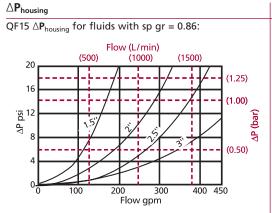
and Viscosity

Information

Drop

| Type Fluid Appropriate Schroeder Media |   |          |               |   |                     |                 |           | Fluid      | GH           |                      |               |              |
|--|---|----------|---------------|---|---------------------|-----------------|-----------|------------|--------------|----------------------|---------------|--------------|
| Petroleu                               | um Base   | d Fluids | All E media   | (cellulose), Z-Media                      | <sup>®</sup> and AS | SP® Media (     | synthetio | <u>_</u> ) |              |                      | Compatibility |              |
| High                                   | Water   | Content  | All Z-Media   | <sup>®</sup> and ASP <sup>®</sup> media ( | synthetic           | :)              |           |            |              |                      |               | CUUE         |
|  | nvert Er  | nulsions | 10 and 25     | u Z-Media <sup>®</sup> and 10             | u ASP® m            | nedia (svnth    | etic)     |            |              |                      |               | GHHF         |
|  |   |          |               | d 25 µ Z-Media® and                       |                     |                 |           |            |              |                      |               |              |
| D                                      |   | -        |               | <sup>®</sup> (synthetic) with H           |                     | -               |           | M ACD® may | dia (cunth   | otic)                |               | RLT          |
| r                                      | nospnai   | e esters | All Z-Ivieula | synthetic) with H                         | (EPR) Sea           | al designatio   |           |            | lia (Syritri | elic)                |               |              |
| Pressure                               | Element         Element selections are predicated on the use of 150 SUS (32 cSt) petroleum           Pressure         Series         Part No.           based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass valve. |          |               |   |                     |                 |           |            | leum         | Element<br>Selection | KF5           |              |
|  |   | 16 & 39  | QZ1           | 16QZ1                                     |                     | 39QZ1           |           |            |              |                      | Based on      |              |
|  |   | 16 & 39  |               |   | 16QZ3 39QZ3         |                 |           |            |              |                      | Flow Rate     | SRLT         |
|  |   | 16 & 39  | QZ5           | 16QZ5                                     |                     |                 |           | 39QZ5      |              |                      |               | SULI         |
|  |   | 16 & 39  | -             |   | 16QZ10 39           |                 |           |            |              |                      |               |              |
|  |   | 16 & 39  |               |   |                     | 16QZ25 & 39QZ25 |           |            |              |                      |               | К9           |
|  |   |          | QCLQFZ1       | 16QCLQFZ                                  |                     | 39QCLC          | ·         |            |              |                      |               | R5           |
| То                                     | Z-  |          | QCLQFZ3       | · · · ·                                   | LQFZ3               |                 |           | 39QCLQFZ3  |              |                      |               |              |
| 1500 psi                               | Media®  |          | QCLQFZ5       | -   | LQFZ5               |                 | 39QCLQF   |            |              |                      |               | 2K9          |
| (100 bar)                              |   |          | QCLQFZ10      |   | 16QCLQFZ10          |                 |           | 39QCLQFZ10 |              |                      |               | LICU         |
|  |   |          | QCLQFZ25      |   | QCLQFZ              |                 |           | 39QC       | _QFZ25       |                      |               |              |
|  |   |          | QPMLZ1        | 16QPMLZ1                                  |                     | 39QPMLZ1        |           |            |              |                      |               | 3K9          |
|  |   |          | QPMLZ3        | 16QP                                      |                     |                 |           | PMLZ3      |              |                      |               | <b>U</b> IKU |
|  |   |          |               | QPMLZ5 16QPMLZ5                           |                     |                 | 390       | PMLZ5      |              |                      |               |              |
|  |   |          | QPMLZ10       | 16QF                                      | PMLZ10              |                 |           | 39QPML     |              |                      |               | QF5          |
|  |   | 16 & 39  | QPMLZ25       | 16QPMLZ25                                 |                     |                 |           | 39QPMLZ25  |              | Z25                  |               |              |
|  | Flow  | gpm      | (             | ) 100                                     |                     | 200             | 30        | 00         | 400          | 450                  |               |              |
|  | Flow  | (L/min)  | (             | )   | 500                 |                 | 1000      |            | 1500         | 1700                 |               | 3QF5         |
|  |   |          |               | nmonly used in this                       |                     |                 |           | and Mater  | Church       |                      |               |              |

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

 $\triangle \mathbf{P}_{\mathsf{filter}} = \triangle \mathbf{P}_{\mathsf{housing}} + \triangle \mathbf{P}_{\mathsf{element}}$ 

#### Exercise:

Determine  ${\bigtriangleup}P$  at 150 gpm (570 L/min) for QF1516QZ3VF40D5 using 200 SUS (44 cSt) fluid.

Solution:

 $\Delta P_{\text{housing}} = 1 \text{ psi [.07 bar]}$ 

$$\Delta P_{element} = 150 \times .04 \times (200 \div 150) = 8.0 \text{ psi}$$

= [570 x (.04÷54.9) x (44÷32) = .57 bar]

$$\Delta P_{\text{total}} = 1.0 + 8.0 = 9.0 \text{ psi}$$
  
or  
= [.07 + .57 = .64 bar]

| $\Delta \mathbf{P}_{element}$  |            |                               |            |  |  |  |  |  |  |
|--|------------|-------------------------------|------------|--|--|--|--|--|--|
| $\Delta P_{element}$ = flow x element $\Delta P$ factor x viscosity factor |            |                               |            |  |  |  |  |  |  |
| El. $\triangle P$ factors @ 1  | 150 SUS    | (32 cSt):                     |            |  |  |  |  |  |  |
| 16QZ1  | .09        | 39QZ1                         | .03        |  |  |  |  |  |  |
| 16QZ3/16QAS3V  |            | 39QZ3/39QAS3V                 | .01        |  |  |  |  |  |  |
| 16QZ5/16QAS5V  |            | 39QZ5/39QAS5V                 | .01        |  |  |  |  |  |  |
| 16QZ10/16QAS10   |            | 39QZ10/39QAS10V               | .01        |  |  |  |  |  |  |
| 16QZ25   | .01        | 39QZ25                        | .01        |  |  |  |  |  |  |
| 16QCLQFZ1  | .07        | 39QCLQFZ1                     | .03        |  |  |  |  |  |  |
| 16QCLQFZ3  | .05        | 39QCLQFZ3                     | .02        |  |  |  |  |  |  |
| 16QCLQFZ5  | .05        | 39QCLQFZ5                     | .02        |  |  |  |  |  |  |
| 16QCLQFZ10<br>16QCLQFZ25   | .04<br>.03 | 39QCLQFZ10<br>39QCLQFZ25      | .01<br>.01 |  |  |  |  |  |  |
|  |            |                               |            |  |  |  |  |  |  |
| 16QPMLZ1   | .08        | 39QPMLZ1                      | .03        |  |  |  |  |  |  |
| 16QPMLZ3/<br>16OPMLAS3V  | .05        | 39QPMLZ3/<br>39OPMLAS3V       | .02        |  |  |  |  |  |  |
| 16OPMLZ5/  | .05        | 390PMLZ5/                     | .02        |  |  |  |  |  |  |
| 16QPMLAS5V   | .05        | 39QPMLAS5V                    | .02        |  |  |  |  |  |  |
| 160PMLZ10/   | .05        | 390PMLZ10/                    | .02        |  |  |  |  |  |  |
| 16OPMLAS10V  | .04        | 390PMLAS10V                   | .01        |  |  |  |  |  |  |
| 16QPMLZ25  | .02        | 39QPMLZ25                     | .01        |  |  |  |  |  |  |
| If working in units  | of bars &  | L/min, divide above factor by | 54.9.      |  |  |  |  |  |  |

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

# QF15 In-Line Filter

| Filter   | How to Build a V                                       | alid Model Numbe  | r for a Schroeder QF15:   |  |  |  |  |  |  |
|--|--|---|---|--|--|--|--|--|--|
| Model<br>Number  | BOX 1 BOX 2<br>QF15                                    | BOX 3 BOX 4 BOX   | 5 BOX 6 BOX 7 BOX 8 I   | 3OX 9  |  |  |  |  |  |
| Selection  | Example: NOTE: One op                                  | ntion per box   |   |  |  |  |  |  |  |
|  | BOX 1 BOX 2 BOX<br>QF15 - 16 - C                       |   | x 6 BOX 7 BOX 8 BOX 9<br>- D5C =  | QF1516QZ3D5C   |  |  |  |  |  |
|  | BOX 1 BOX 2  | BOX 3   | BOX 4   | BOX 5  |  |  |  |  |  |
|  | Filter Element<br>Series Length (in                    |   | Media Type  | Micron Rating  |  |  |  |  |  |
|  | QF15 16<br>39  | QCLQF AS = Ar   | cellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)<br>Iti-Stat Pleat media (synthetic)<br>media (water removal)  | $1 = 1 \mu Z-Media^{\mbox{\scriptsize $\$$}}$<br>$3 = 3 \mu AS and Z-Media^{\mbox{\scriptsize $\$$}}$<br>$5 = 5 \mu AS and Z-Media^{\mbox{\scriptsize $\$$}}$<br>$10 = 10 \mu AS and Z-Media^{\mbox{\scriptsize $\$$}}$<br>$25 = 25 \mu Z-Media^{\mbox{\scriptsize $\$$}}$ |  |  |  |  |  |
|  | BOX 6  |   | BOX 7   | BOX 8  |  |  |  |  |  |
|  | Housing Seal<br>Material                               |   | Porting   | Bypass<br>Setting  |  |  |  |  |  |
|  | Omit = Buna N  | P24 = 1½" NPTF<br>P32 = 2" NPTF   | F24 = $1\frac{1}{2}$ " SAE 4-bolt flange<br>Code 61   | Omit = 30 psi cracking   |  |  |  |  |  |
|  | V = Viton®   | P40 = 2½" NPTF<br>P48 = 3" NPTF   | F32 = 2" SAE 4-bolt flange<br>Code 61   | 15 = 15 psi cracking<br>40 = 40 psi cracking   |  |  |  |  |  |
|  |  | S32 = SAE-32  | $F40 = 2\frac{1}{2}$ " SAE 4-bolt flange<br>Code 61   | 50 = 50  psi cracking  |  |  |  |  |  |
|  |  | B24 = ISO 228 G-1½"   | F48 = 3" SAE 4-bolt flange<br>Code 61   | X = Blocked bypass   |  |  |  |  |  |
|  |  | B32 = ISO 228 G-2<br>B40 = ISO 228 G-2 <sup>1</sup> / <sub>2</sub> "  | $F24M = 1\frac{1}{2}$ " SAE 4-bolt flange   |  |  |  |  |  |  |
|  |  | B48 = ISO 228 G-3"  | Code 61<br>F32M = 2" SAE 4-bolt flange  |  |  |  |  |  |  |
|  |  |   | Code 61<br>F40M = $2\frac{1}{2}$ " SAE 4-bolt flange  |  |  |  |  |  |  |
|  |  |   | Code 61<br>F48M = 3" SAE 4-bolt flange  |  |  |  |  |  |  |
|  |  |   | Code 61   |  |  |  |  |  |  |
|  |  |   | Dirt Alarm <sup>®</sup> Options   |  |  |  |  |  |  |
|  |  | Omit = Non  |   |  |  |  |  |  |  |
|  |  | DPG = Stan  | dard differential pressure gauge  |  |  |  |  |  |  |
|  | Visual   | D5 = Visual pop-up<br>D5C = D5 in cap   |   |  |  |  |  |  |  |
| placement element part   | Visual with Thermal                                    | D5R = D5 mounted opposite standard location<br>D8 = Visual w/ thermal lockout   |   |  |  |  |  |  |  |
| mbers are a combination<br>Boxes 2, 3, 4 and 5, plus   | Lockout  | D8C = D8 in cap<br>D8R = D8 mounted opposite standard location  |   |  |  |  |  |  |  |
| letter V.<br>ample: 16QZ1V   |  | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable   |   |  |  |  |  |  |  |
| LQF are CoreCentric <sup>®</sup>   |  | MS10 = Elect  | MS5LC = Low current MS5<br>MS10 = Electrical w/ DIN connector (male end only)   |  |  |  |  |  |  |
| eless elements – housing<br>ludes rigid metal core.  | Fleetvicel   | MS10LC = Low<br>MS11 = Elect  | rical w/ 12 ft. 4-conductor wire  | . /  |  |  |  |  |  |
| iuues rigiu metal core.  |  | MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)<br>MS12LC = Low current MS12   |   |  |  |  |  |  |  |
| ML are deep-pleated  | Electrical   | MS12LC = Low  | current MS12  |  |  |  |  |  |  |
| ML are deep-pleated<br>ments with more media<br>d higher dirt holding  | Electrical   | MS12LC = Low<br>MS16 = Elect<br>MS16LC = Low  | current MS12<br>rical w/ weather-packed sealed cor<br>current MS16  | nector   |  |  |  |  |  |
| ML are deep-pleated<br>ments with more media<br>d higher dirt holding<br>bacity.<br>• option W, Box 3 must   |  | MS12LC = Low<br>MS16 = Elect<br>MS16LC = Low<br>MS17LC = Elect  | current MS12<br>rical w/ weather-packed sealed cor<br>current MS16<br>rical w/ 4 pin Brad Harrison male c   | nector   |  |  |  |  |  |
| ML are deep-pleated<br>ments with more media<br>d higher dirt holding<br>bacity.<br>option W, Box 3 must<br>ual Q.   |  | MS12LC = Low<br>MS16 = Elect<br>MS16LC = Low<br>MS17LC = Elect<br>MS5T = MS5<br>MS5LCT = Low  | current MS12<br>rical w/ weather-packed sealed cor<br>current MS16<br>rical w/ 4 pin Brad Harrison male co<br>(see above) w/ thermal lockout<br>current MS5T  | nector   |  |  |  |  |  |
| ML are deep-pleated<br>ments with more media<br>d higher dirt holding<br>bacity.<br>Toption W, Box 3 must<br>ual Q.<br>elements for this filter<br>supplied with Viton <sup>®</sup> seals.   | Electrical   | MS12LC = Low<br>MS16 = Elect<br>MS16LC = Low<br>MS17LC = Elect<br>MS5T = MS5<br>MS5LCT = Low<br>MS10LCT = Low   | current MS12<br>rical w/ weather-packed sealed cor<br>current MS16<br>rical w/ 4 pin Brad Harrison male co<br>(see above) w/ thermal lockout<br>current MS5T<br>0 (see above) w/ thermal lockout<br>current MS10T   | nector   |  |  |  |  |  |
| ML are deep-pleated<br>ments with more media<br>d higher dirt holding<br>bacity.<br>r option W, Box 3 must<br>ual Q.<br>elements for this filter<br>supplied with Viton <sup>®</sup> seals.<br>al designation<br>Box 6 applies to  | Electrical   | MS12LC = Low<br>MS16 = Elect<br>MS16LC = Low<br>MS17LC = Elect<br>MS5T = MS5<br>MS5LCT = Low<br>MS10LT = Low<br>MS10LT = Low<br>MS12LT = MS1<br>MS12LCT = Low   | current MS12<br>rical w/ weather-packed sealed cor<br>current MS16<br>rical w/ 4 pin Brad Harrison male co<br>(see above) w/ thermal lockout<br>current MS5T<br>0 (see above) w/ thermal lockout<br>current MS10T<br>2 (see above) w/ thermal lockout<br>current MS12T  | nector   |  |  |  |  |  |
| ML are deep-pleated<br>ments with more media<br>d higher dirt holding<br>bacity.<br>Toption W, Box 3 must<br>ual Q.<br>elements for this filter<br>supplied with Viton® seals.<br>al designation<br>Box 6 applies to<br>using only.<br>on® is a registered   | Electrical<br>with<br>Thermal                          | MS12LC = Low<br>MS16 = Elect<br>MS16LC = Low<br>MS17LC = Elect<br>MS5T = MS5<br>MS5LCT = Low<br>MS10T = MS1<br>MS10LCT = Low<br>MS12LT = MS1<br>MS12LCT = Low<br>MS16LCT = Low  | current MS12<br>rical w/ weather-packed sealed cor<br>current MS16<br>rical w/ 4 pin Brad Harrison male co<br>(see above) w/ thermal lockout<br>current MS5T<br>0 (see above) w/ thermal lockout<br>current MS10T<br>2 (see above) w/ thermal lockout<br>current MS12T<br>6 (see above) w/ thermal lockout<br>current MS16T   | nector   |  |  |  |  |  |
| ML are deep-pleated<br>ments with more media<br>d higher dirt holding<br>bacity.<br>r option W, Box 3 must<br>ual Q.<br>elements for this filter<br>supplied with Viton® seals.<br>al designation<br>30x 6 applies to<br>using only.   | Electrical<br>with<br>Thermal<br>Lockout<br>Electrical | MS12LC = Low<br>MS16 = Elect<br>MS16LC = Low<br>MS17LC = Elect<br>MS5T = MS5<br>MS5LCT = Low<br>MS10LT = MS1<br>MS10LCT = Low<br>MS12LT = MS1<br>MS12LCT = Low<br>MS16LCT = Low<br>MS17LCT = Low<br>MS13 = Supp   | current MS12<br>rical w/ weather-packed sealed cor<br>current MS16<br>rical w/ 4 pin Brad Harrison male co<br>(see above) w/ thermal lockout<br>current MS5T<br>0 (see above) w/ thermal lockout<br>current MS10T<br>2 (see above) w/ thermal lockout<br>current MS12T<br>6 (see above) w/ thermal lockout<br>current MS16T<br>current MS16T<br>current MS17T   | inector<br>prinector   |  |  |  |  |  |
| ML are deep-pleated<br>ments with more media<br>d higher dirt holding<br>bacity.<br>Toption W, Box 3 must<br>ual Q.<br>elements for this filter<br>supplied with Viton <sup>®</sup> seals.<br>al designation<br>Box 6 applies to<br>using only.<br>on <sup>®</sup> is a registered<br>demark of DuPont Dow<br>stomers.<br>M, F32M, F40M and F48M | Electrical<br>with<br>Thermal<br>Lockout               | MS12LC = Low<br>MS16 = Elect<br>MS16LC = Low<br>MS17LC = Elect<br>MS5LCT = Low<br>MS10T = MS1<br>MS10LCT = Low<br>MS12LT = MS1<br>MS12LCT = Low<br>MS16LT = Low<br>MS16LCT = Low<br>MS17LCT = Low<br>MS13 = Supp<br>MS14 = Supp   | current MS12<br>rical w/ weather-packed sealed cor<br>current MS16<br>rical w/ 4 pin Brad Harrison male co<br>(see above) w/ thermal lockout<br>current MS5T<br>0 (see above) w/ thermal lockout<br>current MS10T<br>2 (see above) w/ thermal lockout<br>current MS12T<br>6 (see above) w/ thermal lockout<br>current MS17T<br>of (see above) w/ thermal lockout<br>current MS16T<br>current MS17T<br>blied w/ threaded connector & light<br>blied w/ 5 pin Brad Harrison connector | tor & light (male end)   |  |  |  |  |  |
| ML are deep-pleated<br>ments with more media<br>d higher dirt holding<br>bacity.<br>r option W, Box 3 must<br>ual Q.<br>elements for this filter<br>supplied with Viton® seals.<br>al designation<br>30x 6 applies to<br>using only.<br>on® is a registered<br>demark of DuPont Dow<br>stomers.  | Electrical<br>with<br>Thermal<br>Lockout<br>Electrical | MS12LC = Low<br>MS16 = Elect<br>MS16LC = Low<br>MS17LC = Elect<br>MS5T = MS5<br>MS5LCT = Low<br>MS10LT = MS1<br>MS10LCT = Low<br>MS12LT = MS1<br>MS16LCT = Low<br>MS16LCT = Low<br>MS17LCT = Low<br>MS13 = Supp<br>MS13 = Supp<br>MS13 = Supp<br>MS13DCT = MS1<br>MS13DCT = MS1 | current MS12<br>rical w/ weather-packed sealed cor<br>current MS16<br>rical w/ 4 pin Brad Harrison male co<br>(see above) w/ thermal lockout<br>current MS5T<br>0 (see above) w/ thermal lockout<br>current MS10T<br>2 (see above) w/ thermal lockout<br>current MS12T<br>6 (see above) w/ thermal lockout<br>current MS17T<br>olied w/ threaded connector & light<br>blied w/ 5 pin Brad Harrison connect<br>3 (see above), direct current, w/ the                                 | tor & light (male end)   |  |  |  |  |  |

### NOTES:

- Box 2. Repla numl of Bo the l Exan
- Box 3. QCLO corel inclu QPM elem and capa
- Box 4. For c equa
- Box 6. All e are s Seal in Bo hous Vito trade Elast
- Box 7. F24M are su flang

Integral inle are standar

### Base-Ported Filter **QLF1**



#### **Features and Benefits**

- In-line version also available
- Element changeout from the top minimizes oil spillage
- Available with optional core assembly to accommodate coreless elements
- Offered with standard Q, QPML deep-pleated and QCLQF coreless elements in 16" and 39" lengths with Viton® seals as the standard
- Offered in pipe, SAE straight thread, and flange porting
- Integral inlet and outlet test points are standard on all models
- WQLF15 model for water service also available - refer to Section 7 of this catalog
- Various Dirt Alarm<sup>®</sup> options

Model No. of filter in photograph is QLF1539QZ5F4850D5.



INDUSTRIAL





MINING TECHNOLOGY



POWER GENERATION



TC  $\odot$ 0 O

PULP & PAPER



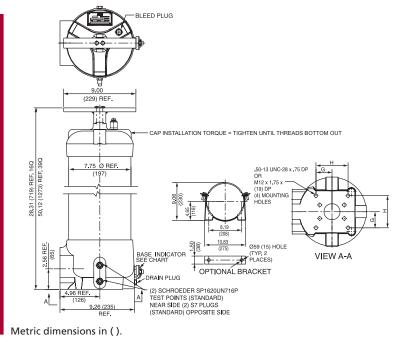
MAKING



| 500 gpm<br><u>1900 L/min</u><br>1500 psi | GH<br>GHHF |
|--|------------|
| 100 bar                                  | RLT        |
|  | KF5        |
|  | SRLT       |
|  | K9         |
|  | <b>2K9</b> |
| Viton <sup>®</sup> is a registered       | <b>3K9</b> |
| trademark of DuPont<br>Dow Elastomers.   | QF5        |
| Applications                             | 3QF5       |
|  | QFD2       |
|  | QFD5       |
|  | QF15       |
|  | QLF15      |
| S  | SQLF15     |

| Flow Rating:              | Up to 500 gpm (1900 L/min) for 150 SUS (32 cSt) fluids   | Filter                    |  |  |  |  |
|---------------------------|--|---------------------------|--|--|--|--|
| Max. Operating Pressure:  | 1500 psi (100 bar)                                       | Housing<br>Specifications |  |  |  |  |
| Min. Yield Pressure:      | Min. Yield Pressure: 4900 psi (340 bar), per NFPA T2.6.1 |                           |  |  |  |  |
| Rated Fatigue Pressure:   | 800 psi (55 bar), per NFPA T2.6.1-R1-2005                |                           |  |  |  |  |
| Temp. Range:              | -20°F to 225°F (-29°C to 107°C)                          |                           |  |  |  |  |
| Bypass Setting:           | Cracking: 30 psi (2 bar)<br>Full Flow: 55 psi (4 bar)    |                           |  |  |  |  |
| Porting Base & Cap:       | Ductile Iron   |                           |  |  |  |  |
| Element Case:             | Steel  |                           |  |  |  |  |
| Weight of QLF15-16Q:      | 121.0 lbs. (55.0 kg)                                     |                           |  |  |  |  |
| Weight of QLF15-39Q:      | 180.0 lbs. (82.0 kg)                                     |                           |  |  |  |  |
| Element Change Clearance: | 16Q 12.00" (305 mm)<br>39Q 33.80" (859 mm)               |                           |  |  |  |  |
|                           |  |                           |  |  |  |  |

# **QLF15** Base-Ported Filter



| DIMENSIONAL DATA |           |            |  |  |  |  |  |  |  |
|------------------|-----------|------------|--|--|--|--|--|--|--|
| PORT SIZE        | DIM G     | DIM H      |  |  |  |  |  |  |  |
| 11/2" (38)       | 2.00 (51) | 4.00 (102) |  |  |  |  |  |  |  |
| 2"(51)           | 2.00 (51) | 4.00 (102) |  |  |  |  |  |  |  |
| 21/2"(64)        | 2.00 (51) | 4.00 (102) |  |  |  |  |  |  |  |
| 3"(76)           | 2.00 (51) | 4.00 (102) |  |  |  |  |  |  |  |

| Element<br>Performance |      |                                   |                  | io Per ISO 4572/NFP<br>rticle counter (APC) calib | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                          |                           |
|------------------------|------|-----------------------------------|------------------|---|--|--------------------------|---------------------------|
| Information            | Elen | nent                              | $\beta_X \ge 75$ | $\beta_X \ge 100$                                 | $\beta_X \ge 200$  | β <sub>X</sub> (c) ≥ 200 | β <sub>X</sub> (c) ≥ 1000 |
|                        |      | Z1/CLQFZ1/PMLZ1                   | <1.0             | <1.0  | <1.0   | <4.0                     | 4.2                       |
|                        |      | Z3/CLQFZ3/PMLZ3/PMLAS3V/AS3V      | <1.0             | <1.0  | <2.0   | <4.0                     | 4.8                       |
|                        | 16Q  | Z5/CLQFZ5/PMLZ5PMLAS5V/AS5V       | 2.5              | 3.0   | 4.0  | 4.8                      | 6.3                       |
|                        |      | Z10/CLQFZ10/PMLZ10PMLAS10V/AS10V  | 7.4              | 8.2   | 10.0   | 8.0                      | 10.0                      |
|                        |      | Z25/CLQFZ25/PMLZ25                | 18.0             | 20.0  | 22.5   | 19.0                     | 24.0                      |
|                        |      | Z1/CLQFZ1/PMLZ1                   | <1.0             | <1.0  | <1.0   | <4.0                     | 4.2                       |
|                        |      | Z3/CLQFZ3/PMLZ3/PMLAS3V/AS3V      | <1.0             | <1.0  | <2.0   | <4.0                     | 4.8                       |
|                        | 39Q  | Z5/CLQFZ5/PMLZ5/PMLAS5V/AS5V      | 2.5              | 3.0   | 4.0  | 4.8                      | 6.3                       |
|                        |      | Z10/CLQFZ10/PMLZ10/PMLAS10V/AS10V | 7.4              | 8.2   | 10.0   | 8.0                      | 10.0                      |
|                        |      | Z25/CLQFZ25/PMLZ25                | 18.0             | 20.0  | 22.5   | 19.0                     | 24.0                      |

| Dirt Holding | Eler     | nent           | DHC (gm               | )          | Elemer                    | nt E                 | OHC (gm)      | Element               | DHC (gm) |
|--------------|----------|----------------|-----------------------|------------|---------------------------|----------------------|---------------|-----------------------|----------|
| Capacity     | Capacity |                | 276                   |            | CLQFZ                     | 1                    | 307           | PMLZ1                 | 307      |
|              |          | Z3/AS3V        | 283                   |            | CLQFZ                     | 3                    | 315           | PMLZ3/PMLAS3V         | 315      |
|              | 16Q      | Z5/AS5V        | 351                   |            | CLQFZ                     | 5                    | 364           | PMLZ5/PMLAS5V         | 364      |
|              |          | Z10/AS10V      | 280                   |            | CLQFZ1                    | 0                    | 306           | PMLZ10/PMLAS10V       | 330      |
|              |          | Z25            | 254                   |            | CLQFZ2                    | 25                   | 278           | PMLZ25                | 299      |
|              |          | Z1             | 974                   |            | CLQFZ                     | 1                    | 1259          | PMLZ1                 | 1485     |
|              | 39Q      | Z3/AS3V        | 1001                  |            | CLQFZ                     | 3                    | 1293          | PMLZ3/PMLAS3V         | 1525     |
|              |          | Z5/AS5V        | 954                   |            | CLQFZ                     | 5                    | 1302          | PMLZ5/PMLAS5V         | 1235     |
|              |          | Z10/AS10V      | 940                   | 940        |                           | 0                    | 1214          | PMLZ10/PMLAS10V       | 1432     |
|              |          | Z25            | 853                   |            | CLQFZ2                    | 25                   | 1102          | PMLZ25                | 1299     |
|              |          | Element Co     | ment Collapse Rating: |            | nd QPML: 1                | 50 psid (*           | 10 bar), QCL( | QF: 100 psid (7 bar)  |          |
|              |          | FI             | ow Direction:         | Out        | side In                   |                      |               |                       |          |
|              |          | Element Nomina | l Dimensions:         |            | 16Q: 6.0" (150 mm) O.D. x |                      | , , ,         |                       |          |
|              |          |                |                       |            | -                         | 18.21" (463 mm) long |               |                       |          |
|              |          |                |                       | 16Q<br>39Q |                           |                      |               | 16.00" (405 mm) long  |          |
|              |          |                |                       |            |                           |                      |               | 38.70" (985 mm) long  |          |
|              |          |                |                       |            |                           | · ·                  | ,             | 40.01" (1016 mm) long |          |
|              |          |                |                       | 39Q        | PML: 6                    | 5.0° (150            | mm) U.D. X    | 37.80" (960 mm) long  |          |
| 2            | 14 SC    | HROEDER IND    | JSTRIES               |            |                           |                      |               |                       |          |

# Base-Ported Filter QLF15

**QFD2** 

QFD5

QLF15

SSQLF15

Pressure

Based on

Flow Rate

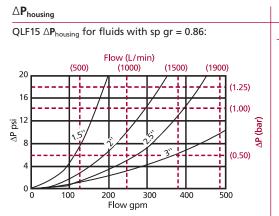
and Viscosity

Information

Drop

|  |   | Type Fluid  | Approp   | oriate Schroeder N                       | /ledia          |          |               |        |   |       | Fluid       | GH   |
|--|---|-------------|----------|--|-----------------|----------|---------------|--------|---|-------|-------------|------|
| Petr   | troleum Based Fluids All E media (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic) |             |          |  |                 |          |               |        | Compatibility                           |       |             |      |
| High Water Content All Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic) |   |             |          |  |                 |          |               |        |   |       | CLUE        |      |
|  | 5   |             |          | d 25 µ Z-Media® an                       | . ,             | ,        | ia (synthetic | -)     |   |       |             | GHHF |
|  |   |             | •        |  |                 |          |               |        |   |       |             |      |
|  |   |             |          | ), and 25 µ Z-Media                      |                 |          |               |        |   |       |             | RLT  |
|  | Phosp   | hate Esters | All Z-M  | edia <sup>®</sup> with H (EPR) s         | eal designation | ation ar | nd all ASP®   | media  | a (synthetic)                           |       |             |      |
|  | 1   | Element     |          |  |                 |          | d             | 450.0  |   |       |             |      |
| Pressure   | Series  | Part N      | o.       | Element selections<br>based fluid and 3" |                 |          |               |        |   | oleum | Element     | KF5  |
|  |   | 16 & 39QZ1  |          | 16QZ1                                    |                 | 39QZ1    |               |        | , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |       | - Selection |      |
|  |   | 16 & 39QZ3  |          | 16Q                                      |                 | <u></u>  | 39QZ3         | 3      |   |       | - Based on  |      |
|  |   | 16 & 39QZ5  | 5        | 16Q                                      | Z5              |          | 39QZ5         | 5      |   |       | - Flow Rate | SRLT |
|  |   | 16 & 39QZ1  | 0        |  | 16QZ10          |          |               | 39QZ10 |   |       |             |      |
|  |   | 16 & 39QZ2  | 25       |  | 16QZ25 & 39QZ25 |          |               |        |   |       |             | К9   |
|  |   | 16 & 39QCL  | _QFZ1    | 16QCLQFZ                                 | 1               | 39QC     | LQFZ1         |        |   |       |             | KJ   |
| То   | Z-  | 16 & 39QCL  | _QFZ3    | 16QCLQ                                   | LQFZ3           |          | 39QCLQFZ3     |        |   |       | _           |      |
| 1500 psi   | Media <sup>®</sup>  | 16 & 39QCI  |          | 16QCLQ                                   |                 |          | 39QCLQFZ5     |        |   | _     | 2K9         |      |
| (100 bar)  | IVICUIU   | 16 & 39QCI  | _QFZ10   | 16QCLQFZ10 39QCLQFZ10                    |                 |          |               | _      |   |       |             |      |
|  |   | 16 & 39QCI  | _QFZ25   | 16                                       | QCLQFZ2         | 5        |               | 3      | 39QCLQFZ25                              |       | _           |      |
|  |   | 16 & 39QPN  | VILZ1    | 16QPMLZ1                                 |                 | 39QPI    | VILZ1         |        |   |       |             | 3K9  |
|  |   | 16 & 39QPN  | -        | 16QPMI                                   | -               |          | 39QPMLZ       | -      |   |       |             |      |
|  |   | 16 & 39QPN  |          | 16QPMI                                   |                 |          | 39QPMLZ5      |        |   |       |             |      |
|  |   | 16 & 39QPN  |          | 16QPMLZ10                                |                 |          | 39QPMLZ10     |        |   |       | QF5         |      |
|  | 16 & 39QPMLZ25  |             |          |  | 16QPML2         | Z25      |               |        | 39QPMLZ25                               | 5     |             |      |
|  | Flow  | gpm         | (        | 0 100                                    | 200             |          | 300           | 40     | 0                                       | 500   |             |      |
|  | FIOW  | (L/min)     | (        | ົ່ວ 5໐໐໐                                 | )               | 100      | 0             | 15     | 00                                      | 1900  |             | 3QF5 |
| Shown ab   | ove are t   | he elements | most cor | nmonly used in this                      | housing.        |          |               |        |   |       |             |      |

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

| $\triangle \mathbf{P}_{\text{filter}} =$ | $\Delta \mathbf{P}_{\text{housing}}$ | + $\Delta \mathbf{P}_{element}$ |
|--|--------------------------------------|---------------------------------|
|--|--------------------------------------|---------------------------------|

#### Exercise:

Determine  ${\bigtriangleup}P$  at 150 gpm (570 L/min) for QLF1516QZ3VF40D5 using 200 SUS (44 cSt) fluid.

#### Solution:

 $\Delta P_{\text{housing}} = 2 \text{ psi} [.14 \text{ bar}]$ 

$$\Delta P_{element} = 150 \times .04 \times (200 \div 150) = 8.0 \text{ psi}$$

$$= [570 \times (.04 \div 54.9) \times (44 \div 32) = .57 \text{ bar}]$$

$$\Delta P_{\text{total}} = 2.0 + 8.0 = 10.0 \text{ psi}$$
  
or  
= [.14 + .57 = .71 bar]

| $\Delta \mathbf{P}_{element}$  |                                    |                 |     |  |  |
|--|------------------------------------|-----------------|-----|--|--|
| $\Delta P_{element}$ = flow x element $\Delta P$ factor x viscosity factor |                                    |                 |     |  |  |
| El. △P factors @   | El. △P factors @ 150 SUS (32 cSt): |                 |     |  |  |
| 16QZ1  | .09                                | 39QZ1           | .03 |  |  |
| 16QZ3/16QAS3   | .04                                | 39QZ3/39QAS3V   | .01 |  |  |
| 16QZ5/16QAS5   | .04                                | 39QZ5/39QAS5V   | .01 |  |  |
| 16QZ10/16QAS10   | .03                                | 39QZ10/39QAS10V | .01 |  |  |
| 16QZ25   | .01                                | 39QZ25          | .01 |  |  |
| 16OCLOFZ1  | .07                                | 39OCLOFZ1       | .03 |  |  |
| 16QCLQFZ3  | .05                                | 39QCLQFZ3       | .02 |  |  |
| 16QCLQFZ5  | .05                                | 39QCLQFZ5       | .02 |  |  |
| 16QCLQFZ10   | .04                                | 39QCLQFZ10      | .01 |  |  |
| 16QCLQFZ25   | .03                                | 39QCLQFZ25      | .01 |  |  |
| 16OPMLZ1   | .08                                | 39OPMLZ1        | .03 |  |  |
| 16OPMLZ3   |                                    | 39QPMLZ3/       |     |  |  |
| 16QPMLAS3V   | .05                                | 39QPMLAS3       | .02 |  |  |
| 16QPMLZ5/  |                                    | 39QPMLZ5/       |     |  |  |
| 16QPMLAS5  | .05                                | 39QPMLAS5       | .02 |  |  |
| 16QPMLZ10/   |                                    | 39QPMLZ10       |     |  |  |
| 16QPMLAS10   | .04                                | 39QPMLAS10      | .01 |  |  |
| 16QPMLZ25  | .02                                | 39QPMLZ25       | .01 |  |  |
| If working in units of bars & L/min, divide above factor by 54.9.          |                                    |                 |     |  |  |

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

## **F15** Base-Ported Filter

| Filter<br>Model<br>Number<br>Selection | How to Build a Valid Model Number for a Schroeder QLF15:<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9<br>QLF15 |   |   |                       |  |      |  |
|--|--|---|---|-----------------------|--|------|--|
|  | BOX 1  | BOX 2                                   | BOX 3   |                       | BOX 4  |      | BOX 5  |
|  | Filter<br>Series   | Element<br>Length (in)                  | Element<br>Style  |                       | Media Type   |      | Micron Rating  |
|  | QLF15  | 16                                      | Q   | Z = Ex                | cellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  | 1 =  | 1 µ Z-Media®   |
|  | QLIIJ  | 39                                      | QCLQF   | AS = Ar               | nti-Stat Pleat media (synthetic)   | 3 =  | 3 μ AS and Z-Media®  |
|  |  |   | QPML  | W = W                 | media (water removal)  |      | 5 μ AS and Z-Media®  |
|  |  |   |   |                       |  |      | 10 μ AS and Z-Media®   |
|  |  | _                                       |   |                       |  | 25 = | 25 μ Z-Media®  |
|  | BOX  |   |   |                       | BOX 7  |      | BOX 8<br>Bypass  |
|  | Mate   |   |   |                       | Porting  |      | Setting  |
|  | Omit = Bun<br>V = Vito   | n® P<br>P<br>S<br>B<br>B<br>B<br>B<br>B | 24 = 1½" NP<br>32 = 2" NPTF<br>40 = 2½" NP<br>48 = 3" NPTF<br>32 = SAE-32<br>24 = ISO 228<br>32 = ISO 228<br>40 = ISO 228<br>48 = ISO 228 | G-1½"<br>G-2<br>G-2½" | F24 = $1\frac{1}{2}$ " SAE 4-bolt flange<br>Code 61<br>F32 = 2" SAE 4-bolt flange<br>Code 61<br>F40 = $2\frac{1}{2}$ " SAE 4-bolt flange<br>Code 61<br>F48 = 3" SAE 4-bolt flange<br>Code 61<br>F24M = $1\frac{1}{2}$ " SAE 4-bolt flange<br>Code 61<br>F32M = 2" SAE 4-bolt flange<br>Code 61<br>F40M = $2\frac{1}{2}$ " SAE 4-bolt flange<br>Code 61<br>F48M = 3" SAE 4-bolt flange<br>Code 61 |      | Omit = 30 psi cracking<br>15 = 15 psi cracking<br>40 = 40 psi cracking<br>50 = 50 psi cracking<br>X = Blocked bypass |

NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4, and 5 plus the letter V. Example: 16QZ1V
- Box 3. QCLQF are CoreCentric® coreless elements - housing includes rigid metal core. QPML are deep-pleated elements with more media and higher dirt holding capacity.
- Box 4. For option W, Box 3 must equal Q.
- Box 6. All elements for this filter are supplied with Viton<sup>®</sup> seals. Seal designation in Box 6 applies to housing only. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 7. B24, B32 and B40 are supplied with metric mounting holes. F24M, F32M, F40M and F48M are supplied with metric flange mounting holes.

Integral inlet and outlet test points are standard on all models.

| BOX 9  |   |  |  |  |
|--|---|--|--|--|
| Dirt Alarm <sup>®</sup> Options              |   |  |  |  |
|  | Omit =  | None   |  |  |
| Visual                                       | D5 =  | Standard differential pressure gauge<br>Visual pop-up<br>D5 in cap   |  |  |
| Visual with<br>Thermal Lockout               | D8 =  | Visual w/ thermal lockout<br>D8 in cap   |  |  |
| Electrical                                   | MS5LC =<br>MS10LC =<br>MS10LC =<br>MS12 =<br>MS12LC =<br>MS16 =<br>MS16LC = | Electrical w/ 12 in. 18 gauge 4-conductor cable<br>Low current MS5<br>Electrical w/ DIN connector (male end only)<br>Low current MS10<br>Electrical w/ 12 ft. 4-conductor wire<br>Electrical w/ 5 pin Brad Harrison connector (male end only)<br>Low current MS12<br>Electrical w/ weather-packed sealed connector<br>Low current MS16<br>Electrical w/ 4 pin Brad Harrison male connector |  |  |
| Electrical<br>with<br>Thermal<br>Lockout     | MS5LCT =<br>MS10T =<br>MS10LCT =<br>MS12LT =<br>MS12LCT =<br>MS16LT =       | MS5 (see above) w/ thermal lockout<br>Low current MS5T<br>MS10 (see above) w/ thermal lockout<br>Low current MS10T<br>MS12 (see above) w/ thermal lockout<br>Low current MS12T<br>MS16 (see above) w/ thermal lockout<br>Low current MS16T<br>Low current MS17T  |  |  |
| Electrical<br>Visual                         |   | Supplied w/ threaded connector & light<br>Supplied w/ 5 pin Brad Harrison connector & light (male end)   |  |  |
| Electrical Visual<br>with Thermal<br>Lockout | MS13DCLCT =<br>MS14DCT =  | MS13 (see above), direct current, w/ thermal lockout<br>Low current MS13DCT<br>MS14 (see above), direct current, w/ thermal lockout<br>Low current MS14DCT   |  |  |
|  |   |  |  |  |

BOX 9

#### to Build a Valid Madel Number for a Schroeder OLE1E

# Stainless Steel Base-Ported Filter SSQLF15

|  |  | 500 gpm<br><i>1900 L/min</i>   | GH         |
|--|--|--|------------|
| and the second                         | Features and Benefits  |  | GHHF       |
|  | <ul> <li>In-line version also available</li> </ul>   | 1500 psi   |            |
|  | <ul> <li>Element changeout from the top minimizes oil spillage</li> <li>Offered with standard Q and QPML deep-pleated coreless elements in 16" and 39" lengths with Viton<sup>®</sup> seals</li> </ul> | 100 bar  | RLT        |
|  | as the standard  |  | KF5        |
| 1.11                                   | <ul> <li>Offered in pipe, SAE straight thread, and flange porting</li> </ul>   |  |            |
|  | <ul> <li>Integral inlet and outlet test points are standard on all<br/>models</li> </ul>   |  | SRLT       |
| 10.00                                  | <ul> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>   |  |            |
|  | <ul> <li>All stainless steel provides compatibility with water-based<br/>fluids</li> </ul>   |  | K9         |
|  |  |  | <b>2K9</b> |
| . H.                                   |  |  | <b>3K9</b> |
| Model No. of filter in photograph is S | SQLF1539QZ5F4850D5.  | Viton <sup>®</sup> is a registered<br>trademark of DuPont<br>Dow Elastomers. | QF5        |
|  |  | Applications   | 3QF5       |
|  |  |  | QFD2       |
| TECHNOLOGY                             |  |  | QFD5       |
|  |  |  | QF15       |
|  |  |  | QLF15      |
|  |  | SS   | QLF15      |

| Flow Rating:              | Up to 500 gpm (1900 L/min) for 150 SUS (32 cSt) fluids | Filter         |
|---------------------------|--|----------------|
| Max. Operating Pressure:  | 1500 psi (100 bar)                                     | Housing        |
| Min. Yield Pressure:      | 4500 psi (310 bar), per NFPA T2.6.1                    | Specifications |
| Rated Fatigue Pressure:   | Contact Factory  |                |
| Temp. Range:              | -20°F to 225°F (-29°C to 107°C)                        |                |
| Bypass Setting:           | Cracking: 30 psi (2 bar)<br>Full Flow: 55 psi (4 bar)  |                |
| Porting Base & Cap:       | Stainless Steel  |                |
| Element Case:             | Stainless Steel  |                |
| Weight of SSQLF15-16Q:    | 163.0 lbs. (74.0 kg)                                   |                |
| Weight of SSQLF15-39Q:    | 240.0 lbs. (109.0 kg)                                  |                |
| Element Change Clearance: | 16Q 12.00" (305 mm)<br>39Q 33.80" (859 mm)             |                |
|                           |  |                |

# **SSQLF15** Stainless Steel Base-Ported Filter

| (240) SCH   | PSTREAM<br>ROEDER<br>I POINT SUP<br>ILL FILTERS |                | OPTIONAL<br>ALARM OR<br>ELECTRIC<br>SWITCH      |                  | ED   | PASS VALVE<br>PECTION<br>JG<br>PTIONAL |  |  |  |
|---|---|----------------|---|------------------|--|--|--|--|--|
| DIMENSIONAL DATA  |   | 7              | , t   |                  |  | PG GAUGE<br>HOWN                       |  |  |  |
| PORT SIZE DIM A   | DIM B   |                |   |                  |  |  |  |  |  |
| 1½" (38) 2.00 (51)  | 4.00 (102)                                      |                | ∲   |                  |  |  |  |  |  |
| 2" (51) 2.00 (51)   | 4.00 (102)                                      |                |   |                  |  | <b>1</b> 0.                            |  |  |  |
| 2½" (64) 2.00 (51)  | 4.00 (102)                                      |                |   | B B              |  | p <sup>22</sup>                        |  |  |  |
| 3" (76) 2.00 (51)   | 4.00 (102)                                      |                |   | " <u>Δ</u> "     |  |  |  |  |  |
| 3" (4 bolt port only)       2.50 (64)       5.00 (127)         4 bolt port only)       2.50 (64)       5.00 (127)         9" "8"       -50-13UNC-2B x .75 DEEP<br>OR M12 x 1.75 x .75 DEEP<br>OR M12 x 1.75 x .75 DEEP<br>MOUNTING HOLES (4) PLACES |   |                |   |                  |  |  |  |  |  |
| Element   |   |                | tio Per ISO 4572/N<br>article counter (APC) cal |                  | Using APC calibra                            | ted per ISO 16889<br>(-) > 1000        |  |  |  |
|   |   | $J_V \leq I_J$ | $D_{V} \ge 100$                                 | $I_V \leq Z U U$ | $D_{V}(C) \le ZUU$                           | $D_{V}(C) \ge 1000$                    |  |  |  |
| Z1/PMLZ1  |   | <1.0           | β <sub>X</sub> ≥100<br><1.0                     | <1.0             | <b>β<sub>X</sub>(c)</b> ≥ <b>200</b><br><4.0 | <b>β<sub>X</sub>(c)</b> ≥ 1000<br>4.2  |  |  |  |

| Performance | 2    |                           |                    | article counter (APC) cali |                   | Using APC calibrated per ISO 11171 |                           |
|-------------|------|---------------------------|--------------------|----------------------------|-------------------|------------------------------------|---------------------------|
| Information | Elen | nent                      | β <sub>X</sub> ≥75 | β <sub>X</sub> ≥ 100       | $\beta_X \ge 200$ | β <sub>X</sub> (c) ≥ 200           | β <sub>X</sub> (c) ≥ 1000 |
|             |      | Z1/PMLZ1                  | <1.0               | <1.0                       | <1.0              | <4.0                               | 4.2                       |
|             |      | Z3/PMLZ3/PMLAS3V/AS3V     | <1.0               | <1.0                       | <2.0              | <4.0                               | 4.8                       |
|             | 16Q  | Z5/PMLZ5/PMLAS5V/AS5V     | 2.5                | 3.0                        | 4.0               | 4.8                                | 6.3                       |
|             |      | Z10/PMLZ10/PMLAS10V/AS10V | 7.4                | 8.2                        | 10.0              | 8.0                                | 10.0                      |
|             |      | Z25/PMLZ25                | 18.0               | 20.0                       | 22.5              | 19.0                               | 24.0                      |
|             |      | Z1/PMLZ1                  | <1.0               | <1.0                       | <1.0              | <4.0                               | 4.2                       |
|             |      | Z3/PMLZ3/PMLAS3V/AS3V     | <1.0               | <1.0                       | <2.0              | <4.0                               | 4.8                       |
|             | 39Q  | Z5/PMLZ5/PMLAS5V/AS5V     | 2.5                | 3.0                        | 4.0               | 4.8                                | 6.3                       |
|             |      | Z10/PMLZ10/PMLAS10V/AS10V | 7.4                | 8.2                        | 10.0              | 8.0                                | 10.0                      |
|             |      | Z25/PMLZ25                | 18.0               | 20.0                       | 22.5              | 19.0                               | 24.0                      |

| Dirt Holding | Elen | nent                        | DHC (gm)     | Eleme      | ent                  | DHC (gm)                  |  |
|--------------|------|-----------------------------|--------------|------------|----------------------|---------------------------|--|
| Capacity     |      | Z1                          | 276          | PMLZ       | 1                    | 307                       |  |
|              |      | Z3/AS3V                     | 283          | PMLZ3      | 3/PMLAS3V            | 315                       |  |
|              | 16Q  | Z5/AS5V                     | 351          | PMLZ:      | 5/PMLAS5V            | 364                       |  |
|              |      | Z10/AS10V                   | 280          | PMLZ       | 10/PMLAS10V          | 330                       |  |
|              |      | Z25                         | 254          | PMLZ       | 25                   | 299                       |  |
|              |      | Z1                          | 974          | PMLZ       | 1                    | 1485                      |  |
|              |      | Z3/AS3V                     | 1001         | PMLZ       | 3/PMLAS3             | 1525                      |  |
|              | 39Q  | Z5/AS5V                     | 954          | PMLZ!      | 5/PMLAS5             | 1235                      |  |
|              |      | Z10/AS10V                   | 940          | PMLZ       | 10/PMLAS10           | 1432                      |  |
|              |      | Z25                         | 853          | PMLZ       | 25                   | 1299                      |  |
|              |      | Element Colla               | apse Rating: | Q and QPML | .: 150 psid (10 bar) |                           |  |
|              |      | Flov                        | w Direction: | Outside In |                      |                           |  |
|              |      | Element Nominal Dimensions: |              | 16Q:       |                      | D. x 16.85" (430 mm) long |  |
|              |      |                             |              | 16QPML:    |                      | D. x 16.00" (405 mm) long |  |
|              |      |                             |              | 39Q:       |                      | D. x 38.70" (985 mm) long |  |
|              |      |                             |              | 39QPML:    | 0.0 (130 mm) O.      | D. x 37.80" (960 mm) long |  |

**218 SCHROEDER INDUSTRIES** 

Element

# Stainless Steel Base-Ported Filter SSQLF1

|  | Ту   | pe Fluid  | Appropria    | ite Schroeder N | /ledia                   |          |                      |                         |                     |     | Fluid         | GH        |
|--|--|-----------|--------------|-----------------|--------------------------|----------|----------------------|-------------------------|---------------------|-----|---------------|-----------|
| Petrole  | etroleum Based Fluids All E media (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic) |           |              |                 |                          |          |                      |                         |                     |     | Compatibility |           |
| High   | High Water Content All Z-Media® and ASP® media (synthetic)   |           |              |                 |                          |          |                      |                         |                     |     |               | GHHF      |
| I  | Invert Emulsions 10 and 25 $\mu$ Z-Media <sup>®</sup> and 10 $\mu$ ASP <sup>®</sup> media (synthetic)      |           |              |                 |                          |          |                      |                         |                     |     |               | GIIII     |
|  | Wate   | r Glycols | 3, 5, 10 an  | d 25 µ Z-Media  | <sup>®</sup> and all ASP | ® media  | (synthetic)          |                         |                     |     |               |           |
| Water Glycols       3, 5, 10 and 25 μ Z-Media <sup>®</sup> and all ASP <sup>®</sup> media (synthetic)         Phosphate Esters       All Z-Media <sup>®</sup> (synthetic) with H (EPR) seal designation and all ASP <sup>®</sup> media (synthetic) |  |           |              |                 |                          |          |                      |                         |                     | RLT |               |           |
|  |  |           |              |                 |                          |          |                      |                         |                     |     |               |           |
|  | I  | Elemen    | +            | Elomont colocti | one are predi            | cated or | the use of           | 150 C                   | US (32 cSt) petrole |     | Element       | KF5       |
| Pressure   | Series   |           | t No.        | based fluid and | •                        |          |                      |                         |                     | um  | Selection     |           |
|  |  | 16 & 390  | QZ1          | 16QZ1           |                          | 39QZ1    |                      |                         |                     |     | Based on      | SRLT      |
|  |  | 16 & 390  | QZ3          | 1               | 6QZ3                     |          | 39QZ3                | 3                       |                     |     | Flow Rate     |           |
|  |  | 16 & 390  | QZ5          | 1               | 6QZ5                     |          | 39QZ5                | 5                       |                     |     |               |           |
|  |  | 16 & 390  |              |                 | 16QZ10                   |          |                      |                         | 39QZ10              |     |               | <b>K9</b> |
| То   | 7  | 16 & 390  | QZ25         |                 | 16                       | QZ25 &   | QZ25 & 39QZ25        |                         |                     |     |               |           |
| 1500 psi   | Z-<br>Media®   | 16 & 390  | QPMLZ1       | 16QPMLZ         | <u>'1</u>                | 39QPM    |                      |                         |                     |     |               |           |
| (100 bar)  | IVIEUIA  | 16 & 390  | QPMLZ3       | 16QPMLZ3/P      | MLAS3V/AS                | 3V P     | MLAS3V/AS            | 89QPMLZ3<br>ILAS3V/AS3V |                     |     |               | 2K9       |
|  |  | 16 & 390  | QPMLZ5       | 16QPMLZ5/P      | MLAS5V/AS                | 5V P     | 39QPMLZ<br>MLAS5V/AS | -                       |                     |     |               | 21/0      |
|  |  | 16 & 390  | QPMLZ10      | 16QPMLZ10/      | PMLAS10V/                | AS10V    | 39QPMLZ              | Z10/PI                  | MLAS10V/AS10V       |     |               | 3K9       |
|  |  | 16 & 390  | QPMLZ25      |                 | 16QPMLZ2                 | .5       |                      |                         | 39QPMLZ25           |     |               |           |
|  | Пом  | gpm       | (            | <u> </u>        | 200                      |          | 300                  | 40                      | 0 5                 | 00  |               | QF5       |
|  | Flow   | (L/min)   | (            | C               | 500                      | 100      | 00                   | 15                      | 00 19               | 900 |               | Q D       |
| Shown abo  | ove are t  | he elemei | nts most cor | nmonly used in  | this housing.            |          |                      |                         |                     |     |               |           |

Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.

| $\Delta \mathbf{P}_{housing}$   | $\Delta \mathbf{P}_{element}$  | I  |
|---|--|----|
| SSQLF15 $\triangle \mathbf{P}_{\text{housing}}$ for fluids with sp gr = 0.86: | $\triangle P_{element}$ = flow x element $\triangle P$ factor x viscosity factor |    |
| Flow (L/min)  | El. △P factors @ 150 SUS (32 cSt):   | _  |
| 20 (500) (1000) (1500) (1900)   | <b>16QZ1</b> .09 <b>39QZ1</b> .03  | 13 |
|   | 16QZ3/16QAS3V .04 39QZ3/39QAS3V .01  | )1 |
| 16 (1.23)   | 16QZ5/16QAS5V .04 39QZ5/39QAS5V .01  | )1 |
|   | 16QZ10/16QAS10V .03 39QZ10/39QAS10V .01  | )1 |
|   | <b>16QZ25</b> .01 <b>39QZ25</b> .0 <sup>7</sup>                                  | )1 |
|   | 16QPMLZ1 .08 39QPMLZ1 .03  | )3 |
|   | 16QPMLZ3/ 39QPMLZ3/  | 5  |
| (0.50)  | 16QPMLAS3V .05 39QPMLAS3V .02  | )2 |
|   | 16QPMLZ5/ 39QPMLZ5/  |    |
|   | 16QPMLAS5V .05 39QPMLAS5V .02  | )2 |
| 0 100 200 300 400 500   | 16QPMLZ10/ 39QPMLZ10/  |    |
| Flow gpm  | <b>16QPMLAS10V</b> .04 <b>39QPMLAS10V</b> .01                                    | )1 |
|   | 16QPMLZ25 .02 39QPMLZ25 .01  | )1 |
|   | If working in units of bars & L/min, divide above factor<br>by 54.9.             | r  |
| sp gr = specific gravity  | Viscosity factor: Divide viscosity by 150 SUS (32 cSt).                          |    |

*Viscosity factor:* Divide viscosity by 150 SUS (32 cSt). Sizing of elements should be based on element flow information provided in the Element Selection chart above.

Please note that water has a lower viscosity than 150 SUS fluid and therefore pressure drops for water will be lower.

#### $\triangle \mathbf{P}_{\text{filter}} = \triangle \mathbf{P}_{\text{housing}} + \triangle \mathbf{P}_{\text{element}}$

Exercise:

Determine  $\triangle P$  at 150 gpm (570 L/min) for SSQLF1516QZ3VF40D9 using 200 SUS (44 cSt) fluid.

Solution:

 $\Delta P_{\text{housing}} = 2 \text{ psi} [.14 \text{ bar}]$ 

 $\triangle P_{element} = 150 \text{ x} .04 \text{ x} (200 \div 150) = 8.0 \text{ psi}$ or = [570 x (.04÷54.9) x (44÷32) = .57 bar]  $\triangle P_{total} = 2.0 + 8.0 = 10.0 \text{ psi}$ or = [.14 + .57 = .71 bar]

**3QF5** 

**QFD2** 

QLF15

SSQLF15

Pressure Drop

Information Based on Flow Rate and Viscosity

### **Stainless Steel Base-Ported Filter** SSQLF15

| Filter<br>Model<br>Number<br>Selection | How to Build a Valid Model Number for a Schroeder SSQLF15:<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9<br>Example: NOTE: One option per box<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9<br>SSQLF15 16 Q Z 3 - P48 - D9C =SSQLF1516QZ3P48D9C |                  |                          |  |  |  |  |  |  |
|--|---|------------------|--------------------------|--|--|--|--|--|--|
|  | BOX 1 BO  | OX 2             | BOX 3                    | BOX 4  |  |  |  |  |  |
|  | Filter Ele  |                  | Element<br>Style         | Media Type   |  |  |  |  |  |
|  | SSOLE15   | 16               | Q<br>QCLQF<br>QPML       | Z = Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)<br>AS = Anti-Stat Pleat media (synthetic)<br>M = M media (reusable metal)<br>W = W media (water removal)   |  |  |  |  |  |
|  |   |                  |                          | 150PSV = 150 μ nominalt synthetic<br>media with plastic outer wrap   |  |  |  |  |  |
|  | BOX 5   |                  | BOX 6<br>Housing Seal    | BOX 7  |  |  |  |  |  |
|  | Micron Rating   |                  | Material                 | Porting  |  |  |  |  |  |
|  | $1 = 1 \mu Z$ -Media <sup>®</sup><br>$3 = 3 \mu AS and Z$ -Medi   | a®               | Omit = Buna N<br>H = EPR | P24 = 1 <sup>1</sup> / <sub>2</sub> " NPTF<br>P32 = 2" NPTF  |  |  |  |  |  |
|  | 5 = 5 μ AS and Z-Medi<br>10 = 10 μ AS and Z-Med   |                  | V = Viton®               | P40 = 2 <sup>1</sup> / <sub>2</sub> " NPTF<br>P48 = 3" NPTF  |  |  |  |  |  |
|  | 25 = 25 μ M and Z-Med<br>60 = 60 μ M media<br>150 = 150 μ M-media or  | ia® L<br>150 PSV |                          | S32 = SAE-32   |  |  |  |  |  |
|  | W = water removal mec   | lia              |                          | B24 = ISO 228 G-1½"<br>B32 = ISO 228 G-2"<br>B40 = ISO 228 G-2½"<br>B48 = ISO 228 G-3"   |  |  |  |  |  |
|  |   |                  |                          | F24 = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61<br>F32 = 2" SAE 4-bolt flange Code 61<br>F40 = $2\frac{1}{2}$ " SAE 4-bolt flange Code 61<br>F48 = 3" SAE 4-bolt flange Code 61<br>F24M = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61<br>F32M = $2\frac{1}{2}$ " SAE 4-bolt flange Code 61<br>F40M = $2\frac{1}{2}$ " SAE 4-bolt flange Code 61<br>F48M = 3" SAE 4-bolt flange Code 61 |  |  |  |  |  |
| ement part<br>ombination<br>nd 5 plus  |   |                  |                          |  |  |  |  |  |  |
|  |   |                  |                          |  |  |  |  |  |  |
|  | BOX 8   |                  |                          | BOX 9  |  |  |  |  |  |
| V<br>i0PSV, M25,<br>Box 3 must         | BOX 8<br>Bypass<br>Setting  |                  |                          | BOX 9<br>Dirt Alarm <sup>®</sup> Options   |  |  |  |  |  |

Box 6. All elements for this filter are supplied with Viton<sup>®</sup> seals. Seal designation in Box 6 applies to housing only. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

Box 7. B24, B32 and B40 are supplied with metric mounting holes. F24M, F32M, F40M and F48M are supplied with metric flange mounting holes.

Integral inlet and outlet test points are standard on all models.

| BOX 8                                      | BOX 9                           |   |  |  |  |  |  |
|--|---------------------------------|---|--|--|--|--|--|
| Bypass<br>Setting                          | Dirt Alarm <sup>®</sup> Options |   |  |  |  |  |  |
| Omit = 30 psi cracking                     |                                 | Omit = None   |  |  |  |  |  |
| 50 = 50 psi cracking<br>X = Blocked bypass | Visual                          | DPG = Standard differential pressure gauge<br>D9 = Visual pop-up in base (stainless steel)<br>D9C = D9 in cap (stainless steel) |  |  |  |  |  |

- Box 2. Replacement element p numbers are a combinat of Boxes 2, 3, 4 and 5 plu the letter V. Example: 16QZ1V
- Box 4. For options W, 150PSV, M M60, and M150, Box 3 m equal Q.



# **Section 5** Low Pressure Filters Selection Guide

|                      |                 |               | Pressure<br>psi (bar) | Flow<br>gpm (L/<br>min) | Element<br>Length/Size                        | Page |
|----------------------|-----------------|---------------|-----------------------|-------------------------|---|------|
|                      | Top-Ported Lov  | w Pressure Fi | lters                 |                         |   |      |
|                      |                 | IRF           | 100 (7)               | 100 (380)               | K, KK, KD, KKD                                | 223  |
|                      |                 | TF1           | 300 (120)             | 30 (120)                | A   | 227  |
|                      |                 | KF3           | 300 (20)              | 100 (380)               | К, КК, 27К                                    | 231  |
|                      |                 | KL3           | 300 (20)              | 120 (455)               | K, KK, 27K, 18LC                              | 235  |
|                      |                 | LF1-2"        | 300 (20)              | 120 (455)               | 18LC  | 239  |
|                      |                 | MLF1          | 300 (20)              | 200 (760)               | К   | 243  |
|                      |                 | RLD           | 350 (24)              | 100 (380)               | 25DN, 40D                                     | 247  |
|                      | Tank-Mounted    | (In-Tank/Tar  |                       |                         |   |      |
| si)                  |                 | GRTB          | 100 (7)               | 100 (380)               | KBG   | 251  |
| d 0                  |                 | MTA           | 100 (7)               | 15 (55)                 | 3TA   | 255  |
| 50                   |                 | MTB           | 100 (7)               | 35 (135)                | 3TB, 5TB                                      | 259  |
| (up to 500 psi)      |                 | ZT            | 100 (7)               | 40 (150)                | 8Z  | 263  |
|                      |                 | KFT           | 100 (7)               | 100 (380)               | K, KK, KD, KKD, 27K                           | 267  |
| ters                 |                 | RT            | 100 (7)               | 100 (380)               | K, KK, KD, KKD, 27K                           | 271  |
| Ei                   |                 | RTI           | 100 (7)               | 120 (455)               | КІ, ККІ, 27КІ                                 | 275  |
| ure                  |                 | LRT           | 100 (7)               | 150 (570)               | 18L, 18LD                                     | 279  |
| ress                 |                 | ART           | 145 (10)              | 225 (850)               | 85Z1, 85Z3, 85Z5, 85Z10, 85Z25                | 283  |
| Low Pressure Filters |                 | BFT           | 100 (7)               | 300 (1135)              | BB  | 287  |
| Lo                   |                 | QT            | 100 (7)               | 450 (1700)              | 16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF,<br>39QPML | 291  |
|                      | Special Feature | e Tank-Moun   |                       | essure Filter           | 5   |      |
|                      | Internal        | КТК           | 100 (7)               | 100 (380)               | К, КК, 27К                                    | 295  |
|                      | Internal        | LTK           | 100 (7)               | 150 (570)               | 18L   | 299  |
|                      | Severe Duty Ta  |               |                       |                         |   |      |
|                      |                 | MRT           | 900 (62)              | 150 (570)               | 18L   | 303  |
|                      | Spin-On Low P   |               |                       |                         |   |      |
|                      |                 | PAF1          | 100 (7)               | 20 (75)                 | 6P  | 309  |
|                      |                 | MAF1          | 100 (7)               | 50 (190)                | M, 10M  | 313  |
|                      |                 | MF2           | 150 (10)              | 60 (230)                | M, 10M  | 317  |

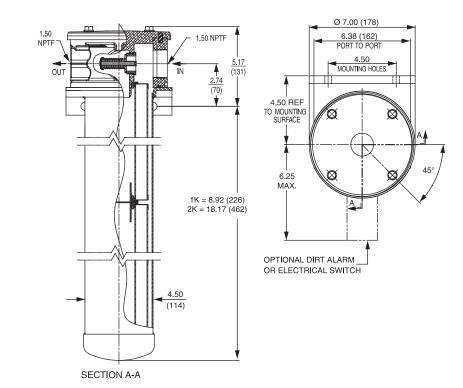
### Inline Return Filter



|  | <ul> <li>Features and Benefits</li> <li>Low pressure top servicing in-line filter</li> <li>Meets HF4 automotive standard</li> <li>Unique side mounting flange provides reliable seal arrangement between head and bowl</li> <li>The use of K-size elements allows consolidation of inventoried replacement elements</li> <li>Single and double length options provide optimal size for specific applications</li> <li>Also available with new DirtCatcher® elements (KDZ and KKDZ)</li> <li>Various Dirt Alarm® options</li> </ul> |                          | IRF<br>TF1<br>KF3<br>KL3<br>F1–2"<br>MLF1<br>RLD<br>GRTB<br>MTA |
|--|--|--------------------------|---|
| Model No. of filter in photograph is IR  | F1KZ10520Y2.   |                          | MTB<br>ZT   |
| <image/>   |  | Applications             | KFT<br>RTI<br>LRT<br>ART<br>BFT<br>QT<br>KTK<br>LTK             |
| Flow Rating:<br>Max. Operating Pressure:<br>Min. Yield Pressure:<br>Rated Fatigue Pressure:<br>Temp. Range:<br>Bypass Setting:<br>Porting Head:<br>Element Case:<br>Weight of IRF-1K:<br>Weight of IRF-2K: | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids<br>100 psi (7 bar)<br>400 psi (28 bar), per NFPA T2.6.1<br>90 psi (6 bar), per NFPA T2.6.1-2005<br>-20°F to 225°F (-29°C to 107°C)<br>Cracking: 25 psi (1.7 bar)<br>Full Flow: 48 psi (3.3 bar)<br>Sand Cast Aluminum<br>Steel<br>13.5 lbs. (6.12 kg)<br>17.0 lbs. (7.71 kg)   | Specifications for<br>Mo | MRT<br>ssories<br>Tank-<br>unted<br>Filters<br>PAF1<br>MAF1     |
| Element Change Clearance   | _  |                          | MF2   |

Element Change Clearance: 8.0" (205 mm) for 1K; 17.50" (445 mm) for KK

IRF Inline Return Filter



Metric dimensions in ( ).

### Element Performance Information

|                         |                     | Ratio Per ISO 4572/NFF<br>article counter (APC) ca | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 111 |                           |                            |
|-------------------------|---------------------|--|--|---------------------------|----------------------------|
| Element                 | β <sub>X</sub> ≥ 75 | $\beta_X \ge 100$                                  | $\beta_X \ge 200$  | $\beta_{\chi}(c) \ge 200$ | $\beta_{\chi}(c) \ge 1000$ |
| K3/KK3/27K              | 6.8                 | 7.5  | 10.0   | N/A                       | N/A                        |
| K10/KK10/27K10          | 15.5                | 16.2   | 18.0   | N/A                       | N/A                        |
| KZ1/KKZ1/27KZ1          | <1.0                | <1.0   | <1.0   | <4.0                      | 4.2                        |
| KZ3/KAS3/KKZ3/KKAS3     | <1.0                | <1.0   | <2.0   | <4.0                      | 4.8                        |
| KZ5/KAS5/KKZ5/KKAS5     | 2.5                 | 3.0  | 4.0  | 4.8                       | 6.3                        |
| KZ10/KAS10/KKZ10/KKAS10 | 7.4                 | 8.2  | 10.0   | 8.0                       | 10.0                       |
| KZ25/KKZ25/27KZ25       | 18.0                | 20.0   | 22.5   | 19.0                      | 24.0                       |
| KZW1                    | N/A                 | N/A  | N/A  | <4.0                      | <4.0                       |
| KZW3/KKZW3              | N/A                 | N/A  | N/A  | 4.0                       | 4.8                        |
| KZW5/KKZW5              | N/A                 | N/A  | N/A  | 5.1                       | 6.4                        |
| KZW10/KKZW10            | N/A                 | N/A  | N/A  | 6.9                       | 8.6                        |
| KZW25/KKZW25            | N/A                 | N/A  | N/A  | 15.4                      | 18.5                       |

| <b>Dirt Holding</b> |
|---------------------|
| Capacity            |

|            | DHC |              | DHC |                | DHC |         | DHC |         | DHC |         | DHC |         | DHC |
|------------|-----|--------------|-----|----------------|-----|---------|-----|---------|-----|---------|-----|---------|-----|
| Element    | (g) | Element      | (g) | Element        | (g) | Element | (g) | Element | (g) | Element | (g) | Element | (g) |
| К3         | 54  | ККЗ          | 108 | 27КЗ           | 162 |         |     |         |     |         |     |         |     |
| К10        | 44  | KK10         | 88  | 27K10          | 132 |         |     |         |     |         |     |         |     |
| KZ1        | 112 | KKZ1         | 224 | 27KZ1          | 336 | KDZ1    | 89  | KKDZ1   | 188 | KZW1    | 61  |         |     |
| KZ3/KAS3   | 115 | KKZ3/KKAS3   | 230 | 27KZ3/27KAS3   | 345 | KDZ3    | 71  | KKDZ3   | 150 | KZW3    | 64  | KKZW3   | 128 |
| KZ5/KAS5   | 119 | KKZ5/KKAS5   | 238 | 27KZ5/27KAS5   | 357 | KDZ5    | 100 | KKDZ5   | 210 | KZW5    | 63  | KKZW5   | 126 |
| KZ10/KAS10 | 108 | KKZ10/KKAS10 | 216 | 27KZ10/27KAS10 | 324 | KDZ10   | 80  | KKDZ10  | 168 | KZW10   | 57  | KKZW10  | 114 |
| KZ25       | 93  | KKZ25        | 186 | 27KZ25         | 279 | KDZ25   | 81  | KKDZ25  | 171 | KZW25   | 79  | KKZW25  | 158 |

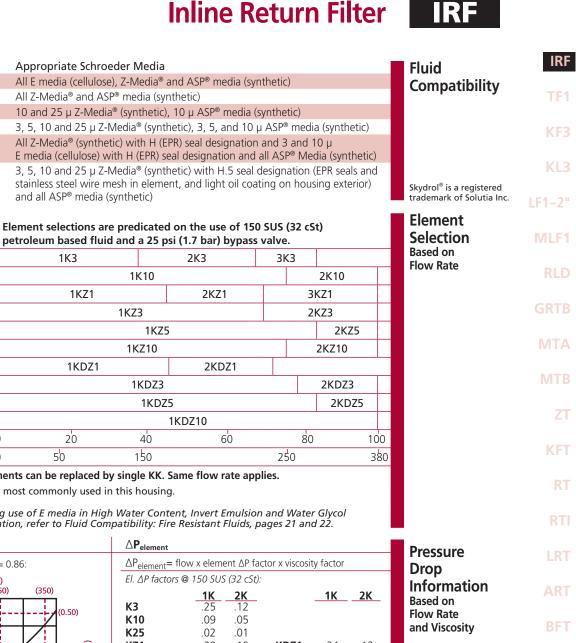
Flow Direction: Outside In Element Nominal Dimensions: K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long

Element Collapse Rating: 150 psid (10 bar) for standard elements

KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long

27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

### Inline Return Filter

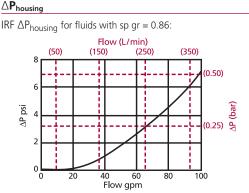


50 Double stacking of K-size elements can be replaced by single KK. Same flow rate applies.

Shown above are the elements most commonly used in this housing.

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Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.



Type Fluid

Water Glycols

Skydrol®

Part No.

К3

K10

KZ1

KZ3

KZ5

KZ10

KDZ1

KDZ3

KDZ5

KDZ10

gpm

(L/min)

Phosphate Esters

Element

Series

Ε

Media

Z-

Media®

Flow

Pressure

To

100 psi

(7 bar)

Petroleum Based Fluids

High Water Content Invert Emulsions

sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

 $\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$ 

### Exercise:

Determine  $\Delta P$  at 40 gpm (151 L/min) for IRF2KZ10S20Y5 using 200 SUS (44 cSt) fluid.

### Solution:

$$\overline{\Delta P_{\text{housing}}} = 1.0 \text{ psi } [.07 \text{ bar}]$$

$$\Delta P_{\text{element}} = 40 \times .03 \times (200 \div 150) = 1.6 \text{ psi}$$
or
$$= [151 \times (.03 \div 54.9) \times (44 \div 32) = .11 \text{ bar}]$$

$$\Delta P_{\text{total}} = 1.0 + 1.6 = 2.6 \text{ psi}$$
or
$$= [.07 + .11 = .18 \text{ bar}]$$

| $\triangle \mathbf{P}_{element}$                                       |                                       |                                       |                        |                         |                         | Dr        | essur                        | 0     |     |
|--|---------------------------------------|---------------------------------------|------------------------|-------------------------|-------------------------|-----------|------------------------------|-------|-----|
| $\Delta P_{element}$ = flow  | x eleme                               | ent ∆P fao                            | ctor x viscosity       | y factor                |                         |           | rop                          | e     |     |
| El. ΔP factors @ 1   | 150 SUS                               | (32 cSt):                             |                        |                         |                         |           | forma                        | ation |     |
| K3<br>K10<br>K25<br>KZ1<br>KZ3/KAS3                                    | 1K<br>.25<br>.09<br>.02<br>.20<br>.10 | 2K<br>.12<br>.05<br>.01<br>.10<br>.05 | KDZ1<br>KDZ3           | <b>1K</b><br>.24<br>.12 | <b>2K</b><br>.12<br>.06 | Ba<br>Flo | sed on<br>ow Rate<br>d Visco |       |     |
| KZ5/KAS5<br>KZ10/KAS10<br>KZ25   | .08<br>.05<br>.04<br><b>1K</b>        | .04<br>.03<br>.04<br><b>2K</b>        | KDZ5<br>KDZ10<br>KDZ25 | .10<br>.06<br>.04       | .05<br>.03<br>.02       |           |                              |       |     |
| KZW1<br>KZW3<br>KZW5<br>KZW10<br>KZW25<br>If working in ur<br>by 54.9. | .43<br>.32<br>.28<br>.23<br>.14       | .16<br>.14<br>.12<br>.07              | min, divide a          | above fa                | actor                   |           |                              |       | Acc |
| Viscosity factor   | r: Divid                              | e viscosi                             | ty by 150 Si           | JS (32 c                | St).                    |           |                              |       | N   |

# **IRF** Inline Return Filter

|  |                  |   | er for a Schroeder                               |                                |                         |
|--|------------------|---|--|--------------------------------|-------------------------|
| Model BOX 1<br>IRF   | BOX 2            | BOX 3 BOX   | 4 BOX 5 BOX                                      | 6 BOX 7                        |                         |
|  |                  |   |  |                                |                         |
| election Example: NO   | BOX 2            | BOX 3 BOX   | 4 BOX 5 BOX                                      | 6 BOX 7                        |                         |
| IRF  | – 2K             | – Z – 10  |  | 0 – Y2 =                       | IRF2KZ10S20Y2           |
| BOX 1  | BC               | DX 2  | BOX 3  |                                | _                       |
| Filter<br>Series   | Number<br>of Ele | and Size<br>ements  | Element Type                                     |                                |                         |
| IRF  | 1 K              | C, KK Omit  | = E media (cellulose)                            |                                | ]                       |
|  | 2 K              |   | = Anti-Static Pleat Med                          |                                |                         |
|  |                  |   | = Excellement <sup>®</sup> Z-Med                 | -                              |                         |
|  |                  |   | ' = Aqua-Excellement® 2<br>' = Water Removal med |                                |                         |
|  |                  |   | = M media (reusable n                            |                                |                         |
|  |                  |   | = DirtCatcher <sup>®</sup> Exceller              |                                |                         |
|  | вох              | 4   | BOX 5  |                                | BOX 6                   |
|  | Micron R         |   | Seal Material                                    | In                             | let Porting             |
| 1 = 1  | μ (Z, ZW a       | and DZ media)   | Omit = Buna N                                    | P16 = 1" NPTF                  | :                       |
| 3 = 3  | μ (E, AS, Z      | z, ZW and DZ media)   | H = EPR  | P20 = 1¼" NP                   | TF                      |
|  |                  | W and DZ media)   | V = Viton®                                       | S16 = SAE-16                   |                         |
|  |                  | Z, ZW and DZ media)<br>Z, ZW and DZ media)  |  | S20 = SAE-20<br>E20 = 11/4" SA | E 4-bolt flange Code 61 |
|  | μ (M med         |   |  |                                | E 4-bolt flange Code 61 |
|  |                  |   | I  | B24 = ISO 228                  | -                       |
|  |                  | BOX 7   |  |                                |                         |
|  |                  | Dirt Alarm <sup>®</sup> O   | otions   |                                |                         |
|  |                  | Omit = None   |  |                                |                         |
| Located @  | Visual           |   | ted tri-color gauge                              |                                |                         |
| Port D   | Electrical       | ES = Electrical symptotic symptot |  | opduit                         |                         |
| (Standard)   |                  | connector   | electrical switch with co                        |                                |                         |
|  | Visual           | $Y2R = \frac{Back-mour}{of standard}$   | ted gauge mounted on<br>l location               | opposite side                  |                         |
| Located @<br>Port C  |                  | Electrical sv<br>ESR = of standard  | vitch mounted on oppo                            | site side                      |                         |
| (Optional)   | Electrical       |   | electrical switch with co                        | onduit                         |                         |
|  |                  | ·   |  |                                |                         |
| ements   |                  | Port Configuratio   | n  |                                |                         |
| ents<br>en<br>ts.  |                  | D (Stand  | lard)  |                                |                         |
| element part<br>dentical to<br>ixes 2, 3, 4,<br>stacking<br>ents can be<br>igle KK | (Inlet)          |   | B (Outlet)                                       |                                |                         |
| ered   |                  | C (Optio  | N  |                                |                         |

### 226 SCHROEDER INDUSTRIES

Return Line Filter

|  | 3 | 0 gpm |  |
|--|---|-------|--|

| • •  | Features and Benefits  | 120 L/min    | TF1    |
|--|--|--------------|--------|
| and the second s | <ul> <li>Offered in pipe, SAE straight thread,<br/>flange and ISO 228 porting</li> </ul> | 300 psi      | KF3    |
|  | <ul> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>                               | 20 bar       | KL3    |
|  | <ul> <li>Available with No-Element indicator</li> </ul>                                  |              | KLS    |
|  | <ul> <li>Available with NPTF inlet and outlet<br/>female test ports</li> </ul>           |              | LF1-2" |
|  | <ul> <li>Available with magnet inserts</li> </ul>  |              | BAL 54 |
|  | <ul> <li>Available with housing drain plug</li> </ul>                                    |              | MLF1   |
|  |  |              | RLD    |
|  |  |              | GRTB   |
|  |  |              | ΜΤΑ    |
|  |  |              | МТВ    |
| Model No. of filter in photograph is TF11A   | xZ10SD5.   | •            | ZT     |
|  |  | Applications | KFT    |
|  |  |              | RT     |

INDUSTRIAL

STEEL MAKING



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PULP & PAPER



MACHINE TOOL

AGRICULTURE





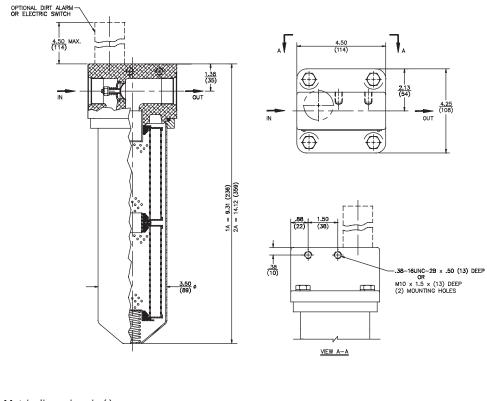
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**KTK** 

| MRT         |                             |   |  |
|-------------|-----------------------------|---|--|
|             | Filter                      | Up to 30 gpm (120 L/min) for 150 SUS (32 cSt) fluids  | Flow Rating:                           |
| Accessories | Housing                     | 300 psi (20 bar)                                      | Max. Operating Pressure:               |
| for Tank-   | Specifications <sup>2</sup> | 1200 psi (80 bar), per NFPA T2.6.1                    | Min. Yield Pressure:                   |
| Mounted     |                             | 270 psi (19 bar), per NFPA T2.6.1-2005                | Rated Fatigue Pressure:                |
| Filters     |                             | -20°F to 225°F (-29°C to 107°C)                       | Temp. Range:                           |
| PAF1        |                             | Cracking: 30 psi (2 bar)<br>Full Flow: 51 psi (4 bar) | Bypass Setting:                        |
|             |                             | Cast Aluminum<br>Steel                                | Porting Head:<br>Element Case:         |
| MAF1        |                             |   | Weight of TF1-1A:<br>Weight of TF1-2A: |
| MF2         |                             | 3.50" (90 mm)   | Element Change Clearance:              |
|             |                             |   |  |





Metric dimensions in ( ).

| Element<br>Performance |         |                  | tio Per ISO 4572/NF<br>article counter (APC) calib | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|---------|------------------|--|--|----------------------|-----------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                  | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | A3      | 6.8              | 7.5  | 10.0   | N/A                  | N/A                   |
|                        | A10     | 15.5             | 16.2   | 18.0   | N/A                  | N/A                   |
|                        | AZ1     | <1.0             | <1.0   | <1.0   | <4.0                 | 4.2                   |
|                        | AZ3     | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | AZ5     | 2.5              | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | AZ10    | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | AZ25    | 18.0             | 20.0   | 22.5   | 19.0                 | 24.0                  |

### Dirt Holding Capacity

| ng _ | _          |                      |  |
|------|------------|----------------------|--|
| ity  | Element    | DHC (gm)             |  |
|      | A3         | 16                   |  |
|      | A10        | 13                   |  |
|      | AZ1        | 25                   |  |
|      | AZ3        | 26                   |  |
|      | AZ5        | 30                   |  |
|      | AZ10       | 28                   |  |
|      | AZ25       | 28                   |  |
|      |            |                      |  |
|      | Eleme      | ent Collapse Rating: | 150 psid (10 bar)                      |
|      |            | Flow Direction:      | Outside In                             |
|      | Element No | ominal Dimensions:   | 3.0" (75 mm) O.D. x 4.5" (115 mm) long |
| -    |            |                      |  |
| 2    | 28 SCHROED | ER INDUSTRIES        |  |

# Return Line Filter TF1

|                                      |               | ype Fluid                           | Appropriate Schroede   |  |  |                                    |                          | Fluid   | IRF   |
|--------------------------------------|---------------|-------------------------------------|--|--|--|------------------------------------|--------------------------|---|---|
|                                      |               | ed Fluids                           | All E media (cellulose) a  | nd Z-Media® (                                | Compatibility  | TF1                                |                          |   |   |
| Hig                                  | ·             | Content                             | All Z-Media <sup>®</sup> (synthetic)   |  |  |                                    |                          |   |   |
|                                      |               | mulsions                            | 10 and 25 µ Z-Media <sup>®</sup> (s  |  |  | KF3                                |                          |   |   |
|                                      |               | er Glycols                          | 3, 5, 10 and 25 μ Z-Mee  |  |  |                                    |                          |   |   |
|                                      |               | ate Esters                          | All Z-Media <sup>®</sup> (synthetic)   |  | 0  |                                    |                          |   | KL3   |
|                                      |               | Skydrol®                            | 3, 5, 10 and 25 µ Z-Mee<br>stainless steel wire mesh                             | dia® (synthetic<br>n in element, a           | c) with H.5 seal<br>and light oil coa                    | designation (EF<br>ating on housin | PR seals and g exterior) | Skydrol <sup>®</sup> is a registered trademark of Solutia Inc | LF1-2"  |
| Pressure                             | Ele<br>Series | ement<br>Part No.                   | Element selections are<br>based fluid and a 30 p                                 | •  |  | 150 SUS (32 c                      | St) petroleum            | Element<br>Selection  | MLF1  |
|                                      | _             | A3                                  | 1A3  |  | 2A3  |                                    |                          | Based on<br>Flow Rate   |   |
|                                      | E<br>Media    | A10                                 | 1A10   |  |  | 2A10                               |                          | now hate  | RLD   |
|                                      | Wiedła        | A25                                 |  | 1A   | 425  |                                    |                          |   |   |
| To<br>200 pci                        |               | AZ1                                 | 1AZ1   |  |  | 2AZ1                               |                          |   | GRTB  |
| 300 psi<br>(20 bar)                  | _             | AZ3                                 | 1AZ3   |  |  | 2AZ3                               |                          |   |   |
| . ,                                  | Z-<br>Media®  | AZ5                                 |  | A  | Z5   |                                    |                          |   | MTA   |
|                                      | meana         | AZ10                                |  | AZ   | Z10  |                                    |                          |   |   |
|                                      |               | AZ25                                |  | AZ   | 225  |                                    |                          |   | MTB   |
|                                      |               | gpm                                 | 0 10   |  | 20   |                                    | 30                       |   |   |
|                                      | Flow          | (L/min)                             | 0 25   | 50   | 75   | 100                                | 120                      |   | ZT  |
| Note: Cont                           | tact facto    | ry regarding                        | most commonly used in t<br>g use of E media in High<br>tion, refer to Fluid Comp | Vater Conter                                 |  |                                    |                          |   | KFT   |
| $\Delta \mathbf{P}_{\text{housing}}$ |               |                                     |  | $\Delta \mathbf{P}_{element}$                |  | , pages _ r ana                    |                          | Pressure  | RT  |
|                                      | 0             | ids with sp <u>c</u><br>Flow (L/min | )  | ΔP <sub>element</sub>                        | = flow x element<br>ors @ 150 SUS (3.                    |                                    | ity factor               | Drop<br>Information   | RTI   |
| 8                                    | (25)          | (50) (75                            | 5) (100)   | A3<br>A10                                    | 1A<br>53<br>36   | <u>2A</u><br>.27<br>.18            |                          | Based on<br>Flow Rate<br>and Viscosity                        | LRT   |
| isd 6                                |               |                                     | (0.50)   | A25<br>AZ1<br>AZ3                            | .05<br>.70<br>.50  | .03<br>.35<br>.25                  |                          |   | ART   |
| 4                                    |               |                                     | (0.25)   | AZ5<br>AZ10<br>AZ25                          | .32<br>.25<br>.14  | .16<br>.13<br>.07                  |                          |   | BFT   |
| 0                                    | 10            | Flow gpm                            | 20 30  | factor by                                    | g in units of ba<br>54.9.<br><i>factor:</i> Divide v     |                                    |                          |   | QT  |
|                                      |               | now gpin                            |  | Viscosity                                    |  | iscosity by 190                    | 505 (52 (51).            |   | КТК   |
| sp gr = spe<br>Sizing of el          | -             | -                                   | ed on element flow inforn  | hation provide                               | ed in the Elemen   | t Selection char                   | t above.                 |   | LTK   |
| Notes                                |               |                                     |  | $\triangle \mathbf{P}_{filter} =$            | $\Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{I}$ | Pelement                           |                          |   | MRT   |
|                                      |               |                                     |  |  | e ∆P at 20 gpm<br>D SUS (44 cSt) f                       |                                    | TF12AZ3PD                |   | ccessories<br>for Tank-<br>Mounted<br>Filters |
|                                      |               |                                     |  | $\Delta P_{housing}$<br>$\Delta P_{element}$ | = 4.5 psi [.3  | 0 bar]<br>(200÷150) = 6            | .7 psi                   |   | PAF1  |
|                                      |               |                                     |  | $\Delta P_{total}$                           | •  | ÷54.9) x (44÷32<br>= 11.2 psi      | 2) = .47 bar]            |   | MAF1  |
|                                      |               |                                     |  |  | = [.30 + .47   | = .77 bar]                         |                          |   | MF2   |

# Return Line Filter

| Filter    | How to           | Build a Va            | lid Model Number for a Schroeder TF                                   | 1:                         |                  |
|-----------|------------------|-----------------------|---|----------------------------|------------------|
| Model     | BOX 1            | BOX 2                 | BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BO                                      | X 8                        |                  |
| Number    | TF1              |                       |   |                            |                  |
| Selection |                  | ,                     | x 8 may contain more than one option                                  |                            |                  |
|           | BOX 1            | BOX 2                 |   | X 8                        |                  |
|           | TF1              | - 1 -                 | A3 P - D5 -   | = TF11A3PD                 | 5                |
|           | L                |                       |   |                            |                  |
|           | BOX 1            | BOX 2                 | BOX 3   | BOX 4                      | BOX 5            |
|           | Filter<br>Series | Number of<br>Elements | Element Part Number   | Seal Material              | Magnet<br>Option |
|           | TF1              | 1                     | A3 = 3 $\mu$ E media (cellulose)                                      | Omit = Buna N              | Omit = None      |
|           |                  | 2                     | A10 = 10 $\mu$ E media (cellulose)                                    | H = EPR                    | M = Magnet       |
|           |                  | Z                     | A25 = 25 $\mu$ E media (cellulose)                                    | V = Viton®                 | inserts          |
|           |                  |                       | AZ1 = 1 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | H.5 = Skydrol <sup>®</sup> |                  |
|           |                  |                       | AZ3 = 3 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | compatibility              |                  |
|           |                  |                       | AZ5 = 5 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |                            |                  |
|           |                  |                       | AZ10 = 10 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |                            |                  |
|           |                  |                       | AZ25 = 25 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |                            |                  |
|           |                  |                       | AM10 = 10 $\mu$ M media (reusable metal)                              |                            |                  |
|           |                  |                       | AM25 = 25 $\mu$ M media (reusable metal)                              |                            |                  |

| BOX 6  |  | BOX 7  | BOX 8                                      |
|--|--|--|--|
| Porting<br>Options   |  | Dirt Alarm <sup>®</sup> Options  | Additional<br>Options                      |
| P = 1 " NPTF   |  | Omit = None  | Omit = None                                |
| <sup>S</sup> = SAE-16<br><sup>B</sup> = ISO 228 G-1"                                 | Visual   | D = Pointer<br>D5 = Visual pop-up  | L = Two ¼"<br>NPTF inlet                   |
| 10 = 10 psi bypass<br>setting<br>15 = 15 psi bypass                                  | Visual with<br>Thermal<br>Lockout                                | D8 = Visual w/ thermal lockout   | and outlet<br>female test<br>ports         |
| setting<br>20 = 20 psi bypass<br>setting   |  | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5<br>MS10 = Electrical w/ DIN connector (male end only)   | N = No-Element<br>indicator                |
| 25 = 25 psi bypass<br>setting<br>30 = 30 psi bypass<br>setting                       | Electrical   | MS10LC = Low current MS10<br>MS11 = Electrical w/ 12 ft. 4-conductor wire<br>MS12 = Electrical w/ 5 pin Brad Harrison connector  | G440 = ½" drain<br>on bottom<br>of housing |
| 40 = 40 psi bypass<br>setting<br>60 = 60 psi bypass<br>setting<br>75 = 75 psi bypass |  | (male end only)<br>MS12LC = Low current MS12<br>MS16 = Electrical w/ weather-packed sealed connector<br>MS16LC = Low current MS16  | or nousing                                 |
| setting  |  | MS16LC = Electrical w/ 4 pin Brad Harrison male connector  |  |
|  | Electrical<br>with<br>Thermal<br>Lockout<br>Electrical<br>Visual | MS5T = MS5 (see above) w/ thermal lockout<br>MS5LCT = Low current MS5T<br>MS10T = MS10 (see above) w/ thermal lockout<br>MS10LCT = Low current MS10T<br>MS12T = MS12 (see above) w/ thermal lockout<br>MS12LCT = Low current MS12T<br>MS16T = MS16 (see above) w/ thermal lockout<br>MS16LCT = Low current MS16T<br>MS17LCT = Low current MS16T<br>MS17LCT = Low current MS17T<br>MS = Cam operated switch w/ ½" conduit<br>female connection<br>MS13 = Supplied w/ threaded connector & light<br>MS14 = Supplied w/ 5 pin Brad Harrison connector |  |
|  | Electrical<br>Visual with<br>Thermal<br>Lockout                  | & light (male end)<br>MS13DCT = MS13 (see above), direct current, w/ thermal lockout<br>MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current, w/ thermal lockout<br>MS14DCLCT = Low current MS14DCT   |  |

#### NOTES:

- Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4. E media elements are only available with Buna N seals.
- Box 4. For option V, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 6. B porting option supplied with metric mounting holes.

### Return Line Filter KF3



### **Features and Benefits**

| Features and Benefits  | 100 apm   | IRF    |
|--|-----------|--------|
| Meets HF4 automotive standard  | 100 gpm   |        |
| <ul> <li>Offered in pipe, SAE straight thread,<br/>flange and ISO 228 porting</li> </ul>   | 380 Ľ/min | TF1    |
| <ul> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>   | 300 psi   | KF3    |
| Available with No-Element indicator  | 20 bar    |        |
| <ul> <li>Available with NPTF inlet and outlet<br/>female test ports</li> </ul>   | 20 501    | KL3    |
| Available with magnet inserts  |           | LF1-2" |
| <ul> <li>Available with housing drain plug</li> </ul>  |           |        |
| <ul> <li>Takes the standard "K" element in K,<br/>KK or 27K lengths</li> </ul>   |           | MLF1   |
| <ul> <li>Allows consolidation of inventoried replacement<br/>elements by using K-size elements</li> </ul>                                      |           | RLD    |
| <ul> <li>WKF3 model for water service available –<br/>refer to Section 7 of this catalog</li> </ul>  |           | GRTB   |
| <ul> <li>Also available with DirtCatcher<sup>®</sup> elements<br/>(KD &amp; KKD)</li> </ul>  |           | ΜΤΑ    |
| <ul> <li>Available with Patented GeoSeal<sup>®</sup> Elements.</li> <li>See Section 8 – GeoSeal Filters (page 344)<br/>for details.</li> </ul> |           | МТВ    |
|  |           | ZT     |
|  |           |        |

#### Model No. of filter in photograph is KF31K10S.







MAKING

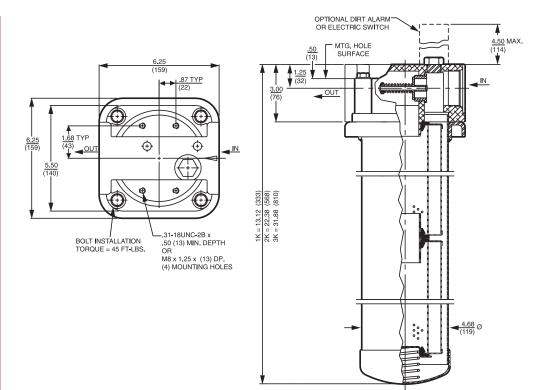


| Applications | KFT |
|--------------|-----|
|              | RT  |
|              | RTI |
|              | LRT |
|              | ART |
|              | BFT |
|              | QT  |
|              | КТК |
|              | LTK |
| Filter       | MRT |

| Flow Rating:  | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids          | Filter MRT                 |
|---|--|----------------------------|
| Max. Operating Pressure:                                    | 300 psi (20 bar)   | Housing                    |
| Min. Yield Pressure:  | 1000 psi (70 bar), per NFPA T2.6.1                             | Specifications Accessories |
| Rated Fatigue Pressure:                                     | 290 psi (20 bar), per NFPA T2.6.1-2005                         | for Tank-                  |
| Temp. Range:  | -20°F to 225°F (-29°C to 107°C)                                | Mounted                    |
| Bypass Setting:   | Cracking: 30 psi (2 bar)<br>Full Flow: 51 psi (4 bar)          | Filters                    |
| Porting Head:<br>Element Case:                              | Die Cast Aluminum<br>Steel                                     | PAF1                       |
| Weight of KF3-1K:<br>Weight of KF3-2K:<br>Weight of KF3-3K: | 10.5 lbs. (4.8 kg)<br>14.2 lbs. (6.4 kg)<br>18.5 lbs. (8.4 kg) | MAF1                       |
| Element Change Clearance:                                   | 1.50" (40 mm) for all lengths                                  | MF2                        |
|   |  |                            |



### Return Line Filter



Metric dimensions in ( ).

| Element<br>Performance |  | Using auton         | o Per ISO 4572/I<br>nated particle co<br>brated per ISO 4 | ounter (APC)      | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                           |  |
|------------------------|--|---------------------|---|-------------------|--|---------------------------|--|
| Information            | Element                                | β <sub>X</sub> ≥ 75 | $\beta_X \ge 100$   | $\beta_X \ge 200$ | $\beta_{\chi}(c) \ge 200$  | β <sub>X</sub> (c) ≥ 1000 |  |
|                        | К3/КК3/27К                             | 6.8                 | 7.5   | 10.0              | N/A  | N/A                       |  |
|                        | K10/KK10/27K10                         | 15.5                | 16.2  | 18.0              | N/A  | N/A                       |  |
|                        | KZ1/KKZ1/27KZ1                         | <1.0                | <1.0  | <1.0              | <4.0   | 4.2                       |  |
|                        | KZ3/KAS3/KKZ3/KKAS3/27KZ3/27KAS3       | <1.0                | <1.0  | <2.0              | <4.0   | 4.8                       |  |
|                        | KZ5/KAS5/KKZ5/KKAS5/27KZ5/27KAS5       | 2.5                 | 3.0   | 4.0               | 4.8  | 6.3                       |  |
|                        | KZ10/KAS10/KKZ10/KKAS10/27KZ10/27KAS10 | 7.4                 | 8.2   | 10.0              | 8.0  | 10.0                      |  |
|                        | KZ25/KKZ25/27KZ25                      | 18.0                | 20.0  | 22.5              | 19.0   | 24.0                      |  |
|                        | KZW1                                   | N/A                 | N/A   | N/A               | <4.0   | <4.0                      |  |
|                        | KZW3/KKZW3                             | N/A                 | N/A   | N/A               | 4.0  | 4.8                       |  |
|                        | KZW5/KKZW5                             | N/A                 | N/A   | N/A               | 5.1  | 6.4                       |  |
|                        | KZW10/KKZW10                           | N/A                 | N/A   | N/A               | 6.9  | 8.6                       |  |
|                        | KZW25/KKZW25                           | N/A                 | N/A   | N/A               | 15.4   | 18.5                      |  |

| Dirt Holding |            | DHC |                             | DHC    |                  | DHC    |             | DHC      |               | DHC    |         | DHC |         | DHC |
|--------------|------------|-----|-----------------------------|--------|------------------|--------|-------------|----------|---------------|--------|---------|-----|---------|-----|
| Capacity     | Element    | (g) | Element                     | (g)    | Element          | (g)    | Element     | (g)      | Element       | (g)    | Element | (g) | Element | (g) |
|              | К3         | 54  | ККЗ                         | 108    | 27K3             | 162    |             |          |               |        |         |     |         |     |
|              | К10        | 44  | КК10                        | 88     | 27K10            | 132    |             |          |               |        |         |     |         |     |
|              | KZ1        | 112 | KKZ1                        | 224    | 27KZ1            | 336    | KDZ1        | 89       | KKDZ1         | 188    | KZW1    | 61  |         |     |
|              | KZ3/KAS3   | 115 | KKZ3/KKAS3                  | 230    | 27KZ3/27KAS3     | 345    | KDZ3        | 71       | KKDZ3         | 150    | KZW3    | 64  | KKZW3   | 128 |
|              | KZ5/KAS5   | 119 | KKZ5/KKAS5                  | 238    | 27KZ5/27KAS5     | 357    | KDZ5        | 100      | KKDZ5         | 210    | KZW5    | 63  | KKZW5   | 126 |
|              | KZ10/KAS10 | 108 | KKZ10/KKAS10                | 216    | 27KZ10/27KAS10   | 324    | KDZ10       | 80       | KKDZ10        | 168    | KZW10   | 57  | KKZW10  | 114 |
|              | KZ25       | 93  | KKZ25                       | 186    | 27KZ25           | 279    | KDZ25       | 81       | KKDZ25        | 171    | KZW25   | 79  | KKZW25  | 158 |
|              |            |     | Elei                        | ment ( | Collapse Rating: | 150 ps | id (10 bar) | for stan | dard elemei   | nts    |         |     |         |     |
|              |            |     |                             |        | Flow Direction:  | Outsid | e In        |          |               |        |         |     |         |     |
|              |            |     | Element Nominal Dimensions: |        |                  | K:     | 3.9" (99 n  | nm) O.E  | 0. x 9.0" (23 | 30 mm) | ) long  |     |         |     |
|              |            |     |                             |        |                  | KK:    | 3.9" (99 n  | nm) O.E  | 0. x 18.0" (4 | 160 mn | n) long |     |         |     |
|              |            |     |                             |        |                  | 27K:   | 3.9" (99 n  | nm) O.E  | 0. x 27.0" (6 | 590 mr | n) long |     |         |     |

# Return Line Filter KF3

|   | Туре   | Fluid App                     | ropriate Schroeder I   | Viedia                                    |                               |                   |                |                   |            | Fluid  | IRF         |
|---|--|-------------------------------|--|---|-------------------------------|-------------------|----------------|-------------------|------------|--|-------------|
| Petroleur   | n Based F  | luids All E                   | media (cellulose), Z-N   | ledia <sup>®</sup> and ASP <sup>®</sup> I | media (synt                   | netic)            |                |                   |            | Compatibility  | TEA         |
| High V  | Vater Co   | ntent All Z                   | -Media <sup>®</sup> and ASP <sup>®</sup> Me                                | edia (synthetic)                          |                               |                   |                |                   |            |  | TF1         |
| Inv   | /ert Emul  | sions 10 a                    | nd 25 µ Z-Media® (syr  | nthetic), 10 µ ASP                        | ® media (sy                   | nthetic)          |                |                   |            |  | KF3         |
|   | Water G  | l <b>ycols</b> 3, 5,          | 10 and 25 µ Z-Media  | ® (synthetic), 3, 5                       | , and 10 µ .                  | ASP® M€           | edia (synt     | hetic)            |            |  | KI J        |
| Pho   | osphate E  |                               | -Media <sup>®</sup> (synthetic) w<br>dia (cellulose) with H                |   |                               |                   |                | thetic)           |            |  | KL3         |
|   | Sky  | remo                          | 10 and 25 µ Z-Media<br>oval) with H.5 seal desi<br>light oil coating on ho | gnation (EPR seals                        | and stainle                   | ss steel v        | wire mesł      |                   |            | Skydrol <sup>®</sup> is a register<br>trademark of Solutia |             |
| Pressure  | Ele<br>Series  | ement<br>Part No.             | Element selections   |   | Element<br>Selection          | MLF1              |                |                   |            |  |             |
| Tressure  | Jenes  | K3                            | 1K3  |   | 2K3                           |                   | Varvei         | 3K3               |            | Based on   | RLD         |
|   | E  | K10                           | 1K1  | 0   |                               | K10 <sup>†</sup>  |                | 3K10              | t l        | Flow Rate  |             |
|   | Media  | K25                           |  | 1K25                                      |                               |                   |                | 2K25              |            |  | GRTB        |
| То  |  | KZ1                           | 1K   |   |                               | 2KZ1 <sup>+</sup> |                | 3KZ1              |            |  |             |
| 300 psi<br>(20 bar)   |  | KZ3                           |  | 1KZ3                                      |                               |                   |                | 2KZ3 <sup>†</sup> |            |  | MTA         |
| (20 Dai)  | Z-   | KZ5                           |  | 1KZ5                                      |                               |                   |                | 2KZ               | 5†         |  |             |
|   | Media®   | KZ10                          |  | 1K  | Z10                           |                   |                |                   | -          |  | MTB         |
|   |  | KZ25                          |  | 1K  | Z25                           |                   |                |                   |            |  | 77          |
|   |  | gpm                           | 0 20   | 40  | 60                            |                   | 80             |                   | 100        |  | ZT          |
|   | Flow (L/min) 0 50 150 250 380  |                               |  |   |                               |                   |                |                   |            |  | KFT         |
| Same flow r   | <ul> <li>TDouble and triple stacking of K-size elements can be replaced by single KK &amp; 27K elements, respectively.</li> <li>Same flow rate applies.</li> <li>Shown above are the elements most commonly used in this housing.</li> </ul> |                               |  |   |                               |                   |                |                   |            |  |             |
|   |  |                               | of E media in High Wat   |   |                               | Water (           | Glycol App     | lication          | s.         |  |             |
|   | rmation, re  | efer to Fluid C               | ompatibility: Fire Resist  | ant Fluids, pages 2                       | 1 and 22.                     |                   |                |                   |            | Droccuro   | RTI         |
| $\Delta \mathbf{P}_{housing}$   |  |                               |  | $\Delta \mathbf{P}_{element}$             |                               |                   |                |                   |            | Pressure<br>Drop   |             |
| KF3 ∆P <sub>housing</sub>   | ,<br>,   |                               | = 0.86:  | $\Delta P_{element} = flow$               |                               |                   | k viscosity    | factor            |            | Information  | LRT         |
| (50)  |  | ow (L/min)<br>) (250)         | (350)  | El. ∆P factors @                          |                               | ,                 | Based on       |                   |            |  |             |
| 8   |  |                               | (0.50)   | КЗ  | _1K2K<br>.25 .12              |                   | -              | <u>1K</u>         | <u>_2K</u> | Flow Rate  | ART         |
| 6   |  |                               |  | K10                                       | .09 .05                       | .03               |                |                   |            | and Viscosity  | DET         |
| is a  |  |                               | (bar)  | K25<br>KZ1                                | .02 .01                       | .01<br>.05        | KDZ1           | .24               | .12        |  | BFT         |
|   |  |                               | ق<br>(0.25) م  | KZ3/KAS3                                  | .10 .05                       | .03               | KDZ3           | .12               | .06        |  | ОТ          |
| 2   |  | $\square$                     |  | KZ5/KAS5                                  | .08 .04                       | .02               | KDZ5           | .10               | .05        |  | QT          |
|   |  |                               |  | KZ10/KAS10<br>KZ25                        | .05 .03                       | .02<br>.01        | KDZ10<br>KDZ25 | .06<br>.04        | .03<br>.02 |  | КТК         |
| 0   | 20 4   |                               | 80 100   |   |                               |                   |                |                   |            |  | KIK         |
|   |  | low gpm                       |  | KZW1                                      | _ <b>1K2K</b><br>.43          | _                 |                |                   |            |  | LTK         |
| sp gr = specif  |  |                               | d on element flow  | KZW3                                      | .32 .16                       |                   |                |                   |            |  | LIIX        |
|   |  |                               | ent Selection chart  | KZW5<br>KZW10<br>KZW25                    | .28 .14<br>.23 .12<br>.14 .07 |                   |                |                   |            |  | MRT         |
| $\triangle \mathbf{P}_{filter} = \triangle \mathbf{P}$  | housing +  | $\Delta \mathbf{P}_{element}$ |  | If working in u                           |                               | & I /mir          | n divide a     | bove fa           | actor      |  | Accessories |
| Exercise:   |  |                               |  | by 54.9.                                  |                               | d Dinin           | i, aiviac c    | bove re           |            |  | for Tank-   |
| Determine ΔP at 60 gpm (225 L/min) for KF32KZ5SD5 Viscosity factor: Divide viscosity by 150 SUS (32 cSt).                         |  |                               |  |   |                               |                   |                |                   | t).        |  | Mounted     |
| using 200 SU  | JS (44 cSt)  | fluid.                        |  |   |                               |                   |                |                   |            |  | Filters     |
| Solution:   |  |                               |  |   |                               |                   |                |                   |            |  |             |
|   | 3.5 psi [  |                               |  |   |                               |                   |                |                   |            |  | PAF1        |
| $\Delta P_{element} =$  | 60 x .04   | x (200÷150)                   | = 3.2 psi  |   |                               |                   |                |                   |            |  |             |
| $= [225 \times (.04 \div 54.9) \times (44 \div 32) = .23 \text{ bar}]$<br>$\Delta P_{\text{total}} = 3.5 + 3.2 = 6.7 \text{ psi}$ |  |                               |  |   |                               |                   |                |                   | MAF1       |  |             |
|   | or   |                               |  |   |                               |                   |                |                   |            |  | MF2         |
| =   | [.24 + .2  | 3 = .47 bar]                  |  |   |                               |                   |                |                   |            |  |             |
|   |  |                               |  |   |                               | SCHRO             | EDER IN        | IDUST             | RIES 2     | 33   |             |

# KF3 Return Line Filter

| Model KF3                      | 3-   |   | ]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[]-[_]-[   |                                | ]   |                             |  |  |
|--------------------------------|--|---|---|--------------------------------|---|-----------------------------|--|--|
|                                | ple: NO  | DTE: Only box 10 m                            | ay contain more than or   | e option                       |   |                             |  |  |
|                                | BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9 BOX 10<br>KF3 - 1K - Z - 10 S - D5 - = KF31KZ10SD5 |   |   |                                |   |                             |  |  |
| BO                             | X 1  | BOX 2   | BO  | (3                             |   | BOX 4                       |  |  |
| Filt<br>Ser                    |  | Number<br>& Size of<br>Elements               | Media   | Туре                           | Micron Rating                                     |                             |  |  |
| K                              | -3   |   | Omit = E media (cellul  | ose)                           | 1 = 1 µ (Z, Z                                     | W and DZ media)             |  |  |
| (Se<br>Secti<br>for W          | on 7   | 2K  | AS = Anti-Static Plea   | at Media                       | 3 = 3 µ (E, A                                     | AS, Z, ZW and DZ media      |  |  |
| Serv                           | vice   | ЗК  | Z = Excellement <sup>®</sup> Z                                  | -Media <sup>®</sup> (synthetic | c) 5 = 5 μ (AS,                                   | Z, ZW and DZ media)         |  |  |
|                                |  |   | ZW = Aqua-Excellem  | ent <sup>®</sup> ZW media      | 10 = 10 μ (E, A                                   | S, Z, ZW, M and DZ med      |  |  |
|                                |  |   | W = Water Remova  | l media                        | 25 = 25 μ (E, Z                                   | , ZW, M and DZ media)       |  |  |
|                                |  |   | M = M Media (reus   | able metal)                    | 60 = 60 μ (M r                                    | media)                      |  |  |
|                                |  |   | DZ = DirtCatcher® E   | kcellement® Z-Medi             | ia®   |                             |  |  |
|                                | E  | 30X 5   | BOX 6   | В                              | OX 7  | BOX 8                       |  |  |
|                                | Seal   | Material                                      | Magnet Option   | Po                             | rting   | Bypass Setting              |  |  |
|                                | = Buna   | Ν   | Omit = None   | P = 1½" NPTF                   |   | Omit = 30 psi crackin       |  |  |
|                                | = EPR<br>= Vitor   | ®   | M = Magnet  | S = SAE-24<br>F - 1½" SAF4     | 4 50 = 50 p<br>AE4-bolt flange Code 61 (req.      |                             |  |  |
|                                |  | rol <sup>®</sup> Compatibility                |   | B = ISO 228 G                  | 5   | (icq. ioi iii i)            |  |  |
|                                | = Buna   |   |   |                                |   |                             |  |  |
|                                |  |   | BOX 9   |                                | В   | OX 10                       |  |  |
|                                |  | Dirt Al                                       | arm <sup>®</sup> Options  |                                | Additional Options                                |                             |  |  |
|                                |  | Omit = None                                   |   |                                | Omit = None                                       |                             |  |  |
| Vis                            | sual   | D = Pointer                                   |   |                                | $L = Two \frac{1}{4}$ " NPTF                      | inlet and outlet test ports |  |  |
|                                |  | D5 = Visual po                                | pp-up   |                                | N = No-Element inc                                |                             |  |  |
| of K-size                      | l with<br>Lockout  | D8 = Visual w                                 | / thermal lockout   |                                | $G426 = \frac{3}{4}$ " drain on bottom of housing |                             |  |  |
| be<br>ingle                    |  | MS5 = Electrical                              | w/ 12 in. 18 gauge 4-cond                                       | uctor cable                    | $G440 = \frac{1}{2}$ drain on b                   | oottom of housing           |  |  |
| elements,<br>Number            |  | MS5LC = Low curr                              |   |                                |   |                             |  |  |
| ts must equal                  |  | MS10 = Electrical<br>MS10LC = Low curr        | w/ DIN connector (male en<br>ent MS10                           | d only)                        |   |                             |  |  |
| its. ZW media                  | trical   | MS11 = Electrical                             | w/ 12 ft. 4-conductor wire                                      |                                |   |                             |  |  |
| ble in 27K.                    |  | MS12 = Electrical<br>MS12LC = Low curr        | w/ 5 pin Brad Harrison conne<br>ent MS12                        | ctor (male end only)           |   |                             |  |  |
| nt element<br>ers are          |  |   | w/ weather-packed sealed  | connector                      |   |                             |  |  |
| contents                       |  | MS16LC = Low curr                             |   |                                |   |                             |  |  |
| 3, 4, and 5.                   |  |   | w/ 4 pin Brad Harrison male<br>above) w/ thermal lockout        | e connector                    |   |                             |  |  |
| H, W, V, and<br>iinum parts    |  | MS5LCT = Low curr                             |   |                                |   |                             |  |  |
| d. H.5 seal                    | trical   | MS10T = MS10 (se<br>MS10LCT = Low curr        | ee above) w/ thermal lockou                                     | t                              |   |                             |  |  |
| with T                         | hermal   |   | en IVISTOT<br>ee above) w/ thermal lockou                       | t                              |   |                             |  |  |
| eel wire mesh                  | kout   | MS12LCT = Low curr                            |   |                                |   |                             |  |  |
| nts, and light<br>g on housing |  | MS16T = MS16 (se<br>MS16LCT = Low curr        | ee above) w/ thermal lockou                                     | t                              |   |                             |  |  |
| /iton <sup>®</sup> is a        |  | MS17LCT = Low curr                            |   |                                |   |                             |  |  |
| d trademark of Dow Elastomers. | trical   | MS = Cam ope                                  | erated switch w/½" conduit                                      |                                |   |                             |  |  |
|                                | sual   |   | w/ threaded connector & lig<br>w/ 5 pin Brad Harrison connector |                                |   |                             |  |  |
| Floc                           | uncar I  | MS13DCT = MS13 (se                            | e above), direct current, w/ th                                 |                                |   |                             |  |  |
| Visua                          | l with   | MS13DCLCT = Low curr                          | ent MS13DCT<br>e above), direct current, w/ th                  | ormal lockout                  |   |                             |  |  |
|                                | COLIT  | MS14DCLCT = INS14 (se<br>MS14DCLCT = Low curr |   |                                |   |                             |  |  |
| ig holes.                      |  |   |   |                                |   |                             |  |  |

# Return Line Filter with Threaded Bowl KL3

|  | <ul> <li>Features and Benefits</li> <li>Threaded bowl allows for easier removal and facilitates element changes</li> <li>Available with 18LC and K-size elements</li> <li>Available with 1½" and 2" porting</li> <li>Offered in pipe, SAE straight thread, ISO 228, and flange porting</li> <li>Various Dirt Alarm® options</li> <li>Available with NPTF inlet and outlet female test ports</li> <li>Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 344) for details.</li> </ul> | 120 gpm<br>455 L/min<br>300 psi<br>20 bar<br>KL3<br>LF1-2"<br>MLF1<br>RLD<br>GRTB<br>MTA |
|--|--|--|
| Model No. of filter in photograp   | h is KL31KZ10F24.  | МТВ  |
|  |  | ZT   |
|  |  | Applications KFT   |
|  |  | RT   |
| AUTOMOTIVE MACHINE<br>MANUFACTURING TOOL   | MOBILE MINING<br>VEHICLES TECHNOLOGY   | RTI  |
|  |  | LRT  |
|  |  | ART  |
|  |  | AKI  |
|  |  | BFT  |
|  |  | QT   |
|  |  | Filter   |
| Flow Rating:   | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids for P24, S24, F24 and B24 porting  | Housing  |
|  | Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids for P32, S32 and B32 porting   | Specifications   |
| Max. Operating Pressure:   | 300 psi (20 bar)   | MRT  |
| Min. Yield Pressure:   | 1000 psi (70 bar), per NFPA T2.6.1   | Accessories  |
| Rated Fatigue Pressure:  | 300 psi (20 bar), per NFPA T2.6.1-2005   | for Tank-  |
| Temp. Range:<br>Bypass Setting:  | -20°F to 225°F (-29°C to 107°C)<br>Cracking: 30 psi (2 bar)  | Mounted  |
|  | Full Flow: 68 psi (4.7 bar)  | Filters  |
| Porting Head:<br>Element Case:   | Cast Aluminum<br>Steel   | PAF1   |
| Weight of KL3-18LC:<br>Weight of KL3-1K:<br>Weight of KL3-2K:<br>Weight of KL3-3K: | 20.00 lbs. (9.1 kg)<br>14.75 lbs. (6.7 kg)<br>18.50 lbs. (8.4 kg)<br>22.75 lbs. (10.3 kg)  | MAF1   |
| Element Change Clearance:  | 2.50" (64 mm)  | MF2  |



### **KL3** Return Line Filter with Threaded Bowl

|                        | Metric dimensions in (). |            |               |            |         |                                      |            |                                       |                         |                              |            |                                  |            |  |
|------------------------|--------------------------|------------|---------------|------------|---------|--------------------------------------|------------|---------------------------------------|-------------------------|------------------------------|------------|----------------------------------|------------|--|
| Element<br>Performance |                          |            |               |            |         |                                      |            | ISO 4572/NFF<br>particle cour         |                         |                              |            | atio per ISO '<br>brated per ISO |            |  |
| Information            | Element                  |            |               |            |         | β <sub>x</sub> ≥ 75                  |            | d per ISO 440<br>8 <sub>X</sub> ≥ 100 | 2<br>β <sub>X</sub> ≥ 2 |                              | c) ≥ 200   |                                  |            |  |
|                        | K3/KK3/27K               | 3          |               |            |         | 6.8                                  |            | 7.5                                   | 10.0                    |                              | N/A        | N/                               |            |  |
|                        | K10/KK10/2               |            |               |            |         | 15.5                                 |            | 16.2                                  | 18.0                    |                              | N/A        | N                                |            |  |
|                        | KZ1/KKZ1/2               | 7KZ1       |               |            |         | <1.0                                 |            | <1.0                                  | <1.0                    | ) .                          | <4.0       | 4.                               | 2          |  |
|                        | KZ3/KAS3/K               | KZ3/K      | KAS3/27KZ3/27 | 'KAS3      |         | <1.0                                 |            | <1.0                                  | <2.0                    | 0 <4.0                       |            | 4.8                              |            |  |
|                        | KZ5/KAS5/K               | KZ5/K      | KAS5/27KZ5/27 | 'KAS5      |         | 2.5                                  |            | 3.0                                   | 4.0                     |                              | 4.8        |                                  | 3          |  |
|                        | KZ10/KAS10               | )/KKZ1     | 0/KKAS10/27K  | Z10/27     | KAS10   | 7.4                                  |            | 8.2                                   | 10.0                    | )                            | 8.0        | 10.0                             |            |  |
|                        | KZ25/KKZ25               | 5/27KZ     | 25            |            |         | 18.0                                 |            | 20.0                                  | 22.5                    | 5                            | 19.0       | 24                               | .0         |  |
|                        | KZW1                     |            |               |            |         | N/A                                  |            | N/A                                   | N/A                     |                              | <4.0       | <4                               | .0         |  |
|                        | KZW3/KKZV                | V3         |               |            |         | N/A                                  |            | N/A                                   | N/A                     |                              | 4.0        | 4.                               | 8          |  |
|                        | KZW5/KKZV                | V5         |               |            |         | N/A                                  |            | N/A N/A                               |                         |                              | 5.1        | 6.4                              |            |  |
|                        | KZW10/KKZ                | W10        |               |            |         | N/A                                  |            | N/A N/A                               |                         |                              |            | 8.6                              |            |  |
|                        | KZW25/KKZ                | W25        |               |            |         | N/A                                  |            | N/A N/A                               |                         |                              | 15.4       |                                  | .5         |  |
|                        | 18LC3                    |            |               |            |         | 6.8                                  |            | 7.5 10.0                              |                         | )                            | N/A        |                                  | N/A        |  |
|                        | 18LC10                   |            |               |            |         | 15.5                                 |            | 16.2                                  | 18.0                    |                              | N/A        | N                                |            |  |
|                        | 18LCZ1                   |            |               |            |         | <1.0                                 |            | <1.0                                  | <1.0                    |                              | <4.0       | 4.                               |            |  |
|                        | 18LCZ3                   |            |               |            |         | <1.0                                 |            | <1.0                                  | <2.0                    |                              | <4.0       | 4.                               |            |  |
|                        | 18LCZ5                   |            |               |            |         | 2.5                                  |            | 3.0                                   | 4.0                     |                              | 4.8        | 6.                               |            |  |
|                        | 18LCZ10                  |            |               |            |         | 7.4                                  |            | 8.2                                   | 10.0                    |                              | 8.0        | 10                               |            |  |
|                        | 18LCZ25                  |            |               |            |         | 18.0                                 |            | 20.0                                  | 22.5                    |                              | 19.0       | 24                               | .0         |  |
| _                      | -                        |            | I             |            | 1       |                                      |            | 1                                     |                         |                              |            |                                  |            |  |
| Dirt Holding           | Element                  | DHC<br>(g) | Element       | DHC<br>(g) | Element |                                      | DHC<br>(g) | Element                               | DHC<br>(g)              | Element                      | DHC<br>(g) | Element                          | DHC<br>(g) |  |
| Capacity               | КЗ                       | 54         | ККЗ           | 108        | 27K3    |                                      | 162        | Liement                               | (9)                     | Lichlent                     | (9)        | 18LC3                            | 110        |  |
|                        | K10                      | 44         | KK10          | 88         | 27K10   |                                      | 132        |                                       |                         |                              |            | 18LC10                           | 88         |  |
|                        | KZ1                      | 112        | KKZ1          | 224        | 27KZ1   |                                      | 336        | KZW1                                  | 61                      |                              |            | 18LCZ1                           | 224        |  |
|                        | KZ3/KAS3                 | 115        | KKZ3/KKAS3    | 230        | 27KZ3/2 | 7KAS3                                | 345        | KZW3                                  | 64                      | KKZW3                        | 128        | 18LCZ3                           | 230        |  |
|                        | KZ5/KAS5                 | 119        | KKZ5/KKAS5    | 238        | 27KZ5/2 | 7KAS5                                | 357        | KZW5                                  | 63                      | KKZW5                        | 126        | 18LCZ5                           | 238        |  |
|                        | KZ10/KAS10               | 108        | KKZ10/KKAS10  | 216        | 27KZ10/ | 27KAS10                              | 324        | KZW10                                 | 57                      | KKZW10                       | 114        | 18LCZ10                          | 216        |  |
|                        | KZ25                     | 93         | KKZ25         | 186        | 27KZ25  |                                      | 279        | KZW25                                 | 79                      | KKZW25                       |            | 18LCZ25                          | 186        |  |
|                        |                          |            | Elen          |            | Flow I  | e Rating:<br>Direction:<br>mensions: | Outside    | 3.9" (99 m                            | nm) O.D                 | ard element<br>. x 9.0" (23) | 0 mm) lo   | 5                                |            |  |

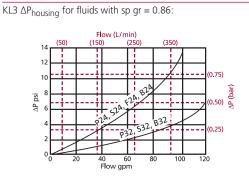
KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long 27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long 18LC: 4.0" (100 mm) O.D. x 18.5" (470 mm) long

### **Return Line Filter with Threaded Bowl** KL

|           |            | Type Fluid   | Appropriate                | Schroeder N               | /ledia                                 |                         | Fluid   | IRF            |     |                                  |               |
|-----------|------------|--|----------------------------|---------------------------|--|-------------------------|---------|----------------|-----|----------------------------------|---------------|
| Pet       | roleum Ba  | ased Fluids  | All E media (              | cellulose), Z-M           | edia <sup>®</sup> and ASP <sup>®</sup> | media (syr              | nthetic | )              |     | Compatibility                    | тга           |
|           | High Wate  | er Content   | All Z-Media®               | and ASP <sup>®</sup> me   | dia (synthetic)                        |                         |         |                |     |                                  | TF1           |
|           | Invert     | Emulsions  | 10 and 25 µ                | Z-Media <sup>®</sup> (syn | thetic), 10 µ ASI                      | P <sup>®</sup> media (s | wnthet  | tic)           |     |                                  |               |
|           | Wa         | ter Glycols  |                            | 25 µ Z-Media              |  | KF3                     |         |                |     |                                  |               |
|           |            | nate Esters  |                            | 1                         | eal designation                        | · ·                     |         |                | · · |                                  | <b>VI2</b>    |
| Durant    |            | Element Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid, SAE-24 porting for K-size elements, SAE-32 |                            |                           |  |                         |         |                |     | Element<br>Selection<br>Based on | KL3<br>LF1–2" |
| Pressure  | Series     | Part No.<br>K3   | porting for 1              |                           | 2K3                                    | Flow Rate               | MLF1    |                |     |                                  |               |
|           |            | K10  |                            |                           | 2K3                                    | 3K3<br>2K               | 10      | 3K10           |     |                                  |               |
|           | E Media    | K10  |                            |                           | K25                                    | 21                      |         | 2K25           |     |                                  |               |
|           | LIVICUIU   | 18LC3  |                            | •                         |  | RLD                     |         |                |     |                                  |               |
|           |            | 18LC10   |                            |                           | 18LC10                                 |                         |         | l              |     |                                  |               |
|           |            | KZ1  | 162                        | <u>Z</u> 1                | 2KZ1                                   | 3KZ                     | 1       |                |     |                                  | GRTB          |
| То        |            | KZ3  |                            | 1KZ3                      |  | 2KZ3                    | ;       | 3KZ3           |     |                                  |               |
| 300 psi   |            | KZ5  |                            | 1KZ5                      |  | 2                       | 2KZ5    | 3KZ5           |     |                                  | вато          |
| (20 bar)  |            | KZ10   |                            | 1KZ                       | 10                                     |                         | 2KZ1(   | <b>)</b> 3KZ10 |     |                                  | ΜΤΑ           |
| · · ·     | Z-         | KZ25   |                            | 1                         | KZ25                                   |                         |         | 2KZ25          |     |                                  |               |
|           | Media®     | 18LCZ1   |                            |                           | 18LCZ1                                 |                         |         |                |     |                                  | MTB           |
|           |            | 18LCZ3   |                            |                           | 18LCZ3                                 |                         |         |                |     |                                  |               |
|           |            | 18LCZ5   |                            |                           | 18LCZ5                                 |                         |         |                |     |                                  |               |
|           |            | 18LCZ10  |                            |                           | 18LCZ10                                |                         |         |                |     |                                  | ZT            |
|           |            | 18LCZ25  |                            |                           | 18LCZ25                                |                         |         |                |     |                                  |               |
|           | Flow       | gpm  | 0 20                       | 40                        | 60                                     | 80                      |         | 100            | 120 |                                  | KFT           |
|           | TIOW       | (L/min)  | min) 0 100 200 300 400 455 |                           |  |                         |         |                | 455 |                                  |               |
| hown aboy | ve are the | elements m   | ost commonly u             | sed in this hou           | isina.                                 |                         |         |                |     |                                  | RT            |

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

#### $\triangle \mathbf{P}_{\text{housing}}$



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

#### $\triangle \mathbf{P}_{filter} = \triangle \mathbf{P}_{housing} + \triangle \mathbf{P}_{element}$

#### Exercise:

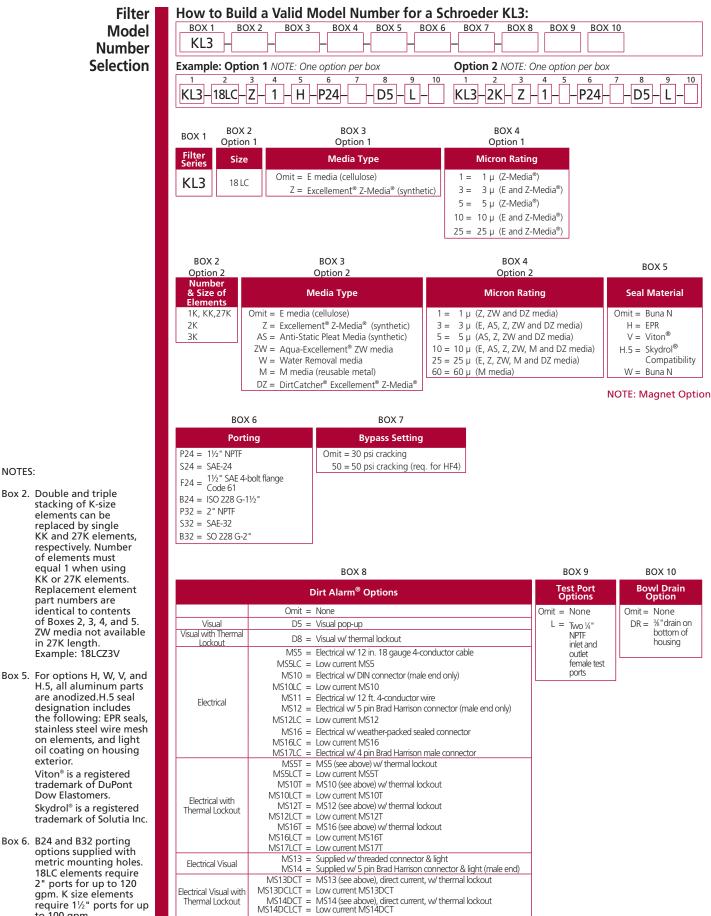
Determine  $\Delta P$  at 60 gpm (225 L/min) for KL32KZ10P24 using 200 SUS (44 cSt) fluid.

#### Solution:

 $\Delta P_{\text{housing}} = 6 \text{ psi} [.4 \text{ bar}]$  $\Delta P_{element} = 60 \text{ x} .03 \text{ x} (200 \div 150) = 2.4 \text{ psi}$ or  $= [225 \times (.03 \div 54.9) \times (44 \div 32) = .17 \text{ bar}]$  $\Delta P_{total}$ = 6 + 2.4 = 8.4 psi or = [.4 + .17 = .57 bar]

| $\Delta \mathbf{P}_{element}$<br>$\Delta P_{element}$ = flow                 | x eleme  | nt ∆P fac  | ctor x vis  | cosity factor   |   | Pressure<br>Drop           |
|--|--|--|---|---|---|----------------------------|
| El. ΔP factors @   |  | Information<br>Based on                                    |   |   |   |                            |
| K3<br>K10<br>K25<br>KZ1<br>KZ3/KAS3<br>K25/KAS5<br>KZ10/KAS10<br>KZ25        | 1K<br>.25<br>.09<br>.02<br>.20<br>.10<br>.08<br>.05<br>.04 | 2K<br>.12<br>.05<br>.01<br>.10<br>.05<br>.04<br>.03<br>.02 | 3K<br>.08<br>.03<br>.01<br>.05<br>.03<br>.02<br>.02<br>.02<br>.01 | 18LC3<br>18LC10<br>18LCZ1<br>18LCZ3<br>18LCZ5<br>18LCZ10<br>18LCZ25 | .12<br>.05<br>.10<br>.05<br>.04<br>.03<br>.02 | Flow Rate<br>and Viscosity |
| KZW1<br>KZW3<br>KZW5<br>KZW10<br>KZW25<br>If working in u<br>factor by 54.9. |  |  |   |   | -4)   |                            |
| Viscosity facto  | <i>r:</i> Divide   | 2 VISCOSI  | ity by T  | 50 505 (32 C  | 51).  |                            |

### **Return Line Filter with Threaded Bowl**



#### NOTES:

- Box 2. Double and triple
- Box 5. For options H, W, V, and
- to 100 gpm.

# Return Line Filter With 2" Ports LF1

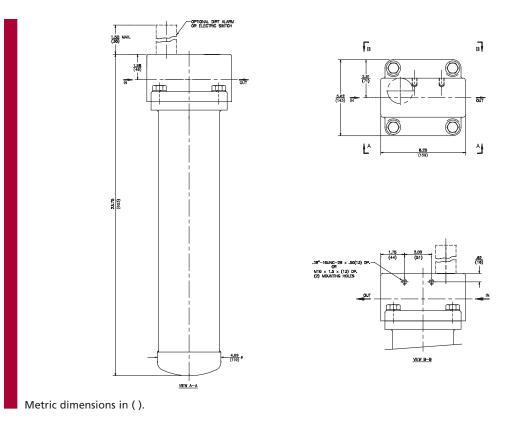
| Model No. of filter in photograph         Industrial         Industrial | MACHINE MOBILE   | IRF<br>120 gpm<br>455 L/min<br>300 psi<br>20 bar<br>KF3<br>KF3<br>KF3<br>KF3<br>KF3<br>KF3<br>KF3<br>KF3 |
|--|--|--|
|  |  | LRT  |
|  |  | BFT  |
|  |  | QT   |
|  |  | КТК  |
|  |  | LTK  |
| Flow Rating:   | Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids                      | Filter MRT   |
| Max. Operating Pressure:   | 300 psi (20 bar)   | Housing  |
| Min. Yield Pressure:   | 1000 psi (70 bar), per NFPA T2.6.1   | Specifications Accessories<br>for Tank-  |
| Rated Fatigue Pressure:  | 250 psi (17 bar), per NFPA T2.6.1-2005                                     | Mounted  |
| Temp. Range:   | -20°F to 225°F (-29°C to 107°C)  | Filters  |
| Bypass Setting:<br>Porting Head:   | Cracking: 30 psi (2.1 bar)<br>Full Flow: 60 psi (4.1 bar)<br>Cast Aluminum | PAF1   |
| Element Case:  | Steel  |  |
| Available Porting:   | 2 "NPTF, 2½-12 SAE Straight  | MAF1   |
| Weight of LF1-18LC:  | 17.5 lbs. (7.9 kg)   |  |
|  |  | NJE2   |

Element Change Clearance: 2.0" (55 mm)

MF2



LF1



| Element<br>Performance |         |                  | io Per ISO 4572/NF<br>rticle counter (APC) calib | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|---------|------------------|--|--|----------------------|-----------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 18LC3   | 6.8              | 7.5  | 10.0   | N/A                  | N/A                   |
|                        | 18LC10  | 15.5             | 16.2   | 18.0   | N/A                  | N/A                   |
|                        | 18LCZ1  | <1.0             | <1.0   | <1.0   | <4.0                 | 4.2                   |
|                        | 18LCZ3  | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | 18LCZ5  | 2.5              | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | 18LCZ10 | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | 18LCZ25 | 18.0             | 20.0   | 22.5   | 19.0                 | 24.0                  |

| Dirt Holding | Element        | DHC (gm)       |  |
|--------------|----------------|----------------|--|
| Capacity     | 18LC3          | 108            |  |
|              | 18LC10         | 88             |  |
|              | 18LCZ1         | 224            |  |
|              | 18LCZ3         | 230            |  |
|              | 18LCZ5         | 238            |  |
|              | 18LCZ10        | 216            |  |
|              | 18LCZ25        | 186            |  |
|              |                |                |  |
|              | Element Co     | llapse Rating: | 150 psid (10 bar)                        |
|              | FI             | ow Direction:  | Outside In                               |
|              | Element Nomina | l Dimensions:  | 4.0" (100 mm) O.D. x 18.5" (470 mm) long |
| _            | •              |                |  |

# Return Line Filter With 2" Ports LF1

|  | Туре          | e Fluid            | Appropriate Schroeder M  | ledia  |                        |                                    |                         | Fluid  | IRF                     |
|--|---------------|--------------------|--|--|------------------------|------------------------------------|-------------------------|--|-------------------------|
| Petroleu   | m Based       | Fluids A           | All E media (cellulose) and I  | Compatibility  | TF1                    |                                    |                         |  |                         |
| High   | Water Co      | ontent A           | All Z-Media (synthetic)  |  |                        |                                    |                         |  |                         |
| Ir   | ivert Emu     |                    | 10 and 25 μ Z-Media <sup>®</sup> (syn  |  |                        |                                    |                         |  | KF3                     |
|  | Water C       |                    | 3, 5, 10 and 25 μ Z-Media <sup>®</sup>   |  |                        |                                    |                         |  |                         |
| Ph   | nosphate      |                    | All Z-Media <sup>®</sup> (synthetic) wit   |  | -                      |                                    |                         |  | KL3                     |
|  | Sk            |                    | 3, 5, 10 and 25 μ Z-Media⁰<br>tainless steel wire mesh in                          |  |                        |                                    |                         | Skydrol <sup>®</sup> is a registered trademark of Solutia Inc. | LF1-2"                  |
| Pressure   | Ele<br>Series | ment<br>Part No.   | Element selections are petroleum based fluid                                       |  |                        |                                    | 32 cSt)                 | Element<br>Selection   | MLF1                    |
|  |               | 18LCZ1             | 18L0   |  |                        |                                    |                         | Based on   | RLD                     |
| То   |               | 18LCZ3             |  | 18LCZ  | 3                      | I                                  |                         | - Flow Rate  |                         |
| 300 psi  | Z-<br>Media®  | 18LCZ5             |  | 18LCZ  | 5                      |                                    |                         |  | GRTB                    |
| (20 bar)   | IVIEUIA       | 18LCZ10            |  | 18LCZ1   | 0                      |                                    |                         |  |                         |
|  |               | 18LCZ25            |  | 18LCZ2   | 25                     |                                    |                         |  | MTA                     |
|  |               | gpm                | 0 60   |  | 80                     | 100                                | 120                     |  |                         |
|  | Flow          | (L/min)            | 0 230  |  | 300                    | 380                                | 455                     |  | MTB                     |
| Note: Conta  | ct factory    | , regarding        | most commonly used in th<br>use of E media in High W<br>ion, refer to Fluid Compat | ater Content,  | Invert Em              | ulsion and Wat                     | er Glycol               |  | ZT                      |
| Application  | 5. 1 01 11101 | ennonnat           |  | ionity. The Ne   | sistantinu             | nus, pages 21 al                   | nu 22.                  | -  | KFT                     |
| $\frac{\Delta \mathbf{P}_{\text{housing}}}{\text{LF1-2" }\Delta P_{\text{hou}}}$ | · for flui    | ds with sp a       | r – 0.86 <sup>.</sup>  | $\Delta \mathbf{P}_{element}$                          | flow x elem            | ent ΔP factor x vi                 | scosity factor          | Pressure<br>Drop   | RT                      |
| (50)   | 5             | w (L/min)<br>(250) | (350)  | El. $\Delta P$ factors                                 |                        |                                    |                         | Information<br>Based on  | RTI                     |
| 12   |               |                    | (0.75)   | 18LCZ1<br>18LCZ3<br>18LCZ5                             | .10<br>.05<br>.04      |                                    |                         | Flow Rate<br>and Viscosity                                     | LRT                     |
| isd d⊽ 6   |               |                    | √P (bar)   | 18LCZ10<br>18LCZ25                                     | .03<br>.02             |                                    |                         |  | ART                     |
| 2  |               |                    | (0.25)   | factor by 54   | 4.9.                   | bars & L/min, d                    |                         |  | BFT                     |
| 0  | 20 40<br>Flo  | 60<br>ow gpm       | 80 100 120   | viscosity ia   |                        | ie viscosity by t                  | 50 505 (52 650).        |  | QT                      |
| sp gr = spec   | -             |                    | sed on element flow infor  | mation provid  | hed in the             | Flement Select                     | ion chart above         |  | KTK                     |
| 5.2g er en   |               |                    |  |  |                        |                                    |                         |  | LTK                     |
| Notes  |               |                    |  | $\Delta \mathbf{P}_{\text{filter}} = \Delta$ Exercise: | ∆ <b>P</b> housing ⊣   | $\Delta \mathbf{P}_{element}$      |                         |  | MRT                     |
|  |               |                    |  | Determine  | ∆P at 40 g<br>0S32D5 u | gpm (150 L/min<br>Ising 200 SUS (4 | ) for<br>14 cSt) fluid. |  | ccessories<br>for Tank- |
|  |               |                    |  | Solution:  |                        |                                    |                         |  | Mounted                 |
|  |               |                    |  | $\Delta P_{housing}$                                   |                        | [.07 bar]<br>3 x (200÷150) =       | : 1.6 psi               |  | Filters                 |
|  |               |                    |  |  | = 1.0 + 1              | .03÷54.9) x (44<br>.6 = 2.6 psi    | ÷32) = .11 bar]         |  | PAF1                    |
|  |               |                    |  |  | or<br>= [.07 + .       | 11 = .18 bar]                      |                         |  | MAF1                    |
|  |               |                    |  |  |                        |                                    |                         |  | MF2                     |

# **Return Line Filter With 2" Ports**

| Filter<br>Model<br>Number<br>Selection | BOX 1                     | BOX 2                                    | BOX                       | nay contain more than one option           BOX 4         BOX 5         BOX 6         BOX 7  | .F1:<br>LF118LC3I                         | P32D5                                 |
|--|---------------------------|--|---------------------------|---|---|---------------------------------------|
|  | BOX 1<br>Filter<br>Series | BOX 2<br>Length<br>of<br>Element<br>(in) | t                         | BOX 3<br>Element Size and Media<br>3 = LC size 3 µ E media (cellulose)  | BOX<br>Seal Mat<br>Omit = Buna            | terial                                |
|  |                           | 10                                       | LCZ<br>LCZ<br>LCZ<br>LCZ1 | 0 = LC size 10 μ E media (cellulose)<br>1 = LC size 1 μ Excellement <sup>®</sup> Z-Media <sup>™</sup> (synthetic)<br>3 = LC size 3 μ Excellement Z-Media (synthetic)<br>5 = LC size 5 μ Excellement Z-Media (synthetic)<br>0 = LC size 10 μ Excellement Z-Media (synthetic)<br>5 = LC size 25 μ Excellement Z-Media (synthetic) | H = EPR<br>V = Vito<br>H.5 = Skyc<br>Corr |                                       |
|  | BO><br>Port<br>P32 = 2    | ing                                      |                           | BOX 6<br><b>Dirt Alarm<sup>®</sup> Options</b><br>Omit = None   |   | BOX 7<br>Additional Op<br>Omit = None |

| NOTES:   |
|--|
| Box 2. Replacement element<br>part numbers are a<br>combination of Boxes<br>2, 3, and 4.<br>Example: 18LCZ3V |
| Box 4. For options H. V. and   |

For options H, V, and H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on bouring oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.

Box 5. B porting option supplied with metric mounting holes.

| Porting               |  | Dirt Alarm <sup>®</sup> Options  | Additional Options   |
|-----------------------|--|--|--|
| P32 = 2" NPTF         |  | Omit = None  | Omit = None  |
| S32 = SAE-32          | Visual   | D = Pointer  | L = Two ¼" NPTF inlet<br>and outlet female<br>test ports           |
| B32 = ISO 228<br>G-2" |  | D5 = Visual pop-up   | G426 = <sup>3</sup> / <sub>4</sub> " drain on<br>bottom of housing |
|                       | Visual with<br>Thermal<br>Lockout                  | D8 = Visual w/ thermal lockout   | G440 = ½" drain on bottom of housing                               |
|                       | Electrical   | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5<br>MS10 = Electrical w/ DIN connector (male end only)<br>MS10LC = Low current MS10<br>MS11 = Electrical w/ 12 ft. 4-conductor wire<br>Electrical w/ 5 pin Brad Harrison connector<br>(male end only)<br>MS12LC = Low current MS12<br>MS16 = Electrical w/ weather-packed sealed connector<br>MS16LC = Low current MS16<br>MS17LC = Electrical w/ 4 pin Brad Harrison male connector |  |
|                       | Electrical<br>with<br>Thermal<br>Lockout           | MS5T = MS5 (see above) w/ thermal lockout<br>MS5LCT = Low current MS5T<br>MS10T = MS10 (see above) w/ thermal lockout<br>MS10LCT = Low current MS10T<br>MS12T = MS12 (see above) w/ thermal lockout<br>MS12LCT = Low current MS12T<br>MS16T = MS16 (see above) w/ thermal lockout<br>MS16LCT = Low current MS16T<br>MS16LCT = Low current MS16T  |  |
|                       | Electrical<br>Visual                               | MS = Cam operated switch w/ ½" conduit<br>female connection<br>MS13 = Supplied w/ threaded connector & light<br>MS14 = Supplied w/ 5 pin Brad Harrison connector<br>& light (male end)   |  |
|                       | Electrical<br>Visual<br>with<br>Thermal<br>Lockout | MS13DCT = MS13 (see above), direct current, w/ thermal lockout<br>MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current, w/ thermal lockout<br>MS14DCLCT = Low current MS14DCT   |  |
|                       |  |  |  |

# Top-Ported Return Line Filter MLF1



#### **Features and Benefits** Equipped with inlet and outlet manifolds Meets HF4 automotive standard

- Offered in pipe and flange porting
- Available in 2, 4 or 6 element configurations Various Dirt Alarm® options
- Available with NPTF inlet and outlet female test ports
- Available with housing drain plugs
- Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 345) for details.

Model No. of filter in photograph is MLF14K10PD.







MACHINE TOOL



MAKING



MOBILE VEHICLES



| pplications | KFT |
|-------------|-----|
|             | RT  |
|             | RTI |
|             | LRT |
|             | ART |
|             | BFT |
|             | QT  |
|             | КТК |
|             | ITV |

MLF1

200 gpm 760 Ĺ/min

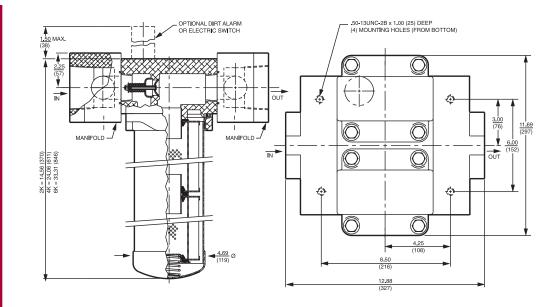
300 psi

20 bar





# MLF1 Top-Ported Return Line Filter



Metric dimensions in ( ).

| Element<br>Performance |            |                  | t <b>io Per ISO 4572/NI</b><br>article counter (APC) cali | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                        |
|------------------------|------------|------------------|---|--|----------------------|------------------------|
| Information            | Element    | $\beta_x \ge 75$ | $\beta_x \ge 100$   | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \geq 1000$ |
|                        | К3         | 6.8              | 7.5   | 10.0   | N/A                  | N/A                    |
|                        | K10        | 15.5             | 16.2  | 18.0   | N/A                  | N/A                    |
|                        | KZ1        | <1.0             | <1.0  | <1.0   | <4.0                 | 4.2                    |
|                        | KZ3/KAS3   | <1.0             | <1.0  | <2.0   | <4.0                 | 4.8                    |
|                        | KZ5/KAS5   | 2.5              | 3.0   | 4.0  | 4.8                  | 6.3                    |
|                        | KZ10/KAS10 | 7.4              | 8.2   | 10.0   | 8.0                  | 10.0                   |
|                        | KZ25       | 18.0             | 20.0  | 22.5   | 19.0                 | 24.0                   |
|                        | KZW3       | N/A              | N/A   | N/A  | <4.0                 | 4.8                    |
|                        | KZW5       | N/A              | N/A   | N/A  | 5.1                  | 6.4                    |
|                        | KZW10      | N/A              | N/A   | N/A  | 6.9                  | 8.6                    |
|                        | KZW25      | N/A              | N/A   | N/A  | 15.4                 | 18.5                   |

| Dirt Holding | Element      | DHC (gm)   | Element         | DHC (gm)                                  | Element   | DHC (gm)     | Element | DHC (gm) |  |
|--------------|--------------|------------|-----------------|---|---|--------------|---------|----------|--|
| Capacity     | 2K3          | 108        | 4K3             | 216                                       | 6K3   | 324          |         |          |  |
|              | 2K10         | 88         | 4K10            | 176                                       | 6K10  | 264          |         |          |  |
|              | 2KZ1         | 224        | 4KZ1            | 448                                       | 6KZ1  | 672          |         |          |  |
|              | 2KZ3/2KAS3   | 230        | 4KZ3/4KAS3      | 460                                       | 6KZ3/6KAS3  | 690          | KZW3    | 64       |  |
|              | 2KZ5/2KAS5   | 238        | 4KZ5/4KAS5      | 476                                       | 6KZ5/6KAS5  | 714          | KZW5    | 63       |  |
|              | 2KZ10/2KAS10 | 216        | 4KZ10/4KAS10    | 432                                       | 6KZ10/6KAS10  | 648          | KZW10   | 67       |  |
|              | 2KZ25        | 186        | 4KZ25           | 372                                       | 6KZ25   | 558          | KZW25   | 79       |  |
|              |              |            |                 |   |   |              |         |          |  |
|              |              | Element C  | ollapse Rating: | : 150 psid (10 bar) for standard elements |   |              |         |          |  |
|              |              | F          | low Direction:  | Outside In                                |   |              |         |          |  |
|              | Ele          | ment Nomin | al Dimensions:  | KK: 3.9" (                                | 99 mm) O.D. x 9.<br>99 mm) O.D. x 18<br>99 mm) O.D. x 2 | 8.0" (460 mm | n) long |          |  |

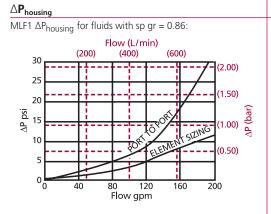
# Top-Ported Return Line Filter MLF1

|       | Type Fluid        | Appropriate Schroeder Media  | Fluid  |
|-------|-------------------|--|--|
| Petro | leum Based Fluids | All E media (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic)   | Compatibility  |
| Hig   | gh Water Content  | All Z-Media <sup>®</sup> (synthetic)   |  |
|       | Invert Emulsions  | 10 and 25 μ Z-Media <sup>®</sup> (synthetic)   | KF   |
|       | Water Glycols     | 3, 5, 10 and 25 $\mu$ Z-Media® (synthetic)   |  |
|       | Phosphate Esters  | All Z-Media <sup>®</sup> (synthetic) with H (EPR) seal designation and 3 and 10 $\mu$ E media (cellulose) with H (EPR) seal designation and all ASP <sup>®</sup> media (synthetic)   | KL   |
|       | Skydrol®          | 3, 5, 10 and 25 $\mu$ Z-Media <sup>®</sup> (synthetic) with H.5 seal designation and W media (water removal) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior) and all ASP <sup>®</sup> media (synthetic). | LF1–2<br>Skydrol <sup>®</sup> is a registered<br>trademark of Solutia Inc. |

|                     | Elei         | nent     | Element se | elections are pre | dicated on t | he use of | 150 SUS (32 c | St) petroleum | Element   |  |
|---------------------|--------------|----------|------------|-------------------|--------------|-----------|---------------|---------------|-----------|--|
| Pressure            | Series       | Part No. |            | d and a 25 psi (1 |              |           |               |               | Selection |  |
|                     | _            | K3       |            | 4K3               |              |           | 6K3           |               | Based on  |  |
|                     | E<br>Media   | K10      |            | 4K10              |              |           | 6K10          |               | Flow Rate |  |
|                     | IVICUIU      | K25      |            |                   | 4K25         |           |               |               |           |  |
| To                  |              | KZ1      |            | 4KZ1              |              | 6         | iKZ1          |               |           |  |
| 300 psi<br>(20 bar) | _            | KZ3      | 2KZ3       | 4                 | KZ3          |           | 6KZ3          |               |           |  |
| ( ,                 | Z-<br>Media® | KZ5      | 2KZ5       | ;                 | 4KZ5         |           | 6KZ5          |               |           |  |
|                     | IVICUIU      | KZ10     |            | 2KZ10             |              |           | 4KZ10         |               |           |  |
|                     |              | KZ25     |            | 2KZ25             |              |           | 4KZ25         |               |           |  |
|                     | 51           | gpm      | 0 100      | 120               | 140          | 160       | 180           | 200           |           |  |
|                     | Flow         | (L/min)  | 0 200      | 400               |              | 600       |               | 760           |           |  |

Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

#### $\Delta \mathbf{P}_{\mathsf{filter}} = \Delta \mathbf{P}_{\mathsf{housing}} + \Delta \mathbf{P}_{\mathsf{element}}$

The  $\Delta P$  housing curve labeled "Element Sizing" is the pressure drop between the inlet and outlet areas of the filter's bypass valve and should be used for filter sizing. The "Port to Port"  $\Delta P$  takes into consideration the inlet and outlet manifolds. This pressure drop can be significantly higher due to these additional flow constrictions. Although this  $\Delta P$  does not affect the performance of the filter, it should be considered for overall system design.

| ∆P <sub>elemen</sub> | <sub>t</sub> = flow | x element A | ∆P factor x | viscosity fa | ctor   |       | Drop<br>Information |
|----------------------|---------------------|-------------|-------------|--------------|--------|-------|---------------------|
| El. $\Delta P$ fac   | tors @              | 150 SUS (32 | 2 cSt):     |              |        |       | Based on            |
|                      | 2K                  | 4K/KK       | 6K/27K      | _            | 1K     | 2K    | Flow Rate           |
| К3                   | .12                 | .06         | .04         |              |        |       | and Viscosity       |
| K10                  | .05                 | .02         | .02         |              |        |       |                     |
| K25                  | .01                 | .01         | .01         |              |        |       |                     |
| KZ1                  | .10                 | .05         | .03         |              |        |       |                     |
| KZ3/                 |                     |             |             | KZW3         | .32    | .16   |                     |
| KAS3                 | .05                 | .03         | .02         |              |        |       |                     |
| KZ5/                 |                     |             |             | KZW5         | .28    | .14   |                     |
| KAS5                 | .04                 | .02         | .02         |              |        |       |                     |
| KZ10/                |                     |             | 0.4         | KZW10        | .12    |       |                     |
| KAS10                | .03                 | .02         | .01         |              | 07     |       |                     |
| KZ25                 | .02                 | .01         | .01         | KZW25        | .07    |       |                     |
| lf worki<br>by 54.9. | ng in ι             | inits of ba | rs & L/min  | , divide al  | oove f | actor |                     |
|                      | / facto             | r: Divide v | iscositv bv | 150 SUS      | 32 cSt | t).   |                     |

ccessories for Tank Mounted Filters

PAF1

MANE1

# MLF1 Top-Ported Return Line Filter

| Filter  | How to Build                       | a Valid I         | Model Number for a Schroeder MLF  | 1.  |
|---|------------------------------------|-------------------|---|---|
| Model   | BOX 1 BOX 2                        | BOX 3             | BOX 4 BOX 5 BOX 6 BOX 7 BOX 8   | BOX 9   |
| Number  | MLF1-                              |                   |   |   |
| Selection   | Example: NOTE: (                   | Only box 9 m      | ay contain more than one option   |   |
|   | BOX 1 BOX 2                        | BOX 3             | BOX 4 BOX 5 BOX 6 BOX 7 BOX 8   | BOX 9   |
|   | MLF1–2K                            |                   | - 10 P - D5 -   | = MLF12K10PD5   |
|   | BOX 1 B                            | OX 2              | BOX 3   | BOX 4   |
|   |                                    | ber and<br>ze of  | Media Type  | Micron Rating   |
|   | Ele                                | ments<br>KK, 27K  | Omit = E media (cellulose)  | 1 = 1 µ Z, ZW, and DZ media   |
|   |                                    | 4 K               | Z = Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | $3 = 3 \mu AS, E, Z, ZW, and DZ media$  |
|   |                                    | 6 K               | AS = Anti-Static Pleat Media (synthetic)  | $5 = 5 \mu AS, Z, ZW, DZ media$   |
|   |                                    |                   | ZW = Aqua-Excellement <sup>™</sup> ZW media<br>DZ = Dirtcatcher <sup>®</sup> with Excellement <sup>®</sup> Z-Media <sup>®</sup> | $10 = 10 \mu$ AS, E, M, Z, ZW, and DZ media<br>$25 = 25 \mu$ E, M, Z, ZW and DZ media |
|   |                                    |                   | W = W media (water removal)   | 60 = 60 µ M media   |
|   |                                    | L                 | M = M media (reusable metal mesh)   | 150 = 150 μ M media   |
|   |                                    |                   |   |   |
|   | вох                                | (5                | BOX 6   | BOX 7   |
|   | Seal Ma                            | aterial           | Magnet Option   | Porting   |
|   | Omit = Buna N                      |                   |   | = 2½" NPTF  |
|   | H = EPR<br>$V = Viton^{(8)}$       |                   | M = Magnet inserts  | = 2½" SAE 4-bolt flange Code 61   |
|   | H.5 = Skydrol® Ci                  | ompatibility      | BOX 8   | BOX 9   |
|   |                                    |                   | Dirt Alarm <sup>®</sup> Options   | Additional Options  |
|   |                                    | Omit =            | •   | Omit = None   |
|   | Visual                             | D =               | Pointer   | L = Two ¼" NPTF inlet and outlet<br>female test ports                                 |
|   |                                    | D5 =              | Visual pop-up   | $G426 = \frac{3}{4}$ " drain on bottom of housing                                     |
|   | Visual with<br>Thermal Lockout     |                   | Visual w/ thermal lockout   | $G440 = \frac{1}{2}$ " drain on bottom of housing                                     |
| NOTES:  |                                    | MS5LC =<br>MS10 = | Electrical w/ 12 in. 18 gauge 4-conductor cable<br>Low current MS5<br>Electrical w/ DIN connector (male end only)               |   |
| Box 2. Double and triple<br>stacking of K-size      |                                    |                   | Low current MS10<br>Electrical w/ 12 ft. 4-conductor wire   |   |
| elements can be<br>replaced by KK and 27K           | Electrical                         |                   | Electrical w/ 5 pin Brad Harrison connector (male end only)   |   |
| elements, respectively.<br>Number of elements       |                                    |                   | Low current MS12  |   |
| must equal 2 when using                             |                                    |                   | Electrical w/ weather-packed sealed connector<br>Low current MS16   |   |
| KK or 27K elements.                                 |                                    | MS17LC =          | Electrical w/ 4 pin Brad Harrison male connector  |   |
| Box 3. Replacement element                          |                                    |                   | MS5 (see above) w/ thermal lockout<br>Low current MS5T  |   |
| part numbers are identical to contents of           |                                    |                   | MS10 (see above) w/ thermal lockout   |   |
| Boxes 2, 3, 4, and 5. K25 is not available with EPR | Electrical with                    |                   | Low current MS10T   |   |
| seals.  | Electrical with<br>Thermal Lockout |                   | MS12 (see above) w/ thermal lockout   |   |
| Box 5. For options H V and                          |                                    |                   | Low current MS12T   |   |

MS16T = MS16 (see above) w/ thermal lockout

MS13 = Supplied w/ threaded connector & light

MS13DCT = MS13 (see above), direct current, w/ thermal lockout

MS14DCT = MS14 (see above), direct current, w/ thermal lockout

 $MS = Cam operated switch w/ \frac{1}{2}$ " conduit female connection

MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)

MS16LCT = Low current MS16T

MS17LCT = Low current MS17T

MS13DCLCT = Low current MS13DCT

MS14DCLCT = Low current MS14DCT

Box 5. For options H, V, and H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.

#### 246 SCHROEDER INDUSTRIES

Electrical

Visual

Electrical Visual with

Thermal Lockout

### Medium Pressure Filter RLD



### Features and Benefits

- Lightweight duplex filter constructed of aluminum
- High chromium content aluminum alloy is water tolerant – anodization is not required for high water-based fluids (HWBF)
- Filter housings are designed to withstand pressure surges as well as high static pressure loads
- Screw-in bowl allows the filter element to be easily removed for replacement or cleaning
- Standard model supplied with drain plugs
- Standard Viton<sup>®</sup> seal on filter housing
- Filter contains an integrated equalization valve
- Pressure is equalized between filters by raising the change-over lever prior to switching it to the relevant filter side

#### Model No. of filter in photograph is RLD25DNZ6S24DW.



INDUSTRIAL

STEEL

MAKING



IO

PULP & PAPER

E MACHINE NG TOOL



POWER GENERATION

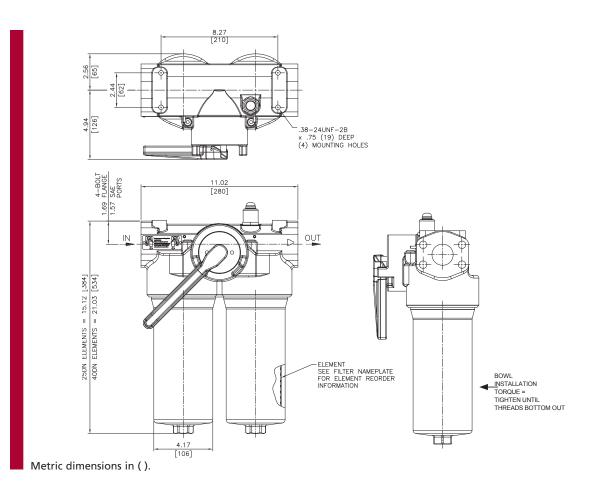
| 100 gpm<br><i>380 L/min</i> | IRF<br>TF1 |
|-----------------------------|------------|
| 350 psi                     | KF3        |
| 24 bar                      | KL3        |
|                             | LF1-2"     |
|                             | MLF1       |
|                             | RLD        |
|                             | GRTB       |
|                             | ΜΤΑ        |
|                             | МТВ        |
|                             | ZT         |
| Applications                | KFT        |
|                             | RT         |
|                             | RTI        |
|                             | LRT        |
|                             | ART        |
|                             | BFT        |
|                             | QT         |
|                             | KTK        |

LTK

| Flow Rating:                               | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids   | Filter MRT                 |
|--|---|----------------------------|
| Max. Operating Pressure:                   | 350 psi (24 bar)  | Housing                    |
| Min. Yield Pressure:                       | Contact factory   | Specifications Accessories |
| Rated Fatigue Pressure:                    | 350 psi (24 bar)  | for Tank-                  |
| Temp. Range:                               | -22°F to 250°F (-30°C to 121°C)                         | Mounted                    |
| Bypass Setting:                            | Standard: 102 psi (7 bar)<br>Optional: 43 psi (3.0 bar) | Filters                    |
| Porting Head:<br>Element Case:             | Aluminum<br>Aluminum                                    | PAF1                       |
| Weight of RLD-25DN:<br>Weight of RLD-40DN: | 26 lbs. (11.8 kg)<br>29 lbs. (13.0 kg)                  | MAF1                       |
| Element Change Clearance:                  | 25DN: 3.5" (89 mm)<br>40DN: 3.5" (89 mm)                | MF2                        |

**Medium Pressure Filter** 

RLD



| Element<br>Performance |            |                  | io Per ISO 4572/NF<br>rticle counter (APC) calib | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|------------|------------------|--|--|----------------------|-----------------------|
| Information            | Element    | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 25/40DNZ3  | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | 25/40DNZ6  | 2.5              | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | 25/40DNZ10 | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | 25/40DNZ25 | 18.0             | 20.0   | 22.5   | 19.0                 | 24.0                  |

| Dirt Holding | Element                  | DHC (gm)          | Element           | DHC (gm)                 |  |
|--------------|--------------------------|-------------------|-------------------|--------------------------|--|
| Capacity     | 25DNZ3                   | 57                | 40DNZ3            | 105                      |  |
|              | 25DNZ6                   | 62                | 40DNZ6            | 115                      |  |
|              | 25DNZ10                  | 52                | 40DNZ10           | 104                      |  |
|              | 25DNZ25                  | 48                | 40DNZ25           | 94                       |  |
|              |                          |                   |                   |                          |  |
|              | Element Collapse Rating: |                   | 290 psid (20 bar) |                          |  |
|              | Flow Direction:          |                   | Outside In        |                          |  |
|              | Element No               | minal Dimensions: | 3.0" (75 mm) O.D  | 0. x 14.5" (370 mm) long |  |
|              |                          |                   |                   |                          |  |
|              |                          |                   |                   |                          |  |
|              |                          |                   |                   |                          |  |
|              |                          |                   |                   |                          |  |

# Medium Pressure Filter **RLD**

|                               |            | Type Fluid A       | ppropriate Sch                | roeder Media                    |            |             |            |     | Fluid                 | IRF    |
|-------------------------------|------------|--------------------|-------------------------------|---------------------------------|------------|-------------|------------|-----|-----------------------|--------|
| Pe                            | troleum    | Based Fluids A     | II Z-Media <sup>®</sup> (synt | hetic)                          |            |             |            |     | Compatibility         | TF1    |
|                               | High Wa    | ater Content 🛛 🗚   | ll Z-Media® (synt             | hetic)                          |            |             |            |     |                       | 161    |
|                               | Inve       | ert Emulsions 1    | 0 and 25 μ Z-Me               | edia® (synthetic)               |            |             |            |     |                       | KF3    |
|                               | V          | Vater Glycols 3    | , 6, 10 and 25 μ              | Z-Media <sup>®</sup> (synthetic | )          |             |            |     |                       | RI J   |
|                               |            |                    |                               |                                 |            |             |            |     |                       | KL3    |
|                               |            |                    |                               |                                 |            |             |            |     |                       | LF1-2" |
|                               | Elei       | ment               |                               | elections are predi             |            |             |            | St) | Element               | MLF1   |
| Pressure                      | Series     | Part No.           | petroleun                     | n based fluid and a             | 102 psi (7 | ' bar) bypa | iss valve. |     | Selection<br>Based on | RLD    |
|                               |            | 25DNZ3 & 40DNZ     | 23                            | 25DNZ3                          | 40DNZ3     |             |            | _   | Flow Rate             |        |
| To<br>350 psi                 | Z-         | 25DNZ6 & 40DNZ     | 26                            | 25DNZ6                          |            | 40DNZ6      |            |     |                       | GRTB   |
| (24 bar)                      | Media®     | 25DNZ10 & 40DN     | Z10                           | 25DNZ10                         |            |             | 40DNZ10    |     |                       |        |
|                               |            | 25DNZ25 & 40DN     | Z25                           | 25DNZ25                         |            |             | 40DNZ25    |     |                       | ΜΤΑ    |
|                               | Гюни       | gpm                | 0 2                           | 20 40                           |            | 60          | 80         | 100 |                       |        |
|                               | Flow       | (L/min)            | 0 50                          | 100 150                         |            | 250         |            | 380 |                       | MTB    |
| Shown abo                     | ove are th | ne elements most o | ommonly used i                | n this housing.                 |            |             |            |     |                       |        |
|                               |            |                    |                               |                                 |            |             |            |     |                       | ZT     |
|                               |            |                    |                               |                                 |            |             |            |     |                       | KFT    |
| $\Delta \mathbf{P}_{housing}$ |            |                    |                               | $\Delta \mathbf{P}_{element}$   |            |             |            |     | Pressure              | RT     |

| $\Delta \mathbf{P}_{housing}$  | $\Delta \mathbf{P}_{element}$   | Due                            |
|--|---|--------------------------------|
| RLD $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:                  | $\Delta P_{element}$ = flow x element $\Delta P$ factor x viscosity factor                | Drop<br>Information RTI        |
| Flow (L/min)<br>(100) (200) (300)  | El. ΔP factors @ 150 SUS (32 cSt):  | Information RTI<br>Based on    |
| 30.0   | <b>25DNZ3</b> .28 <b>40DNZ3</b> .18   | Flow Rate LRT<br>and Viscosity |
| 22.5   | <b>25DNZ6</b> .18 <b>40DNZ6</b> .11<br><b>25DNZ10</b> .12 <b>40DNZ10</b> .07              | -                              |
| isd dy 15.0 10.0 10.0 dy   | <b>25DNZ25</b> .09 <b>40DNZ25</b> .06   | ART                            |
| A 7.5 0.5  | If working in units of bars & L/min, divide above factor by 54.9.                         | BFT                            |
|  | <i>Viscosity factor:</i> Divide viscosity by 150 SUS (32 cSt).                            | QT                             |
| Flow gpm   |   | КТК                            |
| sp gr = specific gravity<br>Sizing of elements should be based on element flow | nformation provided in the Element Selection chart above.                                 | LTK                            |
| Notes  | $\Delta \mathbf{P}_{filter} = \Delta \mathbf{P}_{housing} + \Delta \mathbf{P}_{element}$  | MRT                            |
|  | Exercise:   |                                |
|  | Determine $\Delta P$ at 40 gpm (150 L/min) for 40DNZ6                                     | Accessories                    |
|  | using 200 SUS (44 cSt) fluid.   | for Tank-                      |
|  | Solution:   | Mounted                        |
|  | $\Delta P_{\text{housing}} = 5.0 \text{ psi} [.34 \text{ bar}]$                           | Filters                        |
|  | $\Delta P_{\text{element}} = 40 \text{ x} .11 \text{ x} (200 \div 150) = 5.9 \text{ psi}$ |                                |
|  | O'  | PAF1                           |
|  | $= [150 \times (.11 \div 54.9) \times (44 \div 32) = .40 \text{ bar}]$                    |                                |
|  | $\Delta P_{total} = 5.0 + 5.9 = 10.9 \text{ psi}$   | MAF1                           |
|  | = [.34 + .40 = .73  bar]  |                                |

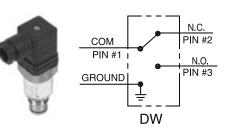
#### **Medium Pressure Filter** R D)

| Filter<br>Model<br>Number<br>Selection | BOX 1<br>RLD     | Build a Valid I<br>BOX 2 BOX 3<br>BOX 2 BOX 3<br>NOTE: One option pro<br>BOX 2 BOX 3<br>- 25 - DNZ | er box<br>BOX 4 BOX 5 BOX 6 BOX 7                    | 5VF2440VM             |
|--|------------------|--|--|-----------------------|
|  | BOX 1            | BOX 2  | BOX 3  | BOX 4                 |
|  | Filter<br>Series | Length of<br>Elements (cm)   | Element Size and Media                               | Element Seal Material |
|  |                  | 25   | DNZ5 = DN size 5 $\mu$ synthetic media               | Omit = Buna N         |
|  | RLD              | 40   | DNZ10 = DN size 10 $\mu$ synthetic media             | V = Viton®            |
|  |                  |  | DNZ25 = DN size 25 $\mu$ synthetic media             |                       |
|  |                  |  | DNM25 = DN size 25 $\mu$ M media (reuseable metal)   |                       |
|  |                  |  | DNM50 = DN size 50 $\mu$ M media (reuseable metal)   |                       |
|  |                  |  | DNM100 = DN size 100 $\mu$ M media (reuseable metal) |                       |
|  |                  |  | DNM200 = DN size 200 µ M media (reuseable metal)     |                       |

| BOX 5                               | BOX 6                   | BOX 7                                    |                              |
|-------------------------------------|-------------------------|--|------------------------------|
| Porting                             | Bypass Setting          | Dirt Alarm <sup>®</sup> Options          |                              |
| F24 = 1½" SAE 4-bolt flange Code 61 | Omit = 102 psi cracking |  | Omit = None                  |
| S24 = SAE-24 (1½")                  | 40 = 43 psi cracking    | Visual VM = Visual pop-up w/manual reset |                              |
|                                     |                         | Electrical                               | DW = AC/DC 3-wire (NO or NC) |



VM = Manual Reset



DW = AC/DC 3-wire (NO or NC)

NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4. Example: 40DNZ10
- Box 4. Filter housings are supplied with standard Viton seals. Seal designation in Box 4 applies to element only. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

### SAME DAY SHIPMENT MODEL AVAILABLE!

# Tank-Mounted **GRTB** Return Line Filter

|  | Keturn Lir   | he Filter                                    |
|--|--|--|
|  | <ul> <li>Features and Benefits</li> <li>Patented GeoSeal<sup>®</sup> Elements</li> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>   | 100 gpm<br><u>380 L/min</u>                  |
|  | <ul> <li>Cost optimized for in-tank applications</li> <li>Plastic bowl and cap lower cost and mi</li> <li>UV resistant cap</li> <li>Same day shipment model available</li> </ul> | nimize weight <b>100 psi</b><br><b>7 bar</b> |
| Model No. of filter in photograph is     | GRTB1KBGZ10S.  |  |
|  | Up to 100 gpm (380 l/min) for 150 SUS (32 cSt) fluids  | Filter                                       |
| Flow Rating:<br>Max. Operating Pressure: | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids<br>100 osi (7 bar)   | Housing                                      |
| Min. Yield Pressure:                     |  | Specifications                               |
|  | 145 psi (10 bar), Per NFPA T2.6.1-2005   |  |
| Temp. Range:                             | -20°F to 200°F (-29°C to 93°C)   |  |
| Bypass Setting:                          | Cracking: 25 psi (1.7 bar)<br>Full Flow: 42 psi (2.9 bar)  | NOTES:                                       |
| Can 9 David                              | Nivion   |  |

KFT

KTK

LTK

MTB

KF3

KL3

MLF1

GRTB

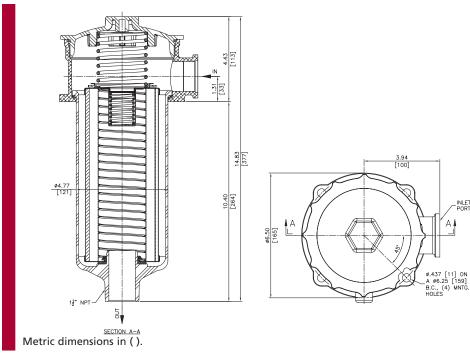
| RT  |
|-----|
| RTI |
| LRT |
| ART |
| BFT |
| QT  |
|     |

|                            |   |   | MR         |
|----------------------------|---|---|------------|
| Flow Rating                | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids     | Filter  |            |
| Max. Operating Pressure    | 100 psi (7 bar)   | Housing   | Accessorie |
| Min. Yield Pressure        | 400 psi (28 bar)  | Specifications '                                | for Tanl   |
| Rated Fatigue Pressure     | 145 psi (10 bar), Per NFPA T2.6.1-2005                    |   | Mounte     |
| Temp. Range                | -20°F to 200°F (-29°C to 93°C)                            |   | Filter     |
| Bypass Setting             | Cracking: 25 psi (1.7 bar)<br>Full Flow: 42 psi (2.9 bar) | NOTES:  | PAF        |
| Cap & Bowl<br>Porting Head |   | The GRTB is a                                   |            |
| Weight of GRTB-1K          | 5.2 lbs (2.36 kg)   | basic filter. For<br>more complex               | MAF        |
| Element Change Clearance   | 12" (305 mm)  | applications, use<br>the standard RT<br>filter. | MF         |



### **GRTB** Tank-Mounted **Return Line Filter**

INLET PORT A≬



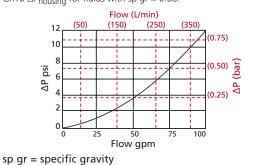
| Element<br>Performance |         | Filtration Ratio<br>Using automated parti | Per ISO 4572/NFF<br>cle counter (APC) calibi | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|---------|---|--|--|----------------------|-----------------------|
| Information            | Element | $\beta_x \ge 75$                          | $\beta_x \ge 100$                            | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | KBG10   | 15.5                                      | 16.2   | 18.0   | N/A                  | N/A                   |
|                        | KBGZ1   | <1.0                                      | <1.0   | <1.0   | <4.0                 | 4.2                   |
|                        | KBGZ3   | <1.0                                      | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | KBGZ5   | 2.5                                       | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | KBGZ10  | 7.4                                       | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | KBGZ25  | 18.0                                      | 20.0   | 22.5   | 19.0                 | 24.0                  |

| Dirt Holding | Element         | DHC (gm)                 |            |  |  |  |  |
|--------------|-----------------|--------------------------|------------|--|--|--|--|
| Capacity     | KBG10           | 44                       |            |  |  |  |  |
|              | KBGZ1           | 112                      |            |  |  |  |  |
|              | KBGZ3           | 115                      |            |  |  |  |  |
|              | KBGZ5           | 119                      |            |  |  |  |  |
|              | KBGZ10          | 108                      |            |  |  |  |  |
|              | KBGZ25          | 93                       |            |  |  |  |  |
|              |                 | Element Collapse Rating: | 150        | 0 psid (10 bar) for standard elements  |  |  |  |
|              | Flow Direction: |                          | Outside In |  |  |  |  |
|              | Elei            | ment Nominal Dimensions: | K:         | 3.9" (99 mm) O.D. x 9.0" (230 mm) long |  |  |  |
|              |                 |                          |            |  |  |  |  |
|              |                 |                          |            |  |  |  |  |
|              |                 |                          |            |  |  |  |  |
|              |                 |                          |            |  |  |  |  |

**252 SCHROEDER INDUSTRIES** 

#### Tank-Mounted **GRTB Return Line Filter**

|  |                                 |                   |  |   |                   |            |                     |                            | IDE    |
|--|---------------------------------|-------------------|--|---|-------------------|------------|---------------------|----------------------------|--------|
|  | Type Fluid Appropriate Schroede |                   |  |   | r Media           |            |                     | Fluid                      | IRF    |
| Petrol   | eum Ba                          | sed Fluids        | All E media (cellulose)                                  |   |                   | 2)         |                     | Compatibility              | TF1    |
|  | Invert l                        | Emulsions         | 10 and 25 µ Z-Media <sup>®</sup>                         | and 10 µ ASP <sup>®</sup> me  | dia (synthetic)   |            |                     |                            |        |
|  |                                 |                   |  |   |                   |            |                     |                            | KF3    |
|  |                                 |                   |  |   |                   |            |                     |                            | KL3    |
|  |                                 |                   |  |   |                   |            |                     |                            | RLJ    |
|  |                                 |                   |  |   |                   |            |                     |                            | LF1-2" |
|  |                                 |                   |  |   |                   |            |                     |                            | 54154  |
|  |                                 |                   | I  |   |                   |            |                     |                            | MLF1   |
| Pressure   | Ele<br>Series                   | ement<br>Part No. | Element selections ar<br>petroleum based flui            |   |                   |            |                     | Element<br>Selection       | RLD    |
| Tressure   | E                               | KBG10             | 1KBG10   |   | bar) bypass var   |            |                     | Based on                   |        |
|  | Media                           | KBG25             |  | 1KBG25  |                   |            |                     | - Flow Rate                | GRTB   |
| Return   | Z-<br>Media®                    | KBGZ1             | 1KBGZ1   |   |                   |            |                     |                            | ΜΤΑ    |
| Line<br>-Tank-   |                                 | KBGZ3             |  | 1KBGZ3  |                   |            |                     |                            |        |
| Mounted  |                                 | KBGZ5             |  | 1KBGZ5  |                   |            |                     |                            | MTB    |
|  |                                 | KBGZ10            |  | 1KBGZ10   |                   |            |                     |                            |        |
|  |                                 | KBGZ25            |  | 1KBGZ25   |                   |            |                     | _                          | ZT     |
|  | Flow                            | gpm<br>(L/min)    | 40<br>0 50 150   | 60  | 250               | 30         | 100<br>380          | -                          | KFT    |
| Shown abov   | /e are th                       | X · · · /         | most commonly used in                                    | this housing.   | 1                 |            | 1                   |                            |        |
| Note: Conta  | ct factor                       | ry regarding      | ,<br>use of E media in High<br>tion, refer to Fluid Comp | Water Content, Inv  | ert Emulsion and  | Water Gly  | ycol                |                            | RT     |
| Аррпсацоп  | s. roi inc                      | ne morma          | tion, refer to ridio comp                                | alibility. File Resist  | ant Fluids, pages | 21 8110 22 | -                   |                            | 571    |
|  |                                 |                   |  |   |                   |            |                     |                            | RTI    |
|  |                                 |                   |  |   |                   |            |                     | 2                          | LRT    |
| $\Delta \mathbf{P}_{housing}$  |                                 |                   |  | △P <sub>element</sub>   |                   |            | Pressure            |                            |        |
| GRTB $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:<br>Flow (L/min) |                                 |                   |  | $\Delta P_{element} = $ flow x element $\Delta P$ factor x viscosity factor |                   |            | Drop<br>Information | ART                        |        |
| 1  | 2 (50)                          |                   | (250) (350)<br>(-1) (0.75)                               | El. ∆P factors @ 1  |                   |            |                     | Based on                   | BFT    |
| 1  | 0                               |                   |  |   | <b>1K</b><br>.09  |            |                     | Flow Rate<br>and Viscosity | DIT    |
| psi  | 6                               |                   | (par)  |   | .02<br>.20        |            |                     | und viscosity              | QT     |
| ΔP   |                                 |                   | A A  | NDUL I  | .20               |            |                     |                            |        |



Sizing of elements should be based on element flow information provided in the Element Selection chart above.

#### $\triangle \mathbf{P}_{\mathsf{filter}} = \triangle \mathbf{P}_{\mathsf{housing}} + \triangle \mathbf{P}_{\mathsf{element}}$

Exercise:

Determine  $\Delta P$  at 75 gpm (284 L/min) for GRTB1KBGZ10S using 200 SUS (44 cSt) fluid.

#### Solution:

| $\Delta P_{housing}$ | = 7.25 psi [.50 bar]  |
|----------------------|---|
| $\Delta P_{element}$ | = 75 x .05 x (200÷150) = 5.0 psi  |
| $\Delta P_{total}$   | or<br>= [284 x (.05÷54.9) x (44÷32) = .36 bar]<br>= 7.25 + 5.0 = 12.25 psi<br>or<br>= [.50 + .36 = .86 bar] |

| $\Delta \mathbf{P}_{element}$   |  | Pressure                               | LNI  |
|---|--|--|--|
|   | low x element $\Delta P$ factor x viscosity factor | Drop                                   | ART  |
| El. $\Delta P$ factors  | @ 150 SUS (32 cSt):                                | Information                            |  |
| KBG10   | <b>1K</b><br>.09                                   | Based on<br>Flow Rate<br>and Viscosity | BFT  |
| KBG25<br>KBGZ1  | .02<br>.20   |  | QT   |
| KBGZ3<br>KBGZ5  | .10<br>.08   |  | КТК  |
| KBGZ10<br>KBGZ25  | .05<br>.04   |  | LTK  |
| If working in units of bars & L/min, divide above<br>factor by 54.9.<br><i>Viscosity factor</i> : Divide viscosity by 150 SUS (32 cSt). |  |  | MRT  |
|   |  |  | Accessories<br>for Tank-<br>Mounted<br>Filters |
|   |  |  | PAF1   |
|   |  |  | MAF1   |
|   |  |  | MF2  |

#### **GRTB** Tank-Mounted **Return Line Filter**

#### SAME DAY SHIPMENT MODEL AVAILABLE!

#### How to Build a Valid Model Number for a Schroeder GRTB: Filter Model Number Ы Selection Example: NOTE: One option per box BOX 2 BOX 3 BOX 1 BOX 4 BOX 5 BOX 6 BOX 7 GRTB – 1KBG – Ζ Ρ Y2 10 = GRTB1KBGZ10PY2

| BOX 1         | BOX 2        | BOX 3   | BOX 4                                     |
|---------------|--------------|---|---|
| Filter Series | Element Size | Media Type  | Micron Rating                             |
| GRTB          | 1KBG         | Omit = E-Media (cellulose)                        | 1 = 1µ Z-Media®                           |
|               |              | Z = Excellement <sup>®</sup> Z-Media <sup>®</sup> | 3 = 3µZ-Media®                            |
|               |              |   | 5 = 5µZ-Media®                            |
|               |              |   | $10 = 10 \mu$ E, and Z-Media <sup>®</sup> |
|               |              |   | $25 = 25 \mu$ E, and Z-Media <sup>®</sup> |
|               |              |   |   |
| BOX 5         | BOX 6        | BOX 7   |   |

| BOX 5 BOX 6   |                     | BOX 7   |  |
|---------------|---------------------|---|--|
| Seals         | Port                | Indicator   |  |
| Omit = Buna N | P = 1.25" NPT       | Omit = None   |  |
|               | S = SAE-20          | $Y2 = \begin{array}{c} Back-mounted tricolor\\ gauge \end{array}$ |  |
|               | B = ISO 228 G-1.25" | ES = Electric switch  |  |
|               |                     | ES1 = Heavy-duty electric<br>switch with conduit<br>connections   |  |

**254 SCHROEDER INDUSTRIES** 

# MiniMiser<sup>™</sup> Tank-Mounted Filter MTA

|   | <ul> <li>Features and Benefits</li> <li>Low pressure tank-mounted filter</li> <li>Compact size minimizes space requirements</li> <li>Minimizer is cost-effective alternative to spin-on filters</li> <li>Special filter element design provides aftermarket benefits</li> </ul> |                          | IRF<br>TF1<br>KF3<br>KL3<br>F1–2"<br>MLF1<br>RLD<br>GRTB |
|---|---|--------------------------|--|
| Model No. of filter in photograph is MT   | A3TAZ10P8.  |                          | MTA<br>MTB   |
|   |   |                          | ZT   |
| INDUSTRIAL       AUTOMOTIVE<br>MANUFACTURING         FULP & PAPER       AUTOMOTIVE<br>MANUFACTURING         | MOBILE<br>VEHICLES  | Applications             | KFT<br>RT<br>RTI<br>LRT<br>ART<br>BFT                    |
|   |   |                          | QT   |
|   |   |                          | КТК  |
|   |   |                          | LTK  |
|   |   |                          | MRT  |
| Flow Rating:<br>Max. Operating Pressure:<br>Min. Yield Pressure:<br>Rated Fatigue Pressure:<br>Temp. Range: | Up to 15 gpm (55 L/min) for 150 SUS (32 cSt) fluids<br>100 psi (7 bar)<br>269 psi (18 bar), per NFPA T2.6.1<br>Contact factory<br>-20°F to 225°F (-29°C to 107°C)<br>Cracking: 25 psi (2 bar)   | Specifications for<br>Mo | ssories<br>Tank-<br>ounted<br>Filters                    |
| Bypass Setting:<br>Porting Head & Cap:<br>Element Case:   | Cracking: 25 psi (2 bar)<br>Full Flow: 48 psi (3.3 bar)<br>Die Cast Aluminum<br>Glass Filled Nylon  |                          | PAF1<br>MAF1   |
| Weight of MTA 2   | 1.0  lbs (0.5  kg)  |                          |  |

Weight of MTA-3:

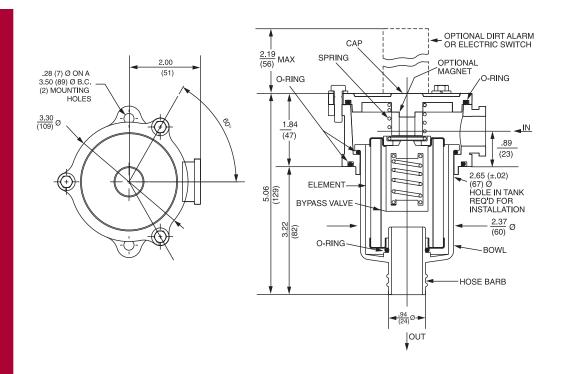
Element Change Clearance:

1.0 lbs. (0.5 kg)

3.0" (76 mm)

**SCHROEDER INDUSTRIES 255** 

## **MTA** MiniMiser<sup>™</sup> Tank-Mounted Filter



Metric dimensions in ().

| Element<br>Performance |         |                  | tio Per ISO 4572/N<br>article counter (APC) cali | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|---------|------------------|--|--|----------------------|-----------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 3TA10   | 15.5             | 16.2   | 18.0   | N/A                  | N/A                   |
|                        | 3TAZ3   | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | 3TAZ5   | 2.5              | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | 3TAZ10  | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | 3TAZ25  | 18.0             | 20.0   | 22.5   | 19.0                 | 24.0                  |

| Dirt Holding | Element                                     | DHC (gm)         |                                       |
|--------------|---|------------------|---------------------------------------|
| Capacity     | 3TA10                                       | N/A              |                                       |
|              | 3TAZ3                                       | 4                |                                       |
|              | 3TAZ5                                       | 6                |                                       |
|              | 3TAZ10                                      | 4                |                                       |
|              | 3TAZ25                                      | 4                |                                       |
|              |   |                  |                                       |
|              | Element Collapse Rating:<br>Flow Direction: |                  | 150 psid (10 bar)                     |
|              |   |                  | Outside In                            |
|              | Element Nom                                 | inal Dimensions: | 2.0" (51 mm) O.D. x 3.0" (76 mm) long |
|              |   |                  |                                       |
|              |   |                  |                                       |
|              |   |                  |                                       |
|              |   |                  |                                       |
|              |   |                  |                                       |

## MiniMiser<sup>™</sup> Tank-Mounted Filter

Fluid Type Fluid Appropriate Schroeder Media Compatibility **Petroleum Based Fluids** All E media (cellulose) and Z-Media® (synthetic) Element Element Element selections are predicated on the use of 150 SUS (32 cSt) Selection Pressure Series Part No. petroleum based fluid and a 25 psi (1.7 bar) bypass valve. Based on 10 3TA10 See MTB Flow Rate Е 25 3TA25 Media Return 3TAZ3 See MTB Ζ3 Line -Tank-Z5 3TAZ5 See MTB Mounted Z-Z10 3TAZ10 See MTB Media<sup>®</sup> Z25 3TAZ25 See MTB 5 10 15 gpm Ó MTA Flow (L/min) (25)(50)0 Shown above are the elements most commonly used in this housing. Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22. Pressure  $\Delta \mathbf{P}_{housing}$  $\triangle \mathbf{P}_{element}$ Drop  $\Delta P_{element} = flow x element \Delta P factor x viscosity factor$ MTA  $\Delta P_{\text{housing}}$  for fluids with sp gr = 0.86: Information Flow (L/min) (25) El. △P factors @ 150 SUS (32 cSt): Based on (50) Flow Rate 12 3TA (0.75) 3TA10 1.40 and Viscosity 10 3TA25 .33 3TAZ1 4.27 (0.5) 3TAZ3 2.20 (bar)  $\Delta$  P psi 3TAZ5 1.73 A P **3TAZ10** 1.48 Δ (0.25) 3TAZ25 68 2 If working in units of bars & L/min, divide above factor 0 10 15 by 54.9. Flow gpm Viscosity factor: Divide viscosity by 150 SUS (32 cSt). sp gr = specific gravity Sizing of elements should be based on element flow information provided in the Element Selection chart above.  $\triangle \mathbf{P}_{\text{filter}} = \triangle \mathbf{P}_{\text{housing}} + \triangle \mathbf{P}_{\text{element}}$ Notes Exercise: Determine  $\Delta P$  at 7 gpm (27 L/min) for MTA3TAZ10P8 using 150 SUS (32 cSt) fluid. Solution:  $\Delta P_{housing}$ = 2.0 psi [.14 bar]  $\Delta P_{element}$ = 7 x 1.48 = 10.3 psi or  $= [27 \times (1.48 \div 54.9) = .73 \text{ bar}]$  $\Delta P_{\text{total}}$ = 2.0 + 10.3 = 12.3 psi or = [.14 + .73 = .87 bar]



| Filter    | How to Build a Valid Model Number for a Schroeder MTA: |
|-----------|--|
| Model     | BOX 1 BOX 2 BOX 3 BOX 4 BOX 5                          |
| Number    |  |
| Selection | Example: NOTE: One option per box                      |
|           | BOX 1 BOX 2 BOX 3 BOX 4 BOX 5                          |
|           | MTA – 3 – TA25 – P8 – Y5 <b>= MTA3TA25P8Y5</b>         |
|           |  |
|           |  |
|           |  |

| BOX 1            | BOX 2                  | BOX 3  |
|------------------|------------------------|--|
| Filter<br>Series | Element<br>Length (in) | Element Size and Media   |
| ΜΤΑ              | 3                      | TA10 = TA size 10 $\mu$ E media (cellulose)  |
| IVITA            |                        | TA25 = TA size 25 $\mu$ E media (cellulose)  |
|                  |                        | TAZ1 = TA size 1 $\mu$ Excellement® Z-Media® (synthetic)                           |
|                  |                        | TAZ3 = TA size 3 $\mu$ Excellement® Z-Media® (synthetic)                           |
|                  |                        | TAZ5 = TA size 5 $\mu$ Excellement® Z-Media® (synthetic)                           |
|                  |                        | TAZ10 = TA size 10 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |
|                  |                        | TAZ25 = TA size 25 $\mu$ Excellement® Z-Media® (synthetic)                         |

| BOX 4           | BOX 5      |  |  |  |
|-----------------|------------|--|--|--|
| Porting Options |            | Dirt Alarm <sup>®</sup> Options              |  |  |
| P8 = ½" NPTF    |            | Omit = None                                  |  |  |
| S8 = SAE-8      | Visual     | Y2C = Bottom-mounted gauge in cap            |  |  |
|                 |            | Y5 = Back-mounted gauge in cap               |  |  |
|                 | Electrical | ESC = Electric pressure switch (2 terminals) |  |  |

NOTE:

Box 2. Replacement element part numbers are a combination of Boxes 2 and 3. Example: 3TA10

# MiniMiser<sup>™</sup> Tank-Mounted Filter MTB

|                                  |   | 35 gpm             | IRF       |
|----------------------------------|---|--------------------|-----------|
|                                  | Features and Benefits   | 135 L/min          | TF1       |
|                                  | <ul> <li>Low pressure tank-mounted filter</li> </ul>  | 100 psi            | KF3       |
|                                  | <ul> <li>Compact size minimizes space requirements</li> <li>Minimizer is cost-effective alternative</li> </ul>          | 7 bar              |           |
|                                  | to spin-on filters  |                    | KL3       |
|                                  | <ul> <li>Special filter element design provides<br/>aftermarket benefits</li> </ul>                                     |                    | LF1-2"    |
|                                  |   |                    | MLF1      |
|                                  |   |                    | RLD       |
|                                  |   |                    |           |
|                                  |   |                    | GRTB      |
|                                  |   |                    | MTA       |
|                                  |   |                    | MTB       |
| Model No. of filter in photograp | h is MTB5TBZ5P16.   | •                  | ZT        |
|                                  |   |                    | 21        |
|                                  |   | Applications       | KFT       |
|                                  |   |                    | RT        |
| INDUSTRIAL AUTOMOTIVE            | MOBILE  |                    | DTI       |
| MANUFACTURIN                     | G VEHICLES  |                    | RTI       |
|                                  |   |                    | LRT       |
|                                  |   |                    | ART       |
| PULP & PAPER AGRICULTURE         |   |                    | DET       |
|                                  |   |                    | BFT       |
|                                  |   |                    | QT        |
|                                  |   |                    | КТК       |
|                                  |   | -                  | LTK       |
|                                  |   |                    | LIK       |
| Flow Rating:                     | Up to 25 gpm (95 L/min) for 150 SUS (32 cSt) fluids–MTB-3<br>Up to 35 gpm (135 L/min) for 150 SUS (32 cSt) fluids–MTB-5 | Filter<br>Housing  | MRT       |
| Max. Operating Pressure:         | 100 psi (7 bar)   | Specifications Acc | ressories |
| Min. Yield Pressure:             | 229 psi (15 bar), per NFPA T2.6.1   |                    | or Tank-  |
| Rated Fatigue Pressure:          | Contact factory   |                    | Nounted   |
| Temp. Range:                     | -20°F to 225°F (-29°C to 107°C)   |                    | Filters   |
| Bypass Setting:                  | Cracking: 25 psi (2 bar)<br>Full Flow: 51 psi (3.5 bar)   |                    | DA E4     |
| Porting Head & Cap:              | Die Cast Aluminum   |                    | PAF1      |

Element Case: Glass Filled Nylon

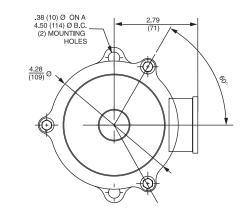
2.1 lbs. (1.0 kg) Element Change Clearance: 3.0" (76 mm) MTB-3 5.0" (127 mm) MTB-5

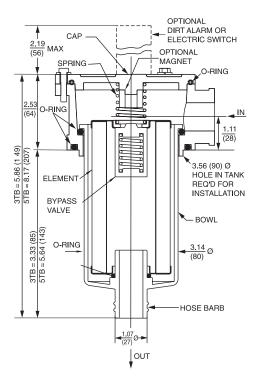
Weight of MTB-3: 1.8 lbs. (0.8 kg)

Weight of MTB-5:

MAF1

## **MTB** MiniMiser<sup>™</sup> Tank-Mounted Filter





| Element<br>Performance |         |                  | tio Per ISO 4572/N<br>article counter (APC) cal | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|---------|------------------|---|--|----------------------|-----------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                               | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 3TB10   | 15.5             | 16.2  | 18.0   | N/A                  | N/A                   |
|                        | 3TBZ3   | <1.0             | <1.0  | <2.0   | <4.0                 | 4.8                   |
|                        | 3TBZ5   | 2.5              | 3.0   | 4.0  | 4.8                  | 6.3                   |
|                        | 3TBZ10  | 7.4              | 8.2   | 10.0   | 8.0                  | 10.0                  |
|                        | 3TBZ25  | 18.0             | 20.0  | 22.5   | 19.0                 | 24.0                  |
|                        | 5TB10   | 15.5             | 16.2  | 18.0   | N/A                  | N/A                   |
|                        | 5TBZ3   | <1.0             | <1.0  | <2.0   | 4.7                  | 5.8                   |
|                        | 5TBZ5   | 2.5              | 3.0   | 4.0  | 5.6                  | 7.2                   |
|                        | 5TBZ10  | 7.4              | 8.2   | 10.0   | 8.0                  | 9.8                   |
|                        | 5TBZ25  | 18.0             | 20.0  | 22.5   | 19.0                 | 24.0                  |

| Dirt Holding | Element     | DHC (gm)           |   |
|--------------|-------------|--------------------|---|
| Capacity     | 3TB10       | N/A                |   |
|              | 3TBZ3       | 11                 |   |
|              | 3TBZ5       | 12                 |   |
|              | 3TBZ10      | 11                 |   |
|              | 3TBZ25      | 11                 |   |
|              | 5TB10       | N/A                |   |
|              | 5TBZ3       | 18                 |   |
|              | 5TBZ5       | 21                 |   |
|              | 5TBZ10      | 17                 |   |
|              | 5TBZ25      | 18                 |   |
|              |             |                    |   |
|              | Elemen      | t Collapse Rating: | 150 psid (10 bar)   |
|              |             | Flow Direction:    | Outside In  |
|              | Element Non | ninal Dimensions:  | 3TB: 3.0" (76 mm) O.D. x 3.0" (76 mm) long<br>5TB: 3.0" (76 mm) O.D. x 5.0" (127 mm) long |

**260 SCHROEDER INDUSTRIES** 

### **MiniMiser<sup>™</sup> Tank-Mounted Filter**

#### Fluid Type Fluid Appropriate Schroeder Media Compatibility Petroleum Based Fluids All E media (cellulose) and Z-Media® (synthetic) Element Element Selection Element selections are predicated on the use of 150 SUS (32 cSt) petroleum Part Based on Pressure Series No. based fluid and a 25 psi (1.7 bar) bypass valve. Flow Rate See MTA 3TB10 10 5TB10 F 25 See MTA 3TB25 5TB25 Media Return Ζ3 See MTA 3TBZ3 5TBZ3 Line -Tank-Z5 See MTA 3TBZ5 5TBZ5 Mounted Z-Z10 See MTA 3TBZ10 5TBZ10 Media<sup>®</sup> Z25 3TBZ25 See MTA 5TBZ25 25 5 10 15 20 30 35 gpm Ö Flow (L/min) 0 (25) (50) (75) (100) (135) MTB Shown above are the elements most commonly used in this housing. Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22. ${\boldsymbol{\bigtriangleup}} {\boldsymbol{P}}_{\text{housing}}$ $\triangle \mathbf{P}_{element}$ Pressure MTB $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86: $\Delta P_{element} = flow x element \Delta P factor x viscosity factor$ Drop El. △P factors @ 150 SUS (32 cSt). Information Flow (L/min) (125) (25)(75) Based on 12 5" 3" (0.75) Flow Rate .73 .40 **TB10** 10 and Viscosity **TB25** .10 .08 8 (0.5) (bar) TBZ1 1.17 .70 ∆P psi 6 ě TBZ3 .66 .36 4 .45 .25 TBZ5 (0.25) **TBZ10** .49 .25 2 TBZ25 .16 33 0 15 20 25 30 35 Flow gpm If working in units of bars & L/min, divide above factor by 54.9. sp gr = specific gravity Viscosity factor: Divide viscosity by 150 SUS (32 cSt). Sizing of elements should be based on element flow information provided in the Element Selection chart above. $\triangle \mathbf{P}_{\text{filter}} = \triangle \mathbf{P}_{\text{housing}} + \triangle \mathbf{P}_{\text{element}}$ Notes Exercise: Determine $\Delta P$ at 25 gpm (95 L/min) for MTB5TB25S16Y2C using 200 SUS (44 cSt) fluid. Solution: ∆P<sub>housing</sub> = 3.0 psi [.21 bar] = 25 x .08 x (200÷150) = 2.6 psi $\Delta P_{element}$ or $= [95 \times (.08 \div 54.9) \times (44 \div 32) = .19 \text{ bar}]$ $\Delta P_{\text{total}}$ = 3.0 + 2.6 = 5.6 psi or

= [.21 + .19 = .40 bar]

# **MTB** MiniMiser<sup>™</sup> Tank-Mounted Filter

| Filter    | I |
|-----------|---|
| Model     |   |
| Number    |   |
| Selection |   |

| How  | / to Buil  | d a Valid    | Model N | umber fo | or a Schi | roeder MTB:     |
|------|------------|--------------|---------|----------|-----------|-----------------|
|      | OX 1       | BOX 2        | BOX 3   | BOX 4    | BOX 5     | 1               |
| N    | ИТВ –      |              |         |          |           |                 |
| Exam | ple: NOTE: | One option p | per box |          |           |                 |
| В    | OX 1       | BOX 2        | BOX 3   | BOX 4    | BOX 5     | _               |
| N    | /ITB –     | 3 –          | TB25 –  | P12 –    | Y5        | = MTB3TB25P12Y5 |
|      |            |              |         |          |           |                 |
|      |            |              |         |          |           |                 |

| BOX 1            | BOX 2                  | BOX 3   |  |  |  |  |
|------------------|------------------------|---|--|--|--|--|
| Filter<br>Series | Element<br>Length (in) | Element Size and Media  |  |  |  |  |
| МТВ              | 3                      | TB10 = T size 10 µ E media (cellulose)  |  |  |  |  |
| IVIID            | 5                      | TB25 = T size 25 µ E media (cellulose)  |  |  |  |  |
|                  |                        | TBZ3 = T size 3 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)       |  |  |  |  |
|                  |                        | TBZ5 = T size 5 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |  |  |  |  |
|                  |                        | TBZ10 = T size 10 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)     |  |  |  |  |
|                  |                        | TBZ25 = T size 25 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |  |  |  |  |

| BOX 4                                    | BOX 5      |  |  |  |  |
|--|------------|--|--|--|--|
| Porting Options                          |            | Dirt Alarm <sup>®</sup> Options              |  |  |  |
| P12 = <sup>3</sup> / <sub>4</sub> " NPTF |            | Omit = None                                  |  |  |  |
| P16 = 1" NPTF                            | Visual     | Y2C = Bottom-mounted gauge in cap            |  |  |  |
| S12 = SAE-12                             | VISUAI     | Y5 = Back-mounted gauge in cap               |  |  |  |
| S16 = SAE-16                             | Electrical | ESC = Electric pressure switch (2 terminals) |  |  |  |
| B12 = ISO 228 G-¾"                       |            |  |  |  |  |
| B16 = ISO 228 G-1"                       |            |  |  |  |  |

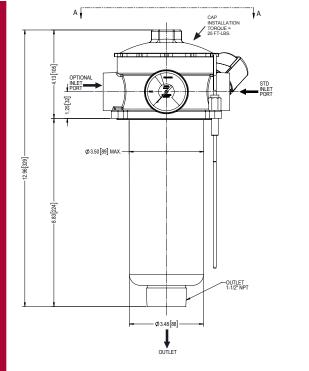
NOTE:

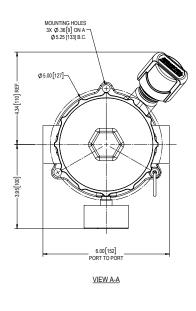
Box 2. Replacement element part numbers are a combination of Boxes 2 and 3. *Example*: 3TB10

## Tank-Mounted Filter **ZT**

|                                    |  |                     | IRF                 |
|------------------------------------|--|---------------------|---------------------|
|                                    |  | 40 gpm<br>150 L/min | TF1                 |
|                                    | Features and Benefits     Low pressure tank-mounted filter   |                     |                     |
|                                    | Available with dual inlet porting  | 100 psi             | KF3                 |
|                                    | <ul> <li>Offered in pipe, SAE straight thread<br/>and ISO 228 porting</li> </ul>                     | 7 bar               | KL3                 |
|                                    | <ul> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>   |                     | LF1-2"              |
|                                    | <ul> <li>Optional PAB1 breather</li> </ul>   |                     | LI 1-2              |
|                                    | <ul> <li>Optional dipstick</li> <li>Available with Patented GeoSeal<sup>®</sup> Elements.</li> </ul> |                     | MLF1                |
|                                    | See Section 8 – GeoSeal Filters (page 346)<br>for details.   |                     | RLD                 |
|                                    |  |                     | GRTB                |
|                                    |  |                     | ΜΤΑ                 |
|                                    |  |                     |                     |
| Model No. of filter in photogra    | aph is 7T87710PPFSAB   |                     | MTB                 |
| Model No. of filter in protogr     |  | _                   | ZT                  |
|                                    |  | Applications        | KFT                 |
|                                    |  |                     | RT                  |
| INDUSTRIAL AUTOMOTIV<br>MANUFACTUR |  |                     | RTI                 |
| MANUFACIOR                         |  |                     | IX11                |
|                                    |  |                     | LRT                 |
|                                    |  |                     | ART                 |
|                                    |  |                     | BFT                 |
|                                    |  |                     | QT                  |
|                                    |  |                     | КТК                 |
|                                    |  | •                   | LTK                 |
|                                    |  |                     | MRT                 |
| Flow Rating:                       | Up to 40 gpm (150 L/min) for 150 SUS (32 cSt) fluids   | Filter              |                     |
| Max. Operating Pressure:           | 100 psi (7 bar)  |                     | cessories           |
| Min. Yield Pressure:               | 300 psi (21 bar), per NFPA T2.6.1  |                     | or Tank-<br>Nounted |
| Rated Fatigue Pressure:            | 90 psi (6 bar), per NFPA T2.6.1-R1-2005  |                     | Filters             |
| Temp. Range:<br>Bypass Setting:    | -20°F to 225°F (-29°C to 107°C)<br>Cracking: 25 psi (1.7 bar)  |                     |                     |
|                                    | Full Flow: 39 psi (2.7 bar)  |                     | PAF1                |
| Cap & Bowl:<br>Porting Head:       | Nylon<br>Aluminum  |                     | MAF1                |
| Weight of ZT-8Z:                   | 3.3 lbs. (1.49 kg)   |                     | 191731 1            |
| Element Change Clearance:          | 10.0" (254 mm)   |                     | MF2                 |

### **Tank-Mounted Filter**





Metric dimensions in ( ).

| Element<br>Performance |         |                  | tio Per ISO 4572/N<br>article counter (APC) cali | Filtration Ratio wrt ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|---------|------------------|--|--|----------------------|-----------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 8Z3     | 6.8              | 7.5  | 10.0   | N/A                  | N/A                   |
|                        | 8Z10    | 15.5             | 16.2   | 18.0   | N/A                  | N/A                   |
|                        | 8ZZ1    | <1.0             | <1.0   | <1.0   | <4.0                 | 4.2                   |
|                        | 8ZZ3    | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | 8ZZ5    | 2.5              | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | 8ZZ10   | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | 8ZZ25   | 18.0             | 20.0   | 22.5   | 19.0                 | 24.0                  |

| Dirt | Ho  | lding |
|------|-----|-------|
| (    | Сар | acity |

. ..

| ding 🗧 | Element | t DHC (gm)               |   |
|--------|---------|--------------------------|---|
| acity  | 8Z3     | 39                       |   |
|        | 8Z10    | 32                       |   |
|        | 8ZZ1    | 51                       |   |
|        | 8ZZ3    | 52                       |   |
|        | 8ZZ5    | 59                       |   |
|        | 8ZZ10   | 55                       |   |
|        | 8ZZ25   | 77                       |   |
|        |         |                          |   |
|        |         | Element Collapse Rating: | 150 psid (10 bar)                       |
|        |         | Flow Direction:          | Outside In                              |
|        | Elem    | ent Nominal Dimensions:  | 3.2" (81 mm) O.D. x 9.25" (235 mm) long |
|        |         |                          |   |

# Tank-Mounted Filter **ZT**



|   |   | Type Fluid        | Appropriate Schroe                            | der Media  |   |                             |               | Fluid  | IRF         |
|---|---|-------------------|---|--|---|-----------------------------|---------------|--|-------------|
| Pet   | roleum E  | Based Fluids      | All E media (cellulose)                       | and Z-Media  | ® (synthetic)   |                             |               | Compatibility  | TE4         |
|   | High Wa   | ter Content       | All Z-Media (synthetic                        | )  |   |                             |               |  | TF1         |
|   | Inver   | t Emulsions       | 10 and 25 µ Z-Media                           | o (synthetic)  |   |                             |               |  | KF3         |
| Water Glycols3, 5, 10 and 25 µ Z-NPhosphate EstersAll Z-Media® (synthe) |   |                   | ledia® (synthe                                | etic)  |   |                             |               | KI J   |             |
|   |   |                   | ic) with H (EP                                | R) seal designat   | tion  |                             |               | KL3  |             |
|   |   | Skydrol®          | 3, 5, 10 and 25 µ Z-M stainless steel wire me |  |   |                             |               | Skydrol <sup>®</sup> is a register<br>trademark of Solutia | ed          |
| Pressure  | Element Element selections Pressure Series Part No. petroleum based f |                   |   |  |   |                             | 2 cSt)        | Element<br>Selection                                       | MLF1        |
|   |   | 8Z3 paper         |   | 8Z3 (cellu   | lose media)   |                             |               | Based on<br>Flow Rate                                      |             |
|   | E<br>Media  | 8Z10 paper        |   | 8Z10 (cellu  | ulose media)  |                             |               | now nate   | RLD         |
| Return  | Ivieula   | 8Z25 paper        |   | 8Z25 (cellu  | ulose media)  |                             |               |  | CDTD        |
| Line  |   | 8ZZ3              |   | 8  | ZZ3   |                             |               |  | GRTB        |
| -Tank-<br>Mounted   | Z-  | 8ZZ5              |   | 8  | ZZ5   |                             |               |  | вата        |
| mounted   | Z-<br>Media®  | 8ZZ10             |   |  | Z10   |                             |               |  | MTA         |
|   |   | 8ZZ25             |   |  | 225   |                             |               |  | МТВ         |
|   |   |                   | 0 10  |  | 20  | 30                          | 40            |  | IVI I D     |
|   | Flow  |                   |   |  | 100   | 50                          | 150           |  | ZT          |
| Chown abo   | vo ara tha  |                   | 0 50<br>t commonly used in th                 | c housing  | 100   |                             | 150           |  | 21          |
|   |   |                   | ,   | 5  |   |                             |               |  | KFT         |
|   |   |                   | of E media in High W<br>refer to Fluid Compat |  |   |                             |               |  | KF I        |
| ppillation  | 5. 1 01 1110  |                   |   | ionity. The ne   | .515 curre i rurus, p   |                             |               |  | RT          |
| $\Delta \mathbf{P}_{housing}$   |   |                   |   | ${\boldsymbol{\bigtriangleup}} {\boldsymbol{P}}_{element}$ |   |                             |               | Pressure   | IX I        |
| ZT ΔP <sub>housing</sub>  | for fluids w  | ith sp gr = 0.86: |   | $\Delta P_{element} =$                                     | flow x element $\Delta$   | .P factor x viscosi         | ty factor     | Drop   | RTI         |
|   |   | Flow (L/min)      |   | El. $\Delta P$ factor                                      | s @ 150 SUS (32   | cSt):                       |               | Information<br>Based on                                    |             |
| 10  | (25)  | (75)              | (125)   | 8Z3  | .25   |                             |               | Flow Rate  | LRT         |
|   |   |                   |   | 8Z10   | .09   |                             |               | and Viscosity  |             |
| 8   |   |                   | (0.50)  | 8Z25   | .02   |                             |               |  | ART         |
| ∆P psi  | ++  |                   | ar)   | 8ZZ1<br>8ZZ3   | .37<br>.21  |                             |               |  |             |
| <sup>₩</sup> 4  |   |                   | △P (bar)                                      | 8225<br>8225   | .13   |                             |               |  | BFT         |
|   |   |                   | (0.25) <                                      | 8ZZ10  | .11   |                             |               |  |             |
| 2   | +   |                   |   | 8ZZ25  | .08   |                             |               |  | ОТ          |
| _اه   |   |                   |   |  |   |                             |               |  |             |
| 0   | 10  | 20<br>Flow gpm    | 30 40   | lf working ii<br>54.9.                                     | n units of bars &   | L/min, divide ab            | ove factor by |  | КТК         |
| sp gr = spec  | cific gravit  | ty                |   | Viscosity fac  | <i>tor:</i> Divide viscosi  | ty by 150 SUS (32           | cSt).         |  |             |
| Sizing of ele   | ements sho  | ould be based o   | n element flow informa                        | tion provided  | in the Element S  | Selection chart a           | above.        |  | LTK         |
| Notes   |   |                   |   |  | $\Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{c}}$ | element                     |               |  | MRT         |
|   |   |                   |   | Exercise:  | ΔP at 20 gpm (  | (76 L/min) for              |               |  | Accessories |
|   |   |                   |   |  | using 200 SUS   |                             |               |  | for Tank-   |
|   |   |                   |   | Solution:  |   |                             |               |  | Mounted     |
| <u> </u>  |   |                   |   | $\Delta P_{\text{housing}}$                                | = 1 psi [.07 ba   | arl                         |               |  | Filters     |
|   |   |                   |   | $\Delta P_{element}$                                       |   | 200÷150) = 9.8              | 8 psi         |  | 111613      |
|   |   |                   |   | element  | or  |                             | · ·           |  | PAF1        |
|   |   |                   |   | ΛΡ   | $= [/6 \times (.3/\div)]$<br>= 1.0 + 9.8 =                          | 54.9) x (44÷32)<br>10 8 nsi | ) = 0.7 pař]  |  |             |
|   |   |                   |   | $\Delta P_{total}$   | = 1.0 + 9.8 =<br>or   | 10.0 bi                     |               |  | MAF1        |
|   |   |                   |   |  | = [.07 + .7 =   | .77 bar]                    |               |  |             |
|   |   |                   |   |  |   |                             |               |  |             |

**SCHROEDER INDUSTRIES 265** 

MF2

### **Tank-Mounted Filter**

ΖΤ

| Filter    | How to Build a Valid Model Number for a Schroeder ZT: |
|-----------|---|
| Model     | BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7             |
| Number    |   |
| Selection | Example: NOTE: One option per box                     |
|           | BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7             |
|           | ZT - 8 - Z10 - S - Y2 - <b>= ZT8Z10SY2</b>            |

| BOX 1            | BOX 2                  | BOX 3  | BOX 4         |
|------------------|------------------------|--|---------------|
| Filter<br>Series | Element<br>Length (in) | Element Size and Media   | Seal Material |
| ZT               | 8                      | Z3 = Z size 3 μ E media (cellulose)  | Omit = Buna N |
| Ζ1               | 0                      | Z10 = Z size 10 µ E media (cellulose)  | H = EPR       |
|                  |                        | Z25 = Z size 25 µ E media (cellulose)  |               |
|                  |                        | ZZ1 = Z size 1 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |               |
|                  |                        | ZZ3 = Z size 3 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |               |
|                  |                        | ZZ5 = Z size 5 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |               |
|                  |                        | ZZ10 = Z size 10 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |               |
|                  |                        | ZZ25 = Z size 25 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |               |

| BOX 5                  |            | BOX 6   |
|------------------------|------------|---|
| Inlet Porting          |            | Dirt Alarm <sup>®</sup> Options                             |
| P = 1 " NPTF           |            | Omit = None   |
| PP = Dual 1" NPTF      |            | Y2 = Back-mounted tri-color gauge                           |
| S = SAE-16             | Visual     | Y2C = Bottom-mounted gauge in cap                           |
| SS = Dual SAE-16       |            | Y5 = Back-mounted gauge in cap                              |
| B = ISO 228 G-1 "      |            | ES = Electric switch  |
| BB = Dual ISO 228 G-1" | Electrical | ES1 = Heavy-duty electric switch with<br>conduit connection |

BOX 7

Options

Omit = None

- G3039 = 1.5" NPT Outlet Removed
  - A = Dipstick
  - B = Breather
  - AB = Dipstick & Breather
  - M = Mounting Gasket (Buna N)

| NOTE | S: |
|------|----|

All heads will be anodized.

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 8Z10H
- Box 3. E media elements are only available with Buna N seals.

Box 4. For option H, all seals are Viton<sup>®</sup>.

#### Tank-Mounted Filter KFT

| T |  |
|---|--|
|   |  |

| <ul><li>Features and Benefits</li><li>Low pressure tank-mounted filter</li></ul>  | 100 gpm<br>380 L/min | IRF<br>TF1    |
|---|----------------------|---------------|
| <ul> <li>Meets HF4 automotive standard</li> <li>Multiple inlet/outlet porting options</li> <li>Top, side or bottom mounting</li> <li>Optional check valve prevents reservoir</li> </ul> | 100 psi<br>7 bar     | KF3           |
| <ul> <li>Optional check value prevents reservoir<br/>siphoning</li> <li>Can also be used in return line application<br/>(contact factory)</li> </ul>                                    |                      | KL3<br>LF1–2" |
| <ul> <li>Double stacking of K-size element can be replaced by single KK element</li> <li>Allows consolidation of inventoried replacement elements by using K-size elements</li> </ul>   |                      | MLF1<br>RLD   |
| <ul> <li>Also available with DirtCatcher<sup>®</sup> elements<br/>(KD and KKD)</li> </ul>   |                      | GRTB          |
|   |                      | ΜΤΑ           |
|   |                      | MTB           |

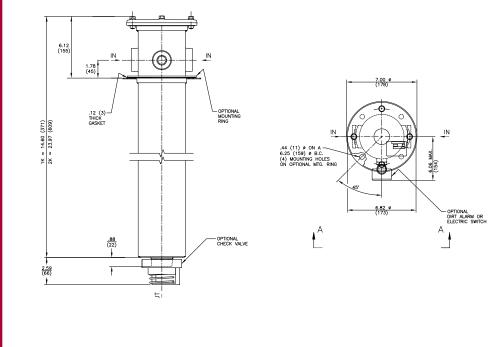
Model No. of filter in photograph is KFT1K10P24P24NB



| Applications  | KFT |
|---------------|-----|
|               | RT  |
|               | RTI |
|               | LRT |
|               | ART |
|               | BFT |
|               | QT  |
|               | КТК |
|               | LTK |
| <b>Filter</b> | MRT |

| Flow Rating:                                   | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids                | Filter MRT                 |
|--|--|----------------------------|
| Max. Operating Pressure:                       | 100 psi (7 bar)  | Housing                    |
| Min. Yield Pressure:                           | 400 psi (28 bar), per NFPA T2.6.1                                    | Specifications Accessories |
| Rated Fatigue Pressure:                        | Contact Factory  | for Tank-                  |
| Temp. Range:                                   | -20°F to 225°F (-29°C to 107°C)                                      | Mounted                    |
| Bypass Setting:                                | Cracking: 25 psi (1.7 bar)<br>Full Flow: 48 psi (3.3 bar)            | Filters                    |
| Porting Head:<br>Porting Cap:<br>Element Case: | Steel<br>Die Cast Aluminum (standard); Steel (optional)<br>Steel     | PAF1                       |
| Weight of KFT-1K:<br>Weight of KFT-2K:         | 10.0 lbs. (4.5 kg)<br>13.6 lbs. (6.2 kg)                             | MAF1                       |
| Element Change Clearance:                      | 8.0" (205 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K | MF2                        |

## KFT Tank-Mounted Filter



Metric dimensions in ( ).

| Element<br>Performance |                         |                  | io Per ISO 4572/N<br>article counter (APC) cal | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|-------------------------|------------------|--|--|----------------------|-----------------------|
| Information            | Element                 | $\beta_x \ge 75$ | $B_x \ge 100$                                  | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | К3/КК3                  | 6.8              | 7.5  | 10.0   | N/A                  | N/A                   |
|                        | K10/KK10                | 15.5             | 16.2   | 18.0   | N/A                  | N/A                   |
|                        | KZ1/KKZ1                | <1.0             | <1.0   | <1.0   | <4.0                 | 4.2                   |
|                        | KZ3/KKZ3/KAS3/KKAS3     | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | KZ5/KKZ5/KAS5/KKAS5     | 2.5              | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | KZ10/KKZ10/KAS10/KKAS10 | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | KZ25/KKZ25              | 18.0             | 20.0   | 22.5   | 19.0                 | 24.0                  |

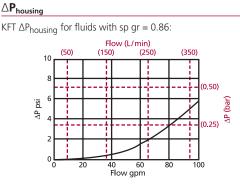
| Dirt Holding | Element        | DHC (gm) | Element                               | DHC (gm)                            | Element | DHC (gm) | Element | DHC (gm) |
|--------------|----------------|----------|---------------------------------------|-------------------------------------|---------|----------|---------|----------|
| Capacity     | К3             | 54       | ККЗ                                   | 108                                 |         |          |         |          |
|              | К10            | 44       | KK10                                  | 88                                  |         |          |         |          |
|              | KZ1            | 112      | KKZ1                                  | 224                                 | KDZ1    | 89       | KKDZ1   | 188      |
|              | KZ3/KAS3       | 115      | KKZ3/KKAS3                            | 230                                 | KDZ3    | 71       | KKDZ3   | 150      |
|              | KZ5/KAS5       | 119      | KKZ5/KKAS5                            | 238                                 | KDZ5    | 100      | KKDZ5   | 210      |
|              | KZ10/KAS10     | 108      | KKZ10/KKAS10                          | 216                                 | KDZ10   | 80       | KKDZ10  | 168      |
|              | KZ25           | 93       | KKZ25                                 | 186                                 | KDZ25   | 81       | KKDZ25  | 171      |
|              |                |          | t Collapse Rating:<br>Flow Direction: | Outside In                          |         |          |         |          |
| 26           | 58 SCHROEDER I |          | ninal Dimensions:                     | K: 3.9" (99 mm,<br>KK: 3.9" (99 mm) |         |          |         |          |

# Tank-Mounted Filt

|  | Tank-Mo  | unt             | ed Fil            | ter        | KFT   |        |
|--|--|-----------------|-------------------|------------|---|--------|
| Appropriate Schroed  | der Media  |                 |                   |            | Fluid   | IRF    |
| All E media (cellulose)  | Z-Media <sup>®</sup> and ASP <sup>®</sup> media (sy  | nthetic)        |                   |            | Compatibility   | TF1    |
| All Z-Media and ASP®   |  |                 |                   | _          |   |        |
| •  | (synthetic), 10 μ ASP <sup>®</sup> media   |                 |                   |            |   | KF3    |
| · ·  | edia <sup>®</sup> (synthetic), 3, 5 and 10   |                 |                   |            |   |        |
|  | c) with H (EPR) seal designation<br>llulose) with H (EPR) seal desig   |                 | nedia (synthet    | tic) and I |   | KL3    |
| (synthetic) and W med  | edia <sup>®</sup> (synthetic) with H.5 seal<br>lia (water removal) with H.5 se<br>sh in element, and light oil coa | al desigr       | nation (EPR se    | als and    | Skydrol <sup>®</sup> is a registered<br>trademark of Solutia Inc. | LF1-2" |
| Element selections ar  | e predicated on the use of 1   | 150 SUS         | (32 cSt)          |            | Element   | MLF1   |
|  | d and a 25 psi (1.7 bar) bypa  |                 |                   |            | Selection   | RLD    |
| 1K3  | 2K3 <sup>+</sup>   |                 |                   |            | Based on<br>Flow Rate   |        |
| 1K10   | 2K   | 10 <sup>+</sup> |                   |            |   | GRTB   |
|  | 1K25   |                 | 2K25 <sup>+</sup> |            |   |        |
| 1KZ1   | 26   | Z1†             |                   |            |   | ΜΤΑ    |
|  | 1KZ3   |                 | 2KZ3 <sup>+</sup> |            |   |        |
|  | 1KZ5   |                 | 2KZ5 <sup>†</sup> |            |   | MTB    |
|  | 1KZ10  |                 |                   |            |   | 77     |
|  | 1KZ25  |                 |                   |            |   | ZT     |
| 40   | 60   | 80              | 100               | )          |   | KFT    |
| 50 150 250   |  |                 | 380               | 5          |   |        |
| -size elements can be replaced by single KK element, respectively. |  |                 |                   |            |   | RT     |
| nost commonly used in<br>use of E media in High                    | this housing.<br>Water Content, Invert Emulsio   | on and M        | /ater Glycol      |            |   | RTI    |

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

†Double and triple stacking of K-size elements can be replaced by single KK element, respectively.



Type Fluid

Water Glycols **Phosphate Esters** 

Element

Series Part No.

Ε

Media

Z-

Media<sup>®</sup>

Flow

Same flow rate applies.

K3

K10

K25

KZ1

KZ3

KZ5

KZ10

KZ25

gpm

(L/min)

Ó

Ó

Shown above are the elements most commonly used in this housing.

Pressure

Return

Line -Tank-

Mounted

Skydrol®

Petroleum Based Fluids

**High Water Content Invert Emulsions** 

sp gr = specific gravity Sizing of elements should be based on element flow information provided in the Element Selection chart above.

#### $\triangle \mathbf{P}_{filter} = \triangle \mathbf{P}_{housing} + \triangle \mathbf{P}_{element}$

Exercise:

Determine △P at 80 gpm (300 L/min) for KFT2K10P24 using 200 SUS (44 cSt) fluid.

#### Solution:

| ΔP <sub>housing</sub> | = 3.0 psi [.20 bar]                      |
|-----------------------|--|
| $\Delta P_{element}$  | = 80 x .05 x (200÷150) = 5.3 psi         |
|                       | or                                       |
|                       | = [300 x (.05÷54.9) x (44÷32) = .38 bar] |
| $\Delta P_{total}$    | = 3.0 + 5.3 = 8.3 psi                    |
|                       | or                                       |
|                       | = [.20 + .38 = .58 bar]                  |

| $\Delta \mathbf{P}_{element}$     |                     |             |             |          |      | Pressure      |
|-----------------------------------|---------------------|-------------|-------------|----------|------|---------------|
| $\Delta P_{element} = flow$       | Drop<br>Information |             |             |          |      |               |
| El. ∆P factors @                  | 150 SU              | S (32 cSt): |             |          |      | Based on      |
|                                   | 1K                  | 2K          |             | 1K       | 2K   | Flow Rate     |
| К3                                | .25                 | .12         |             |          |      | and Viscosity |
| K10                               | .09                 | .05         |             |          |      |               |
| K25                               | .02                 | .01         |             |          |      |               |
| KZ1                               | .20                 | .10         | KDZ1        | .24      | .12  |               |
| KZ3/KAS3                          | .10                 | .05         | KDZ3        | .12      | .06  |               |
| KZ5/KAS5                          | .08                 | .04         | KDZ5        | .10      | .05  |               |
| KZ10/KAS10                        | .05                 | .03         | KDZ10       | .06      | .03  |               |
| KZ25                              | .04                 | .02         | KDZ25       | .04      | .02  |               |
| If working in t<br>factor by 54.9 |                     | f bars & L/ | min, divide | above    |      |               |
| Viscosity facto                   | r: Divi             | de viscosit | y by 150 SU | 5 (32 cs | st). |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |
|                                   |                     |             |             |          |      |               |

### **KFT** Tank-Mounted Filter

| Filter  | How to Build a V                        | alid   | Model N                 | lumber for a                                 | a Schroe             | eder Kl                | FT:  |  |
|---|---|--|-------------------------|--|----------------------|------------------------|--|--|
| Model<br>Number   | BOX 1 BOX 2 BO                          | DX 3   | BOX 4                   | BOX 5 BOX 6                                  | BOX 7                | BOX 8                  | BOX 9 BC                                     | DX 10  |
| Selection   | Example: NOTE: One op                   | otion p  | er box                  |  |                      |                        |  |  |
| Scietton  | BOX 1 BOX 2 BOX                         | 3 BC   | ох 4 вох !<br>IO —      | <sup>5 вох 6</sup><br>– <b>S24 S24 N</b>     | BOX 7                | BOX 8                  | вох 9 вох<br>Y2 – G82                        | <sup>10</sup><br>20 = KFT1KZ10S24S                   |
|   |   |  |                         | JZ4 JZ4 N                                    |                      |                        |  | 24NY2G820  |
|   |   |  |                         |  |                      |                        |  |  |
|   | BOX 1 BOX                               |  |                         | BOX  | 3                    |                        |  | BOX 4  |
|   | Filter Element Si<br>Series Lengt       | ze anc<br>h  |                         | Media  | Туре                 |                        | Ele  | ment Part Number                                     |
|   | KFT 1 K, K                              | < Contract of the second secon |                         | = E media (cellulose)                        |                      |                        |  | Z, ZW, and DZ media                                  |
|   | 2 K                                     |  |                         | = Excellement® Z-N<br>= Anti-Static Pleat N  |                      |                        |  | AS,E, Z, ZW, and DZ media<br>AS, Z, ZW, and DZ media |
|   |   |  |                         | = Aqua-Excellement                           |                      |                        |  | u AS, E, M, Z, ZW, and DZ media                      |
|   |   |  | DZ                      | = Dirtcatcher <sup>®</sup> with              | Excellemen           | t <sup>®</sup> Z-Media | a® 25 = 25                                   | u E, M, Z, ZW, and DZ media                          |
|   |   |  |                         |  |                      |                        |  |  |
|   |   |  |                         |  |                      |                        |  |  |
|   | BOX 5                                   |  | BO                      | X 6 Specification o                          | f all 4 ports        | s is requir            | ed   |  |
|   | Seal Material                           |  |                         | 1  | Porting              |                        |  | Inlet Porting Location                               |
|   | Omit = Buna N                           |  | 1 (Standard)            | Port 2 (Optional)                            | Port 3 (Opt          |                        | Port 4 (Optional)                            | Port #1  |
|   | H = EPR<br>V = Viton ®                  | N  | = None                  | N = None                                     | N = No               |                        | N = None<br>$P2 = \frac{1}{8}'' NPTF$        |  |
|   | H.5 = Skydrol®                          |  |                         |  | P8 = ½               |                        | $P8 = \frac{1}{2}$ " NPTF                    | Port<br>#3   |
|   | Compatibility                           | P12  | = ¾" NPTF               | P12 = 3/4" NPTF                              | P12 = ¾              | ' NPTF F               | 212 = 34" NPTF                               | Port #2  |
|   |   |  | = 1" NPTF               | P16 = 1" NPTF                                | P16 = 1"             |                        | P16 = 1" NPTF                                |  |
|   |   |  | = 11/4" NPTF            |  |                      |                        | $20 = 1\frac{1}{4}$ " NPTF                   |  |
|   |   |  | = 1½" NPTF<br>= 2" NPTF | $P24 = 1\frac{1}{2}$ " NPTF<br>P32 = 2" NPTF | P24 = 1½<br>P32 = 2" |                        | $224 = 1\frac{1}{2}$ " NPTF<br>232 = 2" NPTF |  |
|   |   |  | = SAE-8                 | S8 = SAE-8                                   | S8 = SA              |                        | S8 = SAE-8                                   |  |
|   |   | S12  | = SAE-12                | S12 = SAE-12                                 | S12 = SA             | E-12 S                 | 512 = SAE-12                                 |  |
|   |   |  | = SAE-16                | S16 = SAE-16                                 | S16 = SA             |                        | 516 = SAE-16                                 |  |
|   |   |  | = SAE-20<br>= SAE-24    | S20 = SAE-20<br>S24 = SAE-24                 | S20 = SA<br>S24 = SA |                        | 520 = SAE-20<br>524 = SAE-24                 |  |
| NOTES:  | BOX 7                                   | 324  | = JAC-24                | BOX 8  | 324 = 3A             | E-24 3                 | BOX 9  |  |
| Box 2. Number of elements   | Outlet Porting Optio                    | ns   | Option                  | nal Mounting<br>Flange                       |                      |                        | Dirt Alarm <sup>®</sup> O                    | ptions   |
| must equal 1 when using KK elements.                                | Omit = 1½" NPT male                     |  | Omit =                  |  |                      | Omit = I               | None   |  |
| Box 3. Replacement element part numbers are                         | C = Check valve                         |  | в =                     | = Flange with 4<br>holes                     |                      | Y2 = 1                 | Back-mounted tri-co                          | olor gauge (located in Port 4)                       |
| identical to contents<br>of Boxes 2, 3 and 4.<br>K specifies one 9" | D = Diffuser                            |  | BVV =                   | = Flange with<br>no holes                    | Visual               | Y2C = 1                | Bottom-mounted                               | tri-color gauge in cap                               |
| element; KK specifies one 18" element.                              | CD = Check valve & diff                 |  |                         |  |                      |                        | Back-mounted ga                              | 5 1  |
| Example: KKZ10  | T = 13" Tube extensi                    |  |                         |  | Electrical           |                        | Electric switch (loc                         | · · · ·  |
| Box 5. H.5 seal designation includes the                            | A = Non-threaded ou                     | tlet   |                         |  | Licentar             | ES1 = 1                | connector (located                           | c switch with conduit<br>d in port 4)                |
| following: EPR seals,<br>stainless steel wire mesh                  |   |  |                         |  |                      |                        |  |  |
| on elements, and light oil coating on housing                       | BOX 10                                  |  |                         |  |                      |                        |  |  |
| exterior. Skydrol <sup>®</sup> is a registered trademark            | Additional Option                       | 5  |                         |  |                      |                        |  |  |
| of Solutia Inc. Viton <sup>®</sup> is<br>a registered trademark     | Omit = None                             |  |                         |  |                      |                        |  |  |
| of DuPont Dow<br>Elastomers.  | G2293 = Cork gasket<br>G820 = Steel cap |  |                         |  |                      |                        |  |  |
|   |   |  |                         |  |                      |                        |  |  |

Box 7. See also "Accessories for Tank-Mounted Filters," page 307.

### Tank-Mounted Filter RT



| <ul> <li>Features and Benefits</li> <li>Low pressure tank-mounted filter with up to 3 inlet ports</li> <li>Meets HF4 automotive standard</li> <li>Top, side or bottom mounting</li> <li>Optional check valve prevents reservoir siphoning</li> <li>RTW model allows filter to be welded to tank, instead of being bolted</li> </ul>   | 100 gpm<br><u>380 L/min</u><br>100 psi<br>7 bar | IRF<br>TF1<br>KF3<br>KL3<br>LF1–2" |
|---|---|------------------------------------|
| <ul> <li>Double and triple stacking of K-size element can<br/>be replaced by single KK or 27K-size element</li> <li>Also available with new DirtCatcher® elements<br/>(KDZ and KKDZ)</li> <li>Various Dirt Alarm® options</li> <li>Allows consolidation of inventoried replacement<br/>elements by using K-size elements</li> <li>Available with Patented GeoSeal® Elements.<br/>See Section 8 – GeoSeal Filters (page 345)<br/>for details.</li> </ul> |   | MLF1<br>RLD<br>GRTB<br>MTA<br>MTB  |
| 24NP16CY2.  | Applications                                    | ZT<br>KFT<br>RT<br>RTI             |

Model No. of filter in photograph is RT1K10S24N









| STEEL |
|-------|

STEEL

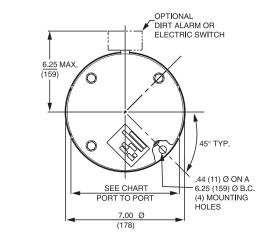


MACHINE TOOL

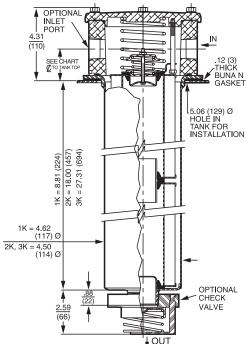
| 10115 |     |
|-------|-----|
|       | RT  |
|       | RT  |
|       | LR1 |
|       | AR1 |
|       | BF1 |
|       | Q   |
|       | KTK |
|       | LTK |

| Flow Rating:                         | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids                | Filter                   |
|--------------------------------------|--|--------------------------|
| Max. Operating Pressure:             | 100 psi (7 bar)  | Housing Accessories      |
| Min. Yield Pressure:                 | 400 psi (28 bar), per NFPA T2.6.1                                    | Specifications for Tank- |
| Rated Fatigue Pressure:              | 90 psi (6 bar), per NFPA T2.6.1-2005                                 | Mounted                  |
| Temp. Range:                         | -20°F to 225°F (-29°C to 107°C)                                      | Filters                  |
| Bypass Setting:                      | Cracking: 25 psi (1.7 bar)<br>Full Flow: 48 psi (3.3 bar)            | PAF1                     |
| Porting Head & Cap:<br>Element Case: | Die Cast Aluminum<br>Steel   |                          |
| Weight of RT-1K:<br>Weight of RT-2K: | 11.4 lbs. (5.2 kg)<br>14.5 lbs. (6.6 kg)                             | MAF1                     |
| Element Change Clearance:            | 8.0" (205 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K | MF2                      |

### **Tank-Mounted Filter**



|                    | 1½" Ports 4-Bolt<br>Flange Only | 2" Ports        | All Other<br>Porting |
|--------------------|---------------------------------|-----------------|----------------------|
| Port to Port       | 7.12"                           | 7.56" (P, S, B) | 6.38"                |
|                    |                                 | 7.38" (F)       |                      |
| င္ to Casting Base | 1.75"                           | 1.81"           | 1.56"                |
| ር to Tank Top      | 2.06"                           | 2.12"           | 1.88"                |



Optional mounting rings available for tank welding. See page 307, reference part numbers A-LFT-813 and A-LFT-1448.

Metric dimensions in ( ).

| Element<br>Performance | Filtration R<br>Using automated |            |  |           |                     |               |                    |          |                           | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |           |                       |      |
|------------------------|---------------------------------|------------|--|-----------|---------------------|---------------|--------------------|----------|---------------------------|--|----------------------|-----------|-----------------------|------|
| Information            | Elemen                          | t          |  |           | β <sub>x</sub> ≥ 75 | $B_x \ge 100$ |                    |          | <b>β</b> <sub>x</sub> ≥ 2 | 00   | $\beta_x(c) \ge 200$ |           | $\beta_x(c) \ge 1000$ |      |
|                        | K3/KK3/2                        | 27K        |  |           | 6.8                 |               | 7.5                | 7.5      |                           | 10.0   |                      | N/A       |                       |      |
|                        | K10/KK1                         | 0/27K1     | D  |           | 15.5                |               | 16.2               |          | 18.0                      |  | N/A                  |           | N/A                   |      |
|                        | KZ1/KKZ                         | 1/27KZ     | 1  |           | <1.0                |               | <1.0               |          | <1.0                      |  | <4.0                 |           | 4.2                   |      |
|                        | KZ3/KKZ<br>KAS3/KK              |            |  |           | <1.0                |               | <1.0               |          | <2.0                      |  | <4.0                 |           | 4.8                   |      |
|                        | KZ5/KKZ<br>KAS5/KK              |            |  |           | 2.5                 |               | 3.0                |          | 4.0                       |  | 4.8                  |           | 6.3                   |      |
|                        | KZ10/KK<br>KAS10/K              |            |  |           | 7.4                 |               | 8.2                |          | 10.0                      |  | 8.0                  |           | 10.0                  |      |
|                        | KZ25/KK                         | Z25/27     | <z25< th=""><th></th><th>18.0</th><th></th><th>20.0</th><th></th><th>22.5</th><th></th><th>19.0</th><th></th><th>24.0</th><th></th></z25<> |           | 18.0                |               | 20.0               |          | 22.5                      |  | 19.0                 |           | 24.0                  |      |
|                        | KZW1                            |            |  | N/A       |                     | N/A           |                    | N/A      |                           | <4.0   |                      | <4.0      |                       |      |
|                        | KZW3/KI                         | KZW3/KKZW3 |  |           | N/A                 | N/A           |                    |          | N/A                       |  | 4.0                  |           | 4.8                   |      |
|                        | KZW5/KKZW5                      |            |  | N/A       | N/A                 |               |                    | N/A      |                           | 5.1  | .1 6.4               |           |                       |      |
|                        | KZW10/k                         | (KZW1      | D  | N/A       |                     | N/A           |                    |          | N/A                       |  | 6.9                  |           | 8.6                   |      |
|                        | KZW25/k                         | KZW2       | 5  | N/A       |                     | N/A           |                    | N/A      |                           |  | 15.4                 |           | 18.5                  |      |
| Dirt Holding           |                                 | DHC        | 1  | DHC       |                     | DHC           |                    | DHC      |                           | DHC  |                      | DHC       |                       | DHC  |
| Capacity               | Element                         |            | Element  | (gm)      | Element             | (gm)          | Element            | (gm)     | Element                   | (gm)   | Element              | (gm)      | Element               | (gm) |
| cupacity               | К3                              | 54         | ККЗ  | 108       | 27K3                | 162           |                    |          |                           |  |                      |           |                       |      |
|                        | K10                             | 44         | КК10   | 88        | 27K10               | 132           |                    |          |                           |  |                      |           |                       |      |
|                        | KZ1                             | 112        | KKZ1   | 224       | 27KZ1               | 336           | KDZ1               | 89       | KKDZ1                     | 188  | KZW1                 | 61        |                       |      |
|                        | KZ3/<br>KAS3                    | 115        | KKZ3<br>KKAS3  | 230       | 27KZ3/<br>27KAS3    | 345           | KDZ3               | 71       | KKDZ3                     | 150  | KZW3                 | 64        | KKZW3                 | 128  |
|                        | KZ5/<br>KAS5                    | 119        | KKZ5/<br>KKAS5   | 238       | 27KZ5/<br>27KAS5    | 357           | KDZ5               | 100      | KKDZ5                     | 210  | KZW5                 | 63        | KKZW5                 | 126  |
|                        | KZ10/<br>KAS10                  | 108        | KKZ10/<br>KKAS10   | 216       | 27KZ10/<br>27KAS10  | 324           | KDZ10              | 80       | KKDZ10                    | 168  | KZW10                | 57        | KKZW10                | 114  |
|                        | KZ25                            | 93         | KKZ25  | 186       | 27KZ25              | 279           | KDZ25              | 81       | KKDZ25                    | 171  | KZW25                | 79        | KKZW25                | 158  |
|                        |                                 |            | Elemer   | nt Collap | se Rating:          | 150 psi       | d (10 bar) f       | or stanc | lard element:             | S  |                      |           |                       |      |
|                        |                                 |            |  | Flow      | Direction:          | Outside       | e In <u>See RT</u> | l, page  | 275 for insi              | de out   | flow versio          | <u>n.</u> |                       |      |
|                        |                                 | E          | lement No  | minal Di  | mensions:           |               |                    |          | 9.0" (230 m               |  |                      |           |                       |      |

K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long 27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

# Tank-Mounted Filter RT



|  | T                   | ype Fluid                  | Appropriate   | e Schroede   | er Media  |                   |                    |                   |                                |                  |                   | Fluid   | IRF                  |
|--|---------------------|----------------------------|---|--|---|-------------------|--------------------|-------------------|--------------------------------|------------------|-------------------|---|----------------------|
| Petrol   | eum Ba              | sed Fluids                 | All E media (   | All E media (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic) |   |                   |                    |                   |                                |                  |                   | Compatibility   | TF1                  |
| Hig  | gh Wate             | r Content                  | All Z-Media®  | All Z-Media® and all ASP® media (synthetic)  |   |                   |                    |                   |                                |                  |                   |   |                      |
|  | Invert l            | Emulsions                  |   | 10 and 25 $\mu$ Z-Media® and 10 $\mu$ ASP® media (synthetic)                         |   |                   |                    |                   |                                |                  |                   |   | KF3                  |
|  |                     | er Glycols                 |   |  | dia <sup>®</sup> and all ASP <sup>®</sup>                                 |                   |                    |                   |                                |                  |                   |   |                      |
|  | Phosph              | ate Esters                 |   |  | with H (EPR) sea<br>H (EPR) seal desi                                     |                   |                    |                   |                                |                  | netic)            |   | KL3                  |
|  |                     | Skydrol®                   | (water remov  | val) with H.<br>nent, and I  | dia <sup>®</sup> (synthetic) w<br>5 seal designatio<br>ight oil coating c | n (EPR            | seals a            | and st            | ainless ste                    |                  |                   | Skydrol <sup>®</sup> is a registered<br>trademark of Solutia Inc. | LF1–2"<br>MLF1       |
|  |                     | ement                      |   |  | predicated on   |                   |                    |                   |                                | )                |                   | Element   | RLD                  |
| Pressure   | Series              | Part No.<br>K3             | petroleum b<br>1K3                                    | ased fluid   | and a 25 psi (1.<br>2K3 <sup>†</sup>                                      |                   | ) bypa             | ss val            | <b>ve.</b><br>3K3 <sup>+</sup> |                  |                   | Selection<br>Based on   | NED                  |
|  | E                   | K10                        |   | K10  | 2K3   |                   | 2K1                | 0 <sup>†</sup>    | 272                            |                  |                   | Flow Rate   | GRTB                 |
|  | Media               | K10                        | 1   | K IU   | 1K25  |                   | 211                | 0.                | 2K25                           | :†               |                   |   |                      |
| Return   |                     | -                          | 1   | K71  |   |                   | 21/7               | '4†               | 2KZ3                           | ).               |                   |   | MTA                  |
| Line<br>-Tank-                                     |                     | KZ1                        | 1   | KZ1  | 11/20   |                   | 2KZ                | . I '<br>         | 2472†                          |                  |                   |   |                      |
| Mounted  | Z-                  | KZ3                        |   |  | 1KZ3  |                   |                    |                   | 2KZ3 <sup>†</sup>              | 75+              |                   |   | MTB                  |
|  | Media®              | KZ5                        |   |  | 1KZ5  |                   |                    |                   | ZK                             | Z5†              |                   |   |                      |
|  |                     | KZ10                       |   |  | 1KZ10   |                   |                    |                   |                                |                  |                   |   | ZT                   |
|  |                     | KZ25                       |   |  | 1KZ25   |                   |                    |                   |                                | 10               |                   |   | KFT                  |
|  | Flow                | 90                         | )<br>5 50   | 40   | 60  | 250               |                    | 5                 | 30                             | 10<br>38         | -                 |   |                      |
| Note: Conta<br>Application                         | act factor          | y regarding                | most commonl<br>1 use of E media<br>tion, refer to Fl | -<br>a in High V   | Vater Content, In<br>atibility: Fire Resis                                | vert E<br>stant F | mulsio<br>luids, p | n and<br>bages    | Water G<br>21 and 2            | lycol<br>2.      |                   | Pressure  | RTI<br>LRT           |
| $\Delta \mathbf{P}_{\text{housing}}$               | f fluitala          | , ith an and               |   |  | $\Delta \mathbf{P}_{element}$   |                   |                    |                   |                                |                  |                   | Drop  |                      |
| RT $\Delta P_{housing}$                            | Ior Iluids          | Flow (L/min)               |   |  | $\Delta P_{\text{element}} = \text{flow}$                                 |                   |                    |                   | x viscosity                    | factor           |                   | Information   | ART                  |
| <sup>10</sup> Г                                    | (50)                | (150) (25                  |   |  | El. ∆P factors @  |                   |                    | ,<br>             |                                | 417              | 214               | Based on<br>Flow Rate   | BFT                  |
| 8 -  |                     |                            |   | ))   | K3  | .25               | .12                | .08               |                                |                  | <u>2K</u>         | and Viscosity   | DIT                  |
| P psi  |                     |                            |   | ∆P (bar)   | K10<br>K25  | .09<br>.02        | .05<br>.01         | .03<br>.01        |                                |                  |                   |   | QT                   |
| 2  |                     |                            | (0.25   | ) <  | KZ1<br>KZ3/KAS3   | .20<br>.10        | .10<br>.05         | .05<br>.03        | KDZ1<br>KDZ3                   | .24<br>.12       | .12<br>.06        |   | КТК                  |
| ٥ <mark>٦</mark>                                   | 20                  | 40 60<br>Flow gpm          | 80 100  |  | KZ5/KAS5<br>KZ10/KAS10<br>KZ25  | .08<br>.05<br>.04 | .04<br>.03<br>.02  | .02<br>.02<br>.01 | KDZ5<br>KDZ10<br>KDZ25         | .10<br>.06<br>04 | .05<br>.03<br>.02 |   | LTK                  |
| 0  | ments sho           | ould be based              | d on element flo<br>ent Selection cha                 |  |   | 1K                | 2K                 |                   |                                |                  |                   |   | MRT                  |
| $\triangle \mathbf{P}_{\text{filter}} = \triangle$ |                     |                            |   |  | KZW1  | .43               |                    |                   |                                |                  |                   | A.c.  | occorioc             |
| Exercise:  | - nousing           | - element                  |   |  | KZW3<br>KZW5  | .32<br>.28        | .16<br>.14         |                   |                                |                  |                   |   | essories<br>or Tank- |
| Determine<br>RT1KZ10P2                             |                     |                            | L/min) for<br>S (44 cSt) fluid                        | l.   | KZW10<br>KZW25  | .23<br>.14        | .12<br>.07         |                   |                                |                  |                   |   | lounted              |
| Solution:  | - 3 0 pc            | i [.20 bar]                |   |  | If working in u<br>factor by 54.9   | units o           |                    | & L/m             | in, divide                     | abov             | e                 |   | Filters              |
| $\Delta P_{housing}$<br>$\Delta P_{element}$       |                     |                            | 50) = 5.3 psi   |  | Viscosity facto   |                   | de visc            | osity l           | oy 150 SU                      | S (32            | cSt).             |   | PAF1                 |
| $\Delta P_{total}$                                 | = [300 ×<br>= 3.0 + | (.05÷54.9)<br>5.3 = 8.3 ps | x (44÷32) = .33<br>si                                 | 8 bar]   |   |                   |                    |                   |                                |                  |                   |   | MAF1                 |
|  | or                  |                            |   |  | 1   |                   |                    |                   |                                |                  |                   |   |                      |

# Tank-Mounted Filter

| Filter<br>Model<br>Number<br>Selection  | How to Build a Valid<br>BOX 1 BOX 2 BOX 3<br>RT   | BOX 4                                       | BOX 5   | 5 BOX 6  | 5 BC  | DX 7 BOX 8  | BOX 9<br>BOX 9<br>BOX 9<br>BOX 9<br>BOX 9<br>BOX 9<br>BOX 9                                    | 524S24NY2  |
|---|---|---|---|--|---|---|--|--|
|   | BOX 1 BOX 2<br>Filter<br>Series<br>RT<br>RT<br>RTW<br>1K KK, 27K<br>2K<br>3K  | Z =<br>AS =<br>ZW =<br>DZ =<br>W =          | E media (c<br>Excelleme<br>Anti-Static<br>Aqua-Exce   | nt <sup>®</sup> Z-Medi<br>Pleat Medi<br>Ilement <sup>™</sup> Z<br>r <sup>®</sup> with Exco<br>water remo | a <sup>®</sup> (syntl<br>a (synth<br>W media<br>ellemen<br>val) | etic)<br>a<br>t <sup>®</sup> Z-Media <sup>®</sup>   | <mark>Element F</mark><br>1 = 1 μ Ζ, ΖΨ, an<br>3 = 3 μ AS,Ε, Ζ, Ζ<br>5 = 5 μ AS, Ζ, ΖΨ         | W, and DZ media<br>I, and DZ media<br>I, Z, ZW, and DZ media<br>ZW, and DZ media |
|   | BOX 5<br>Seal Material<br>Omit = Buna N<br>H = EPR<br>W = Buna N  | P16 = 1"                                    | Port A  |  | G Spec  | ification of all 3<br>Inlet Portin<br>N = None<br>P16 = 1" NPTF                                   | B ports is required<br>19<br>Port B  | Port C<br>N = None<br>P2 = ½" NPTF   |
| TW allows filter to be<br>welded to tank instead<br>of bolted.<br>Number of elements<br>must equal 1 when<br>using KK or<br>27K elements.   | H.5 = Skydrol®<br>Compatibility   | F24 = 1½<br>F32 = 2"                        | 2" NPTF<br>NPTF<br>AE-16<br>AE-20<br>AE-24<br>AE-32<br>4" SAE 4-bo<br>2" SAE 4-bo<br>3 SAE 4-bo | olt flange Co<br>t flange Coc  | ode 61  | F24 = 1½" SAE<br>F32 = 2" SAE 4   | F<br>4-bolt flange Code 61<br>4-bolt flange Code 61<br>1-bolt flange Code 61                   | P16 = 1" NPTF<br>S16 = SAE-16<br>Inlet Porting<br>Location                       |
| Replacement element<br>part numbers are<br>identical to contents<br>of Boxes 2, 3, 4, and 5.<br>Double and triple<br>stacking of K-size<br>elements can be<br>replaced by single<br>KK and 27K elements,<br>respectively. ZW media<br>not available in 27K<br>length.                             | BOX 7<br>Outlet Porting Option<br>Omit = 1½" NPT male<br>C = Check valve<br>D = Diffuser<br>CD = Check valve & diffuser<br>T = 13" Tube extension<br>A = Non-threaded outlet                                      |   | Located<br>@<br>Port D<br>Located<br>in cap   | 2"<br>Visual<br>Electrical<br>Visual<br>Visual   | Y2 :<br>ES :<br>ES3 :<br>Y2C :<br>Y5 :                          | Dirt Alarr<br>= None<br>= Back-mounted<br>= Electric switch<br>= Bettom-mounted<br>= Back-mounted | DX 8<br>n <sup>®</sup> Options<br>tri-color gauge<br>with DIN connector<br>ted tri-color gauge | C<br>side of standard location   |
| For options H, W, and<br>H.5 all aluminum parts<br>are anodized. H.5 seal<br>designation includes<br>the following: EPR seals,<br>stainless steel wire mesh<br>on elements, and light<br>oil coating on housing<br>exterior. Skydrol <sup>®</sup> is a<br>registered trademark<br>of Solutia Inc. |   | BOX 9<br>tional Op                          | Located<br>@<br>Port C  | Electrical   | ESR :   | = Electric switch r   | nounted on opposite side<br>ctric switch mounted on c  | of standard location   |
| If using Port B, Port A<br>& B must always be the<br>same type and size.<br>Example: (A) P20 (B) P20<br>(C) P16<br>See also "Accessories for<br>Tank-Mounted Filters,"<br>page 307.   | G347 = 100 % gauge point<br>G820 = Stamped cap<br>N = No-Element indicat<br>M = Metric thread for S.<br>flange mounting ho<br>30 = 30 psi bypass settin<br>40 = 40 psi bypass settin<br>50 = 50 psi bypass settin | or<br>AE 4-bolt<br>bles (specif<br>Ig<br>Ig | fy after eac  | h port des   | ignatior  | ))  |  |  |

#### NOTES:

Box 1. F V С

RT

- Box 2. N n ι
- Box 3. R ĸ r - I
- Box 5. F

Box 6. If S F (

Box 7. S р

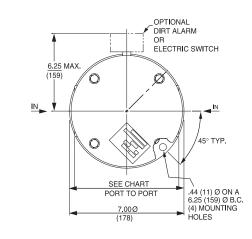
#### **274 SCHROEDER INDUSTRIES**

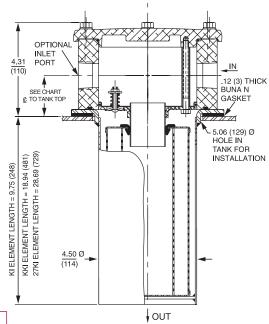
# Tank-Mounted Filter (Inside Out Flow) RTI

|   | <ul> <li>Features and Benefits</li> <li>Tank-mounted "Inside Out" flow filter</li> <li>Up to 3 inlet ports available</li> <li>Offered in pipe, SAE straight thread and flanged porting</li> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul> | 120 gpm<br><u>455 L/min</u><br>100 psi<br>7 bar | IRF<br>TF1<br>KF3<br>KL3<br>LF1-2"<br>MLF1<br>RLD<br>GRTB<br>MTA<br>MTB |
|---|---|---|---|
| Model No. of filter in photograph               | is RTI3KZ10S24NP16Y2.   |   | ZT  |
|   | <image/> <image/> <image/> <image/> <image/>  | Applications                                    | KFT<br>RT<br>RTI<br>LRT<br>ART<br>BFT<br>QT<br>KTK                      |
| Flow Rating:                                    | Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids   | Filter  | LTK   |
| Max. Operating Pressure:                        | 100 psi (7 bar)   | Housing<br>Specifications                       | MRT   |
| Min. Yield Pressure:<br>Rated Fatigue Pressure: | 400 psi (28 bar), per NFPA T2.6.1<br>Contact factory  |   | essories  |
| _   | -20°F to 225°F (-29°C to 107°C)   |   | or Tank-  |
|   | Cracking: 25 psi (2 bar)<br>Full Flow: 62 psi (4.3 bar)   | IV  | lounted<br>Filters  |
| Porting Head & Cap:<br>Element Case:            | Steel   |   | PAF1  |
| Weight of RTI-KI:<br>Weight of RTI-KKI:         |   |   | MAF1  |
| Element Change Clearance:                       | KI Element = 9.0 (229 mm)<br>KKI Element = 18.0 (457 mm)<br>27KI Element = 27.0 (686 mm)  |   | MF2   |

RTI

### Tank-Mounted Filter (Inside Out Flow)





|                    | 1¼", 1½"<br>Standard Ports | 1 <sup>1</sup> / <sub>2</sub> " Ports<br>4-Bolt Flange Only |
|--------------------|----------------------------|---|
| Port to Port       | 6.38"                      | 7.12"   |
| द् to Casting Base | 1.56"                      | 1.75"   |
| င္ to Tank Top     | 1.88"                      | 2.06"   |

Optional mounting rings available for tank welding. See page 307, reference part numbers A-LFT-813 and A-LFT-1448. Metric dimensions in ( ).

| Element<br>Performance |              |                  | io Per ISO 4572/N<br>Inticle counter (APC) ca |                   |                      | <b>5 per ISO 16889</b><br>Ited per ISO 11171 |
|------------------------|--------------|------------------|---|-------------------|----------------------|--|
| Information            | Element      | $\beta_x \ge 75$ | $\beta_x \ge 100$                             | $\beta_x \ge 200$ | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$                        |
|                        | KIZ1         | <1.0             | <1.0  | <1.0              | <4.0                 | 4.2  |
|                        | KIZ3/KIAS3   | <1.0             | <1.0  | <2.0              | <4.0                 | 4.8  |
|                        | KIZ10/KIAS10 | <7.4             | <8.2  | <10.0             | 8.0                  | 10.0   |

Dirt Holding Capacity

| lding | Element      | DHC (gm)       | Element  | DHC (gm)      | Element          | DHC (gm) |
|-------|--------------|----------------|--|---------------|------------------|----------|
| acity | KIZ1         | 85             | KKIZ1  | 181           | 27KIZ1           | 276      |
|       | KIZ3/KIAS3   | 88             | KKIZ3/KKIAS3   | 185           | 27KIZ3/27KIAS3   | 283      |
|       | KIZ10/KIAS10 | <82            | KKIZ10/KKIAS10   | 174           | 27KIZ10/27KIAS10 | 266      |
|       | F            | low Direction: | 100 psid (7 bar)<br>Inside Out<br>KI: 3.9" (99 mm<br>KKI: 3.9" (99 mm<br>27KI: 3.9" (99 mm | ) O.D. x 18.0 | " (460 mm) long  |          |

# Tank-Mounted Filter (Inside Out Flow) RTI



|                          |             | Type Flu     | id Appropriate Schroeder Media   |                                   |           | Fluid IRF                         |
|--------------------------|-------------|--------------|--|-----------------------------------|-----------|-----------------------------------|
|                          | Petroleur   | n Based Flui | ds All E media (cellulose), Z-Media® ar  | nd ASP <sup>®</sup> media (synthe | etic)     | Compatibility TF1                 |
|                          | High V      | Vater Conte  | nt All Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synt   | hetic)                            |           | (17)                              |
|                          | ١n          | ert Emulsio  | $hs$ 10 and 25 $\mu$ Z-Media <sup>®</sup> and 10 $\mu$ AS  | SP <sup>®</sup> media (synthetic) |           | KF3                               |
|                          |             | Water Glyco  | Is 3, 5, 10 and 25 $\mu$ Z-Media <sup>®</sup> and all  | ASP <sup>®</sup> media (syntheti  | c)        | KI S                              |
|                          | Pho         | osphate Este | rs All Z-Media <sup>®</sup> (synthetic) with H (EP<br>all ASP <sup>®</sup> media (synthetic)   | R) seal designation and           | d         | KL3                               |
|                          |             | Skydro       | I <sup>®</sup> 3, 5, 10 and 25 µ Z-Media <sup>®</sup> (synthe<br>(EPR seals and stainless steel wire r<br>coating on housing exterior) and a | nesh in element, and l            | light oil | LF1-2"<br>Skydrol is a registered |
|                          |             |              |  |                                   |           | trademark of Šolutia Inc.<br>MLF1 |
|                          | Ele         | ment         | Element selections are predicated o  |                                   |           | Element RLD                       |
| Pressure                 | Series      | Part No.     | petroleum based fluid and a 25 psi   | 1.7 bar) bypass valv              | /e.       | Selection<br>Based on             |
| Return<br>Line<br>-Tank- | Z-Media®    | Z10          | KI   | ККІ                               | 27KI      | Flow Rate GRTB                    |
| Mounted                  |             | anm          | )  | 90 105                            | 120       | MTA                               |
|                          | Flow        | 514          | )  | 340 400                           |           | A 4TD                             |
|                          |             |              |  | 540 400                           | 455       | МТВ                               |
|                          |             |              | st commonly used in this housing.  |                                   |           | ZT                                |
| Note Cont                | act factory | reaarding us | e of E media in High Water Content, Inv  |                                   |           |                                   |

| $\Delta \mathbf{P}_{housing}$                                | $\Delta \mathbf{P}_{element}$  | Pressure RT           |
|--|--|-----------------------|
| RT $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86: | $\Delta P_{element} = flow x element \Delta P factor x viscosity factor$                 | Drop                  |
| Flow (L/min)   | El. ΔP factors @ 150 SUS (32 cSt):   | Information RTI       |
| 10 (50) (150) (250) (350) (454)                              | KIZ10/KIAS10 .08   | Based on<br>Flow Rate |
| 8  | KKIZ10/KKIAS10 .05   | and Viscosity         |
|  | 27KIZ1027KIAS10 .04  |                       |
| P (bar)  |  | ART                   |
| <sup>A</sup> 4 (0.25) <sup>A</sup>                           | If working in units of bars & L/min, divide above factor by 54.9.                        | BFT                   |
| 2  | Viscosity factor: Divide viscosity by 150 SUS (32 cSt).                                  |                       |
| 0 20 40 60 80 100 120<br>Flow gpm                            |  | QT                    |
| sp gr = specific gravity                                     |  | ктк                   |
| Sizing of elements should be based on element flow i         | nformation provided in the Element Selection chart above.                                | LTK                   |
|  |  |                       |
| Notes  | $\Delta \mathbf{P}_{filter} = \Delta \mathbf{P}_{housing} + \Delta \mathbf{P}_{element}$ | MRT                   |
|  | Exercise:  |                       |
|  | Determine $\Delta P$ at 80 gpm (300 L/min) for   | Accessories           |
|  | RTIKKIZ10P24NN using 200 SUS (44 cSt) fluid.   | for Tank-             |
|  | Solution:  | Mounted               |
|  | $\Delta P_{\text{housing}} = 3.0 \text{ psi} [.20 \text{ bar}]$                          | Filters               |
|  | $\Delta P_{element}$ = 80 x .05 x (200÷150) = 5.3 psi                                    |                       |
|  | $= [300 \times (.05 \div 54.9) \times (44 \div 32) = .38 \text{ bar}]$                   | PAF1                  |
|  | $\Delta P_{total}$ = 3.0 + 5.3 = 8.3 psi   |                       |
|  | or<br>= [.20 + .38 = .58 bar]  | MAF1                  |
|  |  |                       |

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## Tank-Mounted Filter (Inside Out Flow)

| Filter   | How to            | o Build a            | a Valid Model N                         | lumber for           | a Schroeder RTI:                                   |                       |   |
|--|-------------------|----------------------|---|----------------------|--|-----------------------|---|
| Model<br>Number  | BOX<br>RTI        |                      | OX 2 BOX 3                              | BOX 4                | BOX 5 BOX 6  | ]                     |   |
| Selection  | Example           | NOTE: On             | nly box 6 may contain r                 |                      |  |                       |   |
|  | BOX<br>RTI        |                      | OX 2 BOX 3                              | BOX 4                | BOX 5 BOX 6  | = RT                  | IKIZ10S20S20NY2   |
|  | BOX 1             |                      |   | L                    | BOX 2  |                       |   |
|  | Filter<br>Series  |                      |   | El                   | ement Part Number                                  |                       |   |
|  |                   | K Lengt              | h KK Length                             | 27K Length           |  |                       |   |
|  | RTI               | KIZ1                 | KKIZ1                                   | 27KIZ1               | = 1 µ Excellement <sup>®</sup> Z-M                 | edia <sup>®</sup> anc | ASP <sup>®</sup> media (synthetic)                        |
|  |                   | KIZ3                 | KKIZ3                                   | 27KIZ3               | = 3 µ Excellement <sup>®</sup> Z-N                 | /ledia® ar            | nd ASP <sup>®</sup> media (synthetic)                     |
|  |                   | KIZ10                | KKIZ10                                  | 27KIZ10              | $= 10 \ \mu \ Excellement^{\mbox{\tiny B}} \ Z$ -  | Media® a              | nd ASP <sup>®</sup> media (synthetic)                     |
|  |                   | BOX 3                | 3                                       |                      | _  |                       |   |
|  |                   | Seal Mat             | erial Inle                              | et Porting Locati    | on   |                       |   |
|  | Omit =            | Buna N               |   | D 1/8" NPTF Star     | ndard  |                       |   |
|  | H =               | = EPR                | A                                       |                      | в  |                       |   |
|  | W =               | Buna N               |   |                      |  |                       |   |
|  | H.5 =             | Skydrol®             | Compatibility                           | C<br>C               |  |                       |   |
|  |                   |                      | BOX                                     | 4 Specification o    | f all 3 ports is required                          |                       |   |
|  |                   |                      |   | Inlet F              | Porting  |                       |   |
|  |                   |                      | Port A                                  |                      | Port B   |                       | Port C  |
|  |                   | 1" NPTF              |   | N = N                |  |                       | N = None  |
|  |                   | 1¼" NPTF<br>1½" NPTF |   | P16 = 1              | 1/4" NPTF  |                       | P2 = <sup>1</sup> / <sub>8</sub> " NPTF<br>P16 = 1 " NPTF |
|  | S16 =             |                      |   |                      | 1/2 " NPTF   |                       | S16 = SAE-16  |
|  | S20 = 1           |                      |   | S16 = S              |  |                       |   |
|  | S24 =             | SAE-24               |   | S20 = S              | AE-20  |                       |   |
|  | F20 =             | 1¼" SAE 4            | 4-bolt flange Code 6                    | 51 S24 = S           | AE-24  |                       |   |
| OTES:  | F24 =             | 1½" SAE 4            | 4-bolt flange Code 6                    | F20 = 1              | <sup>1</sup> / <sub>4</sub> " SAE 4-bolt flange Co | ode 61                |   |
| ox 2. Replacement element part numbers are                                     |                   |                      |   | F24 = 1              | 1/2" SAE 4-bolt flange Co                          | ode 61                |   |
| identical to contents<br>of Boxes 2 and 3.                                     |                   |                      | BO                                      |                      |  |                       | BOX 6   |
| ox 3. For options H, W, and  |                   |                      | Dirt Alarm                              | <sup>®</sup> Options |  |                       | Additional Options  |
| H.5, all aluminum parts<br>are anodized. H.5 seal                              |                   |                      | Omit = None                             |                      |  |                       | = None  |
| designation includes the<br>following: EPR seals,<br>stainless steel wire mesh | Located           | Visual               | Y2 = Back-mount                         |                      | ige  |                       | = Two ¼" gauge ports<br>= Metric thread for SAE           |
| on elements, and light<br>oil coating on housing                               | @<br>Port D       | Electrical           | ES = Electric swite<br>ES1 = Heavy-duty |                      |  |                       | 4-bolt flange mounting holes (specify after each          |
| exterior. Skydrol <sup>®</sup> is a registered trademark                       |                   |                      | with condui                             | l connector          |  |                       | port designation)   |
| of Solutia Inc.  | Located<br>in cap | Visual               | Y2C = Bottom-mo                         |                      | , <u> </u>   |                       |   |
| lox 4. If using Port B, Port A<br>& B must always be                           |                   |                      | Y5 = Back-mount<br>Y2B = Back-mount     |                      | p<br>nted on opposite side                         |                       |   |
| the same type and size.<br>Example: (A) P20 (B) P20<br>(C) P16                 | Located           | Visual               | of standard                             |                      | nea on opposite side                               |                       |   |

ESR = Electric switch mounted on opposite side

ES1R = Heavy-duty electric switch with conduit connector

of standard location

Box 6. See also "Accessories for Tank-Mounted Filters," page 307.

(C) P16

RTI

#### **278 SCHROEDER INDUSTRIES**

Electrical

@

Port C

#### SAME DAY SHIPMENT MODEL AVAILABLE!

#### **Tank-Mounted Filter** LRT



INDUSTRIAL

MOBILE VEHICLES



RAILROAD



MAKING







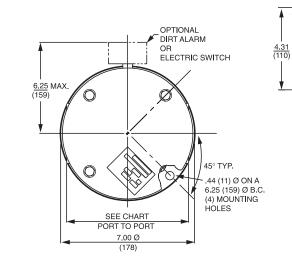
| Applications | KFT |
|--------------|-----|
|              | RT  |
|              | RTI |
|              | LRT |
|              | ART |
|              | BFT |
|              | QT  |
|              | КТК |
|              | LTK |

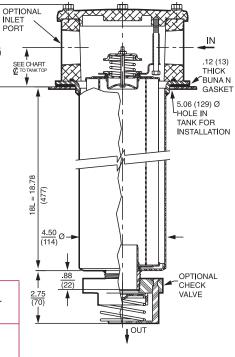
| Flow Rating:                         | Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids     | Filter  |
|--------------------------------------|---|---|
| Max. Operating Pressure:             | 100 psi (7 bar)   | Housing Accessories<br>Specifications for Tank- |
| Min. Yield Pressure:                 | 400 psi (28 bar), per NFPA T2.6.1                         | Specifications Mounted                          |
| Rated Fatigue Pressure:              | 90 psi (6 bar), per NFPA T2.6.1-2005                      | Filters   |
| Temp. Range:                         | -20°F to 225°F (-29°C to 107°C)                           | Thers   |
| Bypass Setting:                      | Cracking: 25 psi (1.7 bar)<br>Full Flow: 34 psi (2.3 bar) | PAF1  |
| Porting Head & Cap:<br>Element Case: | Die Cast Aluminum<br>Steel                                | MAF1  |
| Weight of LRT-18L:                   | 14.6 lbs. (6.6 kg)  |   |
| Element Change Clearance:            | 17.0" (432 mm)  | MF2   |



### **Tank-Mounted Filter**

#### SAME DAY SHIPMENT MODEL AVAILABLE!





|                    | 1½" Ports<br>4-Bolt<br>Flange Only | 2" Ports        | All Other<br>Porting |
|--------------------|------------------------------------|-----------------|----------------------|
| Port to Port       | 7.12"                              | 7.56" (P, S, B) | 6.38"                |
|                    |                                    | 7.38" (F)       |                      |
| င္ to Casting Base | 1.75"                              | 1.81"           | 1.56"                |
| င့ to Tank Top     | 2.06"                              | 2.12"           | 1.88"                |

Optional mounting ring available to weld to tank.

Metric dimensions in ().

| Element<br>Performance |         |                  | tio Per ISO 4572/N<br>article counter (APC) cali | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|---------|------------------|--|--|----------------------|-----------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 18L3    | 6.8              | 7.5  | 10.0   | N/A                  | N/A                   |
|                        | 18L10   | 15.5             | 16.2   | 18.0   | N/A                  | N/A                   |
|                        | 18LZ1   | <1.0             | <1.0   | <1.0   | <4.0                 | 4.2                   |
|                        | 18LZ3   | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                   |
|                        | 18LZ5   | 2.5              | 3.0  | 4.0  | 4.8                  | 6.3                   |
|                        | 18LZ10  | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                  |
|                        | 18LZ25  | 18.0             | 20.0   | 22.5   | 19.0                 | 24.0                  |

| Dirt Holding | Element         | DHC (gm)     | Element              | DHC (gm)            |
|--------------|-----------------|--------------|----------------------|---------------------|
| Capacity     | 18L3            | 108          |                      |                     |
|              | 18L10           | 88           |                      |                     |
|              | 18LZ1           | 224          | 18LDZ1               | 194                 |
|              | 18LZ3           | 230          | 18LDZ3               | 199                 |
|              | 18LZ5           | 238          | 18LDZ5               | 149                 |
|              | 18LZ10          | 216          | 18LDZ10              | 186                 |
|              | 18LZ25          | 186          | 18LDZ25              | 169                 |
|              |                 |              |                      |                     |
|              | Element Coll    | apse Rating: | 150 psid (10 bar)    |                     |
|              | Flo             | w Direction: | Outside In           |                     |
|              | Element Nominal | Dimensions:  | 4.0" (100 mm) O.D. x | 18.5" (470 mm) long |

**280 SCHROEDER INDUSTRIES** 

#### SAME DAY SHIPMENT MODEL AVAILABLE!

### Tank-Mounted Filter LRT



| Type Fluid             | Appropriate Schroeder Media  | Fluid  |
|------------------------|--|--|
| Petroleum Based Fluids | All E media (cellulose) and Z-Media® (synthetic)   | Compatibility  |
| High Water Content     | All Z-Media® (synthetic)   |  |
| Invert Emulsions       | 10 and 25 μ Z-Media <sup>®</sup> (synthetic)   | KF3  |
| Water Glycols          | 3, 5, 10 and 25 μ Z-Media <sup>®</sup> (synthetic)   | KI S   |
| Phosphate Esters       | All Z-Media® (synthetic) with H (EPR) seal designation   | KL3  |
| Skydrol®               | 3, 5, 10 and 25 $\mu$ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior) | Skydrol <sup>®</sup> is a registered<br>trademark of Solutia Inc. LF1–2" |

| Series   | Part No.<br>18LZ1 |                          |   |                         | dicated on the  |  | •  |  |   |
|----------|-------------------|--------------------------|---|-------------------------|---|--|--|--|---|
|          | 18171             | 1                        |   |                         | a 25 psi (1.7 ba  | ar) bypass va  | lve.   |  | Selection   |
|          | IOLZI             |                          |   | 18                      | 3LZ1  |  |  | See BFT  | Based on<br>Flow Rate   |
|          | 18LZ3             |                          |   |                         | 18LZ3   |  |  |  | now nate  |
| Z-Media® | 18LZ5             |                          |   |                         | 18LZ5   |  |  |  |   |
|          | 18LZ10            |                          |   |                         | 18LZ10  |  |  |  |   |
|          | 18LZ25            |                          |   |                         | 18LSZ25   |  |  |  |   |
| Flares   | gpm               | 0                        | 25  | 50                      | 75  | 100  | 125  | 150  |   |
| FIOW     | (L/min)           | 0                        | 100   | 200                     | 300   | 400  |  | 570  |   |
|          | Flow              | 18LZ25Flowgpm<br>(L/min) | 18LZ25           Flow         gpm         0           (L/min)         0 | 18LZ25<br>Flow gpm 0 25 | 18LZ25           Flow         gpm         0         2'5         5'0           (L/min)         0         100         200 | 18LZ25         18LSZ25           Flow         gpm         0         25         50         75           (L/min)         0         100         200         300 | 18LZ25         18LSZ25           Flow         gpm         0         25         50         75         100           (L/min)         0         100         200         300         400 | 18LZ25         18LSZ25           Flow         gpm         0         25         50         75         100         125           (L/min)         0         100         200         300         400 | 18LZ25         18LSZ25           gpm         0         25         50         75         100         125         150 |

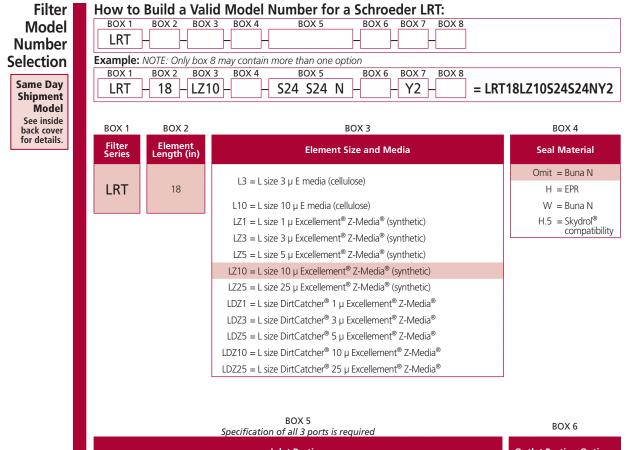
Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

|  |   |   |  |             |   | K F I     |
|--|---|---|--|-------------|---|-----------|
| ∆ <b>P</b> <sub>housing</sub>                                | $\Delta \mathbf{P}_{element}$                   |   |  |             | Pressure  |           |
| RT $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86: | $\Delta P_{element}$                            | = flow x element                              | $\Delta P$ factor x viscosity fa           | ictor       | Drop  | R         |
| Flow (L/min)   | El. ΔP facto                                    | ors @ 150 SUS (3                              | 2 cSt):                                    |             | Information   |           |
| 10 (100) (300) (500)   |   | 18L   |  | 18L         |   | RT        |
|  | 18LZ1   | .10   | 18LDZ1                                     | .12         | and Viscosity   |           |
| 8  | 18LZ3   | .05   | 18LDZ3                                     | .06         |   | LR        |
|  | हि 18LZ5  | .04   | 18LDZ5                                     | .05         |   | AR        |
|  | (lag<br>dy<br>dy<br>dy<br>dy<br>18LZ5<br>18LZ10 | .03   | 18LDZ10                                    | .03         |   | An        |
| 2 (0.25)   | 18LZ25  | .02   | 18LDZ25                                    | .02         |   | BF        |
| 0 40 80 120 160<br>Flow gpm                                  | If working<br>factor by                         |   | rs & L/min, divide ab                      | ove         |   | Q         |
| gr = specific gravity  | Viscosity f                                     | actor: Divide v                               | iscosity by 150 SUS (                      | (32 cSt).   |   | КТ        |
| izing of elements should be based on element flo             | ow information pr                               | ovided in the I                               | Element Selection ch                       | nart above. |   | LT        |
| Notes  | $\Delta \mathbf{P}_{\text{filter}} =$           | $\Delta \mathbf{P}_{\text{housing}} + \Delta$ | Pelement                                   |             |   | MR        |
|  | Exercise:                                       |   |  |             |   |           |
|  |   |   | m (455 L/min) for<br>00 SUS (44 cSt) fluid | 4           | A   | ccessorie |
|  | LITTOLZS  | 1 2412 U3119 2                                | 00 505 (44 CSt) Huit                       | J.          |   | for Tan   |
|  | Solution  |   |  |             |   | Mounte    |
|  |   |   |  |             | Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity | Filte     |
|  | ΔP <sub>element</sub>                           | = 120 x .04<br>or                             | $x (200 \div 150) = 6.4$                   | osi         |   |           |
|  |   | •   | 4∸54 9) x (44∸32) =                        | 45 harl     |   | PAF       |

| otes | $\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$ | r               |
|------|---|-----------------|
|      | Exercise:   |                 |
|      | Determine $\Delta P$ at 120 gpm (455 L/min) for LRT18LZ5P24Y2 using 200 SUS (44 cSt) fluid.                   | Access<br>for T |
|      | Solution:   | Mou             |
|      | $\Delta P_{\text{housing}} = 3.0 \text{ psi} [.20 \text{ bar}]$   | Fi              |
|      | $\Delta P_{element}$ = 120 x .04 x (200÷150) = 6.4 psi  |                 |
|      | or<br>= [455 x (.04÷54.9) x (44÷32) = .45 bar]  | Р               |
|      | $\Delta P_{\text{total}} = 3.0 + 6.4 = 9.4 \text{ psi}$   | М               |
|      | = [.20 + .45 = .65 bar]   |                 |
|      |   |                 |

#### **Tank-Mounted Filter**



|   | cation of an 5 ports is required                                |                      | Outlet Porting Options     |  |  |  |  |
|---|---|----------------------|----------------------------|--|--|--|--|
|   | Inlet Porting   |                      |                            |  |  |  |  |
| Port A  | Port B  | Port C               | Omit = 2" NPT male         |  |  |  |  |
|   | N = None  | N = None             | C = Check valve            |  |  |  |  |
| P16 = 1 " NPTF  | P16 = 1" NPTF   | P2 = 1/8 " NPTF      | D = Diffuser               |  |  |  |  |
| P20 = 1¼" NPTF  | P20 = 1¼" NPTF  | P16 = 1" NPTF        | T = 13 " Tube<br>extension |  |  |  |  |
| P24 = 1½" NPTF  | P24 = 1½" NPTF  | S16 = SAE-16         | A = Non-threaded<br>outlet |  |  |  |  |
| P32 = 2 " NPTF  | P32 = 2" NPTF   |                      | ·                          |  |  |  |  |
| S16 = SAE-16  | S16 = SAE-16  | Inlet Porting        |                            |  |  |  |  |
| S20 = SAE-20  | S20 = SAE-20  | Location             |                            |  |  |  |  |
| S24 = SAE-24  | S24 = SAE-24  | D 1/8" NPTF Standard |                            |  |  |  |  |
| S32 = SAE-32  | S32 = SAE-32  |                      |                            |  |  |  |  |
| F20 = 1 <sup>1</sup> / <sub>4</sub> " SAE 4-bolt flange Code 61 | F20 = 1 <sup>1</sup> / <sub>4</sub> " SAE 4-bolt flange Code 61 |                      |                            |  |  |  |  |
| F24 = 1 <sup>1</sup> / <sub>2</sub> " SAE 4-bolt flange Code 61 | F24 = 1½" SAE 4-bolt flange Code 61                             | ۲. «۲. »             |                            |  |  |  |  |
| F32 = 2 " SAE 4-bolt flange Code 61                             | F32 = 2 " SAE 4-bolt flange Code 61                             |                      |                            |  |  |  |  |
| B24 = ISO 228 G-1½"   | B24 = ISO 228 G-1½"   | с                    |                            |  |  |  |  |

| he      |         |            | BOX 7  | BOX 8   |
|---------|---------|------------|--|---|
| sh<br>t |         |            | Dirt Alarm <sup>®</sup> Options  | Additional Options  |
|         |         |            | Omit = None  | Omit = None   |
|         | Located | Visual     | Y2 = Back-mounted tri-color gauge                                      | G2293 = Cork gasket   |
|         | @       | Electrical | ES = Electric switch   | G547 = Two 1/3" gauge ports<br>G820 = Stamped cap                             |
|         | Port D  | Electrical | ES1 = Heavy-duty electric switch with conduit connector                | M = Metric thread for SAE 4-bolt<br>flange mounting holes (specify after each |
| e       | Located | Visual     | Y2C = Bottom-mounted tri-color gauge                                   | flange mounting holes (specify after each<br>port designation)                |
| 20      | in cap  | VISUdi     | Y5 = Back-mounted gauge in cap   | 30 = 30 psi bypass setting  |
|         | Located | Visual     | Y2R = Back-mounted gauge mounted on opposite side of standard location | 40 = 40 psi bypass setting<br>50 = 50 psi bypass setting                      |
| or      | @       | Electrical | ESR = Electric switch mounted on opposite side of standard location    |   |
|         | Port C  | LIECUICAI  | ES1R = Heavy-duty electric switch with conduit connector               |   |

#### NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 18LZ10
- Box 4. For options H, W, and H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 5. If using Port B, Port A & B must always be the same type and size. Example: (A) P20 (B) P20 (C) P16
- Box 6. See also "Accessories for Tank-Mounted Filters," page 307.

### Tank-Mounted Filter **ART**

|                              | eatures and Benefits<br>Compact, lightweight, low pressure tank<br>mounted filter ideal for mobile applications   | 225 gpm<br><u>850 L/min</u><br>145 psi<br>10 bar | IRF<br>TF1<br>KF3 |
|------------------------------|---|--|-------------------|
|                              | <ul> <li>Lightweight plastic bowl</li> <li>ART aluminum alloy is designed to be water<br/>tolerant - anodization is not required for use with<br/>water based fluids (HWCF).</li> </ul> | TU Dar   | KL3<br>LF1–2"     |
|                              | Special filter element design provides aftermarket<br>benefits.<br>Various Dirt Alarm <sup>®</sup> options  |  | MLF1              |
|                              |   |  | RLD<br>KT         |
|                              |   |  | MTA               |
|                              |   |  | MTB               |
| in photograph is ART85Z10F43 |   |  | ZT                |

Model No. of filter in



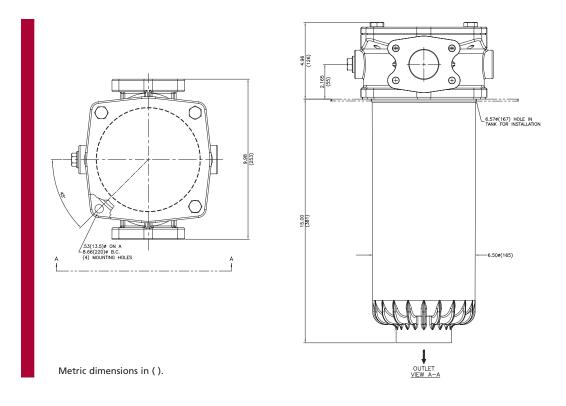




| Applications | KFT |
|--------------|-----|
|              | RT  |
|              | RTI |
|              | LRT |
|              | ART |
|              | BFT |
|              | QT  |
|              | КТК |
|              | ІТК |

| Flow Rating:                         | Up to 225 gpm (850 L/min) for 145 SUS (32 cSt) fluids    | Filter MRT                 |
|--------------------------------------|--|----------------------------|
| Max. Operating Pressure:             | 145 psi (10 bar)   | Housing                    |
| Min. Yield Pressure:                 | 535 psi (37 bar), per NFPA T2.6.1                        | Specifications Accessories |
| Rated Fatigue Pressure:              | 145 psi (10 bar), per NFPA T2.6.1                        | for Tank-                  |
| Temp. Range:                         | -20°F to 225°F (-29°C to 107°C)                          | Mounted                    |
| Bypass Setting:                      | Cracking: 43 psi (3 bar)<br>Full Flow: 69 psi (4.75 bar) | Filters                    |
| Porting Head & Cap:<br>Element Case: | Aluminum<br>Plastic                                      | PAF1                       |
| Weight of ART:                       | 15 lbs. (7 kg)   | MAF1                       |
| Element Change Clearance:            | 16.39" (340 mm)  |                            |





| Element<br>Performance |         |                      | o per ISO 16889<br>Ited per ISO 11171 |
|------------------------|---------|----------------------|---------------------------------------|
| Information            | Element | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$                 |
|                        | 85Z1    | <4.0                 | 4.2                                   |
|                        | 85Z3    | <4.0                 | 4.8                                   |
|                        | 85Z5    | 4.8                  | 6.3                                   |
|                        | 85Z10   | 8.0                  | 10.0                                  |
|                        | 85Z25   | 19.0                 | 24.0                                  |

| Dirt Holding<br>Capacity | Element      | DHC (gm)         |   |
|--------------------------|--------------|------------------|---|
| Capacity                 | 85Z1         | 185              |   |
|                          | 85Z3         | 147              |   |
|                          | 85Z5         | 206              |   |
|                          | 85Z10        | 164              |   |
|                          | 85Z25        | 167              |   |
|                          | Element      | Collapse Rating: | 150 psid (10 bar)                             |
|                          |              | Flow Direction:  | Outside In                                    |
|                          | Element Nomi | nal Dimensions:  | 4.5" (114.3 mm) O.D. x 13.8" (350.52 mm) long |
|                          |              |                  |   |
|                          |              |                  |   |
|                          |              |                  |   |

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## Tank-Mounted Filter **ART**

|                       |                        | Type Fluid            | Appropriate                           | e Schroe                      | der Media                     |             |                                   |             |              |          | Fluid  | IRF         |
|-----------------------|------------------------|-----------------------|---------------------------------------|-------------------------------|-------------------------------|-------------|-----------------------------------|-------------|--------------|----------|--|-------------|
| Petro                 | leum Ba                | sed Fluids            | All Z-Media®                          | (syntheti                     | c)                            |             |                                   |             |              |          | Compatibility  | TF1         |
| Hi                    | gh Wate                | er Content            | All Z-Media®                          | (syntheti                     | c)                            |             |                                   |             |              |          |  | 161         |
|                       |                        |                       |                                       |                               |                               |             |                                   |             |              |          |  | KF3         |
|                       | Ele                    | ment                  | Element selec                         | tions are                     | prodicated or                 | the use     | of 150 SI                         | 15 (22 c5+  | ) notrolou   |          | Element  | KL3         |
| Pressure              | Series                 | Part No.              | based fluid ar                        |                               |                               |             |                                   |             |              |          | Selection  | 154 0       |
|                       |                        | 85Z1                  |                                       | 85Z1                          |                               |             |                                   |             |              |          |  | LF1-2"      |
| Return                |                        | 85Z3                  |                                       |                               | 85Z3                          |             |                                   |             |              |          |  | MLF1        |
| Line<br>Tank-         | Z-<br>Media            | 85Z5                  |                                       |                               | 8                             | 5Z5         |                                   |             | I            |          |  |             |
| Mounted               | Ivicula                | 85Z10                 |                                       |                               |                               | 85Z10       |                                   |             |              |          |  | RLD         |
|                       |                        | 85Z25                 |                                       |                               |                               | 85Z25       |                                   |             |              |          |  |             |
|                       |                        | gpm                   | 0 25                                  | 50                            | 75 100                        | 125         | 150                               | 175         | 200          | 225      |  | КТ          |
|                       | Flow                   | (L/min)               | 0 95 1                                | 90 2                          | 85 380                        | 475         | 570                               | 665         | 760          | 850      |  |             |
|                       |                        |                       | s most common                         |                               |                               |             |                                   |             |              |          |  | MTA         |
| *Note: Ad<br>option.  | ditional p             | per elemen            | t flow is availab                     | le up to 3                    | 300 gpm wher                  | using A     | RT filter v                       | /ithout ch  | neck valve   |          |  |             |
| See hous              | ing press              | ure drop gr           | aph below.                            |                               |                               |             |                                   |             |              |          |  | MTB         |
|                       |                        |                       | ng use of E Med.<br>ation, refer to F |                               |                               |             |                                   |             |              |          |  | ZT          |
| чрпсано               | 115. FUI 11            | ore morm              | alion, refer to r                     |                               | ipatibility. File             | Nesistan    | ι riulus, μ                       | ayes 21 a   | 110 22.      |          |  | ۷ ا         |
|                       |                        |                       |                                       |                               |                               |             |                                   |             |              |          | •  | KFT         |
|                       |                        |                       |                                       |                               |                               |             |                                   |             |              |          |  |             |
|                       |                        |                       |                                       |                               |                               |             |                                   |             |              |          | Durante  | RT          |
| Phousing              |                        |                       |                                       |                               | $\Delta \mathbf{P}_{element}$ |             |                                   |             |              |          |  |             |
| RT ∆P <sub>hous</sub> | <sub>ing</sub> for flu | ids with sp           | gr = 0.86:                            |                               | $\Delta P_{element} =$        | = flow x e  | element ∆                         | P factor x  | viscosity f  | actor    |  | RT          |
|                       |                        | Flow (L/m             | iin)                                  |                               | El. ∆P fact                   | ors @ 15    | 0 SUS (32                         | cSt):       |              |          | Based on   |             |
| 4                     | (212.5                 |                       | (637.5)                               |                               |                               | Z           |                                   |             |              |          | Flow Rate  | LRT         |
| 3.5                   |                        |                       |                                       |                               | 85Z1                          | .22         |                                   |             |              |          | and Viscosity  |             |
| 3                     |                        | +++-                  |                                       | (12.0)<br>(12.0)<br>∇b (12.0) | 85Z3<br>85Z5                  | .12<br>.1   |                                   |             |              |          |  | ART         |
| 2.5                   |                        | ·                     |                                       | (0.14) 0                      | 85Z10                         | . 08        |                                   |             |              |          |  | DET         |
| ↓ 1.5                 |                        |                       |                                       |                               | 85Z25                         | .03         |                                   |             |              |          | Selection<br>Based on<br>Flow Rate   | BF1         |
| 0.5                   |                        |                       |                                       | (0.07)                        | If working                    |             | of bars &                         | L/min, di   | vide abov    | e        |  | 01          |
| 0                     |                        |                       |                                       |                               | factor by<br>Viscosity f      |             | vide visco                        | sity by 15  | 0 5115 (32   | cSt)     |  | QI          |
| 0                     | 25 50                  | 75 100 125<br>Flow gp | 150 175 200 22<br>m                   | 5                             | Viscosity i                   |             |                                   | Sity by 15  | 0 505 (52    |          |  | КТК         |
| gr = spe              | ecific gra             |                       | 111                                   |                               |                               |             |                                   |             |              |          |  |             |
|                       | _                      | -                     | based on elem                         | oent flov                     | v information                 | nrovide     | ad in the                         | Flement     | Selection    |          |  | LTK         |
| hart abov             |                        | Should be             | bused off cieff                       |                               | v intornación                 | i provide   |                                   | Liement     | Sciection    | · •      |  |             |
| Notes                 |                        |                       |                                       |                               | ∧ <b>P</b> –                  | Λ <b>Ρ</b>  | <sub>ig</sub> + ∆P <sub>ele</sub> |             |              |          |  | MRT         |
| notes                 |                        |                       |                                       |                               |                               |             | ig T 🖾 ele                        | ment        |              |          |  |             |
|                       |                        |                       |                                       |                               | Determin                      | e ∆P at 1   | 60 gpm (                          |             |              |          |  | Accessories |
|                       |                        |                       |                                       |                               | for ART8                      | 5Z5S43Y     | 2 using 1                         | 75 SUS (4   | 4 cSt) fluid | d.       |  | for Tank    |
|                       |                        |                       |                                       |                               | Solution                      | :           |                                   |             |              |          |  | Mounted     |
|                       |                        |                       |                                       |                               | ∆P <sub>housing</sub>         |             | 9 psi [.17                        |             |              |          |  | Filters     |
|                       |                        |                       |                                       |                               | $\Delta P_{element}$          |             | i0 x 0.1 x                        | (175÷150    | 0) = 18.67   | psi      |  |             |
|                       |                        |                       |                                       |                               |                               | or<br>= [60 | )0 x (0.1÷                        | ·54.9) x (3 | 38÷32) = 1   | .30 barl | Selection<br>Based on<br>Flow Rate<br>Pressure<br>Drop<br>Information<br>Based on<br>Flow Rate<br>and Viscosity<br>Access<br>for<br>Mo | PAF1        |
|                       |                        |                       |                                       |                               |                               |             |                                   | _ 20 E7     |              | ~~       |  |             |

 $\Delta P_{\text{total}}$ 

| Notes |      |      |  |
|-------|------|------|--|
|       |      |      |  |
|       |      |      |  |
|       |      |      |  |
|       |      |      |  |
|       | <br> | <br> |  |
|       |      |      |  |
|       |      |      |  |

**SCHROEDER INDUSTRIES 285** 

MAF1

= 1.9 + 18.67 = 20.57 psi

= [.17 + 1.30 = 1.47 bar]

or

### ART Tank-Mounted Filter

#### Filter Model Number Selection

#### How to Build a Valid Model Number for a Schroeder ART:

| ART   | • _                               |  |               |  |  |  |  |  |  |
|---|-----------------------------------|--|---------------|--|--|--|--|--|--|
| Exampl  | Example: NOTE: One option per box |  |               |  |  |  |  |  |  |
| $\begin{bmatrix} BOX 1 & BOX 2 & BOX 3 & BOX 4 & BOX 5 & BOX 6 & BOX 7 \\ \hline ART - 85Z10 - F - 43 - Y2 = ART85Z10F43Y2 \\ \hline \end{bmatrix}$ |                                   |  |               |  |  |  |  |  |  |
| BOX 1   |                                   | BOX 2 BOX 3  |               |  |  |  |  |  |  |
| Filter<br>Series  |                                   | Element Size and Media   | Seal Material |  |  |  |  |  |  |
|   | 85Z1                              | = 1 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  | Omit = Buna N |  |  |  |  |  |  |
| ART   | 85Z3                              | = 3 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  | H = EPR       |  |  |  |  |  |  |
|   | 85Z5                              | = 5 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  |               |  |  |  |  |  |  |
|   | 85Z10                             | = 10 µ Excellement® Z-Media® (synthetic)                         |               |  |  |  |  |  |  |
|   | 85Z25                             | = 25 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |               |  |  |  |  |  |  |

| BOX 4  | BOX 5              | BOX 6                      |  |
|--|--------------------|----------------------------|--|
| Porting  | Bypass Setting     | Outlet Options             |  |
| $F = 2\frac{1}{2}$ "SAE 40-bolt flange Code 61                       | 43 = 43 lb. Bypass | Omit = 2" ISO 228 G thread |  |
| FF = Dual 2 <sup>1</sup> / <sub>2</sub> " SAE 40-bolt flange Code 61 |                    |                            |  |
| S = SAE-32   |                    |                            |  |
| SS = Dual SAE-32   |                    |                            |  |

| BOX 7                |  |  |  |  |  |  |
|----------------------|--|--|--|--|--|--|
|                      | Dirt Alarm <sup>®</sup> Options  |  |  |  |  |  |
|                      | Omit = None  |  |  |  |  |  |
| Visual<br>Electrical | Y2 = Back-mounted tri-color gauge  |  |  |  |  |  |
|                      | Y2R = Back-mounted gauge mounted on opposite side<br>of standard location  |  |  |  |  |  |
|                      | ES = Electric switch (normally open)   |  |  |  |  |  |
|                      | ESR = Electric switch mounted on opposite side of<br>standard location   |  |  |  |  |  |
|                      | ES1 = Heavy-duty electric switch with conduit connector  |  |  |  |  |  |
|                      | ES1R = Heavy-duty electric switch with conduit connector mounted on opposite side of standard location                 |  |  |  |  |  |
|                      | ES2 = Super duty electric switch with Thermal Lockout and 2 pin Deutsche connector<br>(DT04-2P, SPST, normally closed) |  |  |  |  |  |

#### NOTES:

- Box 2. Replacement element part numbers are identical to contents of Boxes 2 and 3.
- Box 3. For option H, all aluminum parts are anodized.

### Tank-Mounted Filter **BFT**

|  | <ul> <li>Features and Benefits</li> <li>Low pressure tank-mounted filter</li> <li>Designed for high return line flows</li> <li>Dual inlet porting</li> <li>Top, side or bottom mounting</li> <li>Optional check valve prevents<br/>reservoir siphoning</li> <li>Special filter element design<br/>provides aftermarket benefits</li> <li>Also available with<br/>DirtCatcher<sup>®</sup> element (BBD)</li> <li>Cast iron head available</li> </ul> | 7 bar<br><sup>LF<sup>2</sup><br/>M</sup> | IRF<br>TF1<br>KF3<br>KL3<br>1–2"<br>ILF1<br>RLD<br>RTB |
|--|---|--|--|
|  |   | Γ  | ИТА  |
| Model No. of filter in photograph is BFT1BBZ5F |   |  | ZT   |

INDUSTRIAL

MOBILE VEHICLES



STEEL MAKING



CONSTRUCTION AGRICULTURE

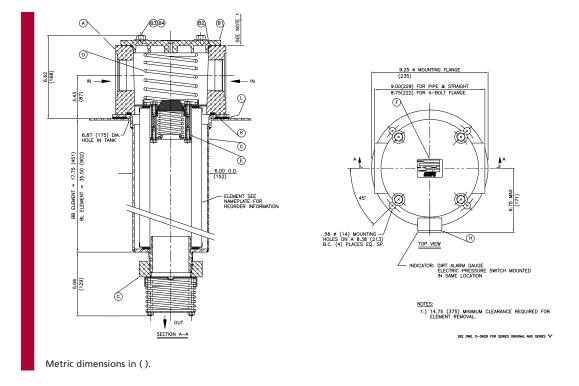


| Applications | KFT |
|--------------|-----|
|              | RT  |
|              | RTI |
|              | LRT |
|              | ART |
|              | BFT |
|              | QT  |
|              | КТК |
|              | LTK |

| MRT           |  |    |  |
|---------------|--|----|--|
| <b>IVIK I</b> |  |    |  |
|               |  |    |  |
|               |  | 1. |  |
|               |  |    |  |

| Flow Rating:                         | Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids    | Filter                 |
|--------------------------------------|---|------------------------|
| Max. Operating Pressure:             | 100 psi (7 bar)   | Housing Accessories    |
| Min. Yield Pressure:                 | 250 psi (17 bar), per NFPA T2.6.1                         | Specifications Mounted |
| Rated Fatigue Pressure:              | Contact factory, per NFPA T2.6.1                          | Filters                |
| Temp. Range:                         | -20°F to 225°F (-29°C to 107°C)                           | Thers                  |
| Bypass Setting:                      | Cracking: 25 psi (1.7 bar)<br>Full Flow: 52 psi (3.6 bar) | PAF1                   |
| Porting Head & Cap:<br>Element Case: | Aluminum<br>Steel   | MAF1                   |
| Weight of BFT-1BB:                   | 36.7 lbs. (16.6 kg)                                       |                        |
| Element Change Clearance:            | 14.75" (375 mm)   | MF2                    |

# **BFT** Tank-Mounted Filter



| Element<br>Performance |          | Filtration Ratio Per ISO 4572/NFPA T3.10.8.8<br>Using automated particle counter (APC) calibrated per ISO 4402 |               |                   | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                       |
|------------------------|----------|--|---------------|-------------------|--|-----------------------|
| Information            | Element  | $B_x \ge 75$   | $B_x \ge 100$ | $\beta_x \ge 200$ | $\beta_x(c) \ge 200$   | $\beta_x(c) \ge 1000$ |
|                        | BB/BL10  | 15.5   | 16.2          | 18.0              | N/A  | N/A                   |
|                        | BB/BLZ1  | <1.0   | <1.0          | <1.0              | <4.0   | 4.2                   |
|                        | BB/BLZ3  | <1.0   | <1.0          | <2.0              | <4.0   | 4.8                   |
|                        | BB/BLZ5  | 2.5  | 3.0           | 4.0               | 4.8  | 6.3                   |
|                        | BB/BLZ10 | 7.4  | 8.2           | 10.0              | 8.0  | 10.0                  |
|                        | BB/BLZ25 | 18.0   | 20.0          | 22.5              | 19.0   | 24.0                  |

| Dirt Holding | Element                     | DHC (gm) | Element  | DHC (gm) | Element | DHC (gm) |
|--------------|-----------------------------|----------|--|----------|---------|----------|
| Capacity     | BB10                        | 132      |  |          | BL10    | 264      |
|              | BBZ1                        | 268      | BBDZ1  | 205      | BLZ1    | 536      |
|              | BBZ3                        | 275      | BBDZ3  | 163      | BLZ3    | 550      |
|              | BBZ5                        | 301      | BBDZ5  | 229      | BLZ5    | 550      |
|              | BBZ10                       | 272      | BBDZ10   | 183      | BLZ10   | 550      |
|              | BBZ25                       | 246      | BBDZ25   | 186      | BLZ25   | 550      |
|              | Element Collapse Rating:    |          | 150 psid (10 bar)  |          |         |          |
|              | Flow Direction:             |          | Outside In   |          |         |          |
|              | Element Nominal Dimensions: |          | BB: 5.0" (125 mm) O.D. x 18.0" (460 mm) long<br>BL: 5.0" (125 mm) O.D. x 36.0" (920 mm) long |          |         |          |

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# Tank-Mounted Filter BFT

|                               | ту                       | /pe Fluid            | Appropriate Schroe                                       | der Media  |  |   |   |  |                | Fluid  | IRF  |
|-------------------------------|--------------------------|----------------------|--|--|--|---|---|--|----------------|--|--|
| Petro                         | oleum Base               | ed Fluids            | All E media (cellulose)                                  | and Z-Media® (   | synthetio  | c)  |   |  |                | Compatibility  | TF1  |
| Hi                            | gh Water                 | Content              | All Z-Media® (synthet                                    | ic)  |  |   |   |  |                |  | 111  |
|                               | Invert E                 | mulsions             | 10 and 25 µ Z-Media                                      | ® (synthetic)  |  |   |   |  |                |  | KF3  |
|                               | Wate                     | r Glycols            | 3, 5, 10 and 25 μ Ζ-Ν                                    | ledia <sup>®</sup> (synthetic  | :)   |   |   |  |                |  | KI J   |
|                               | Phospha                  |                      | All Z-Media <sup>®</sup> (synthet                        |  |  |   |   |  |                |  | KL3  |
|                               |                          |                      | 3, 5, 10 and 25 $\mu$ Z-N stainless steel wire m         |  |  |   |   |  |                | Skydrol <sup>®</sup> is a register<br>trademark of Solutia | ed<br><sup>Inc.</sup> LF1-2"                                 |
|                               |                          | ement                | Element selections                                       |  |  |   |   |  |                | Element<br>Selection                                       | MLF1   |
| Pressure                      | Series                   | Part No.             | based fluid and a  | 25 psi (1.7 bar) k   | oypass v   | alve (v   | ith check va  | alve optio   | n).            | Based on   |  |
|                               | E<br>Media               | BB10                 | BB10   |  |  |   |   |  |                | Flow Rate  | RLD  |
|                               | Ivieula                  | BB25                 |  |  | 3B25   |   |   |  |                |  |  |
| Return<br>Line                |                          | BBZ/BLZ1             |  | BBZ1*  |  |   | BLZ   |  |                |  | GRTB   |
| Tank-<br>Mounted              | Z-                       | BBZ/BLZ3<br>BBZ/BLZ5 |  | BBZ3*  |  |   | 1   | BLZ3   |                |  |  |
| Mounted                       | Media®                   | BBZ/BLZ5             |  |  | 5 / BLZ5<br>0 / BLZ1   |   |   |  |                |  | ΜΤΑ  |
|                               |                          | BBZ/BLZ10            |  |  | 5 / BLZ1   |   |   |  |                |  |  |
|                               |                          |                      | 0 100  | 150  | 200  | 5   | 250   |  | 300            |  | MTB  |
|                               | Flow                     | gpm<br>(L/min)       | 0 400  | 600  |  | 300   | 100   | 0  | 1150           |  |  |
| Shown abo                     | ve are the               | X · · · /            | st commonly used in                                      |  |  | 300   | 100   |  | 1150           |  | ZT   |
| See housir                    | ng pressure              | e drop graph         | w is available up to 3<br>below.<br>e of E Media in High |  | -  |   |   |  | otion.         |  | KFT  |
| Application                   | ns. For mor              | e information        | n, refer to Fluid Com                                    | patibility: Fire Re  | esistant l   | Fluids,   | pages 21 an   | d 22.  |                |  | DT   |
|                               |                          |                      |  |  |  |   |   |  |                | Pressure   | RT   |
| $\Delta \mathbf{P}_{housing}$ |                          |                      |  | ∆ <b>P</b> <sub>element</sub>  |  |   |   |  |                | Drop   | RTI  |
| BFT ∆P <sub>housi</sub>       | <sub>ng</sub> for fluids | s with sp gr =       | 0.86:  | $\Delta P_{element} = 1$   |  |   |   | iscosity fa  | ctor           | Information  | KII  |
|                               |                          | Flow (L/min)         |  | El. ΔP factor  | rs @ 150   | SUS (3  | 32 cSt):  |  |                | Based on   | LRT  |
| 10 <mark>(4</mark>            | .00) (600                |                      | (1000)   | 5540   | BB   | BL  | _   | BBD  |                | Flow Rate<br>and Viscosity                                 | ENT  |
| 8                             |                          |                      |  | BB10<br>BB25   | .03<br>.01   | .01<br>.01  |   |  |                |  | ART  |
| Ĭ                             |                          |                      | (0.50)   | BBZ1   | .07  | .04   | BBDZ1   | .08  |                |  |  |
| ∆P psi                        |                          | ECKNA                | (par)  | BBZ3   | .05  | .03   | BBDZ3   | .06  |                |  | BFT  |
| ₫ 4                           |                          | WI CHEC              | (0.25)   | BBZ5   | .04  | .02   | BBDZ5   | .05  |                |  |  |
| 2                             |                          | WIO CHEC             |  | BBZ10  | .03  | .02   | BBDZ10  | .04  |                |  | QT   |
| 0                             |                          | $\square$            |  | BBZ25  | .02  | .01   |   |  |                |  |  |
| 10                            | 00 150                   | 200                  | 250 300  | It working i   |  |   | BBDZ25  | .02  |                |  |  |
|                               |                          | Flow gpm             |  | factor by 54   |  |   |   |  |                |  | КТК  |
| sp gr = spe                   | cific gravity            | •.                   |  |  | .9.  | of bars   | BBDZ25<br>& L/min, div  | ide above  |                |  |  |
|                               |                          | /                    | d on element flow in                                     | factor by 54<br>Viscosity fac  | l.9.<br>ctor: Divi   | of bars<br>ide visc   | BBDZ25<br>& L/min, div  | ide above<br>SUS (32 c   | 5t).           |  | KTK<br>LTK   |
|                               |                          | /                    | d on element flow in                                     | factor by 54<br>Viscosity fac  | i.9.<br>ctor: Divi<br>ided in t  | of bars<br>ide visc<br>he Eler  | BBDZ25<br>& L/min, div<br>osity by 150<br>ment Selecti  | ide above<br>SUS (32 c   | 5t).           |  |  |
| Sizing of el                  |                          | /                    | d on element flow in                                     | factor by 54<br>Viscosity factor<br>formation proving<br>$\Delta P_{\text{filter}} = 2$<br><b>Exercise:</b>  | I.9.<br>ctor: Divi<br>ided in t<br>\ <b>P<sub>housing</sub></b>                                  | of bars<br>ide visc<br>he Eler<br><b>+</b> ∆ <b>P</b>   | BBDZ25<br>& L/min, div<br>osity by 150<br>nent Selecti  | ide above<br>SUS (32 c<br>on chart a                             | 5t).           |  | LTK<br>MRT   |
| Sizing of el                  |                          | /                    | d on element flow in                                     | factor by 54<br>Viscosity fac<br>formation prov<br>$\Delta P_{filter} = 2$<br><b>Exercise:</b><br>Determine  | I.9.<br>ttor: Divi<br>ided in t<br>Δ <b>P</b> <sub>housing</sub><br>ΔP at 16                     | of bars<br>ide visc<br>he Eler<br><b>+</b> ∆ <b>P</b> ,   | BBDZ25<br>& L/min, div<br>osity by 150<br>ment Selecti  | ide above<br>SUS (32 c<br>on chart a                             | St).<br>bove.  | 1  | LTK  |
| Sizing of el                  |                          | /                    | d on element flow in                                     | factor by 54<br>Viscosity fac<br>formation prov<br>$\Delta P_{filter} = 2$<br><b>Exercise:</b><br>Determine  | ided in t<br><b>ΔP</b> at 16   | of bars<br>ide visc<br>he Eler<br><b>+</b> ∆ <b>P</b> ,   | BBDZ25<br>& L/min, div<br>osity by 150<br>nent Selecti<br>element   | ide above<br>SUS (32 c<br>on chart a                             | St).<br>bove.  | 1  | LTK<br>MRT<br>Accessories<br>for Tank-<br>Mounted            |
| Sizing of el                  |                          | /                    | d on element flow in                                     | factor by 54<br>Viscosity fac<br>formation provi<br>Δ <b>P</b> <sub>filter</sub> = 2<br><b>Exercise:</b><br>Determine<br>for BFT1BB  | i.9.<br>itor: Divi<br>ided in t<br>$\Delta P$ at 16<br>Z3PCY2<br>= 2.5<br>= 160                  | of bars<br>ide visc<br>he Eler<br>+ Δ <b>P</b><br>50 gpm<br>using<br>psi [.2                          | BBDZ25<br>& L/min, div<br>osity by 150<br>nent Selecti<br>element<br>(600 L/min)<br>200 SUS (44   | SUS (32 c<br>on chart a<br>cSt) fluid.                           | St).<br>bove.  |  | LTK<br>MRT<br>Accessories<br>for Tank-                       |
| Sizing of el                  |                          | /                    | d on element flow in                                     | factor by 54<br>Viscosity factor<br>formation provided<br>$\Delta P_{filter} = 2$<br><b>Exercise:</b><br>Determine<br>for BFT1BB<br><b>Solution:</b><br>$\Delta P_{housing}$<br>$\Delta P_{element}$ | i.9.<br>ided in t<br>$\Delta P$ at 16<br>Z3PCY2<br>= 2.5<br>= 16C<br>or<br>= [600                | of bars<br>ide visc<br>he Eler<br>+ Δ <b>P</b><br>50 gpm<br>using<br>psi [.20<br>) x .05<br>0 x (.05  | BBDZ25<br>& L/min, div<br>osity by 150<br>ment Selecti<br>element<br>(600 L/min)<br>200 SUS (44<br>0 bar]<br>x (200÷150)<br>5÷54.9) x (44 | ide above<br>SUS (32 c<br>on chart a<br>cSt) fluid.<br>= 10.7 ps | 5t).<br>Ibove. | 1  | LTK<br>MRT<br>Accessories<br>for Tank-<br>Mounted            |
| Sizing of el                  |                          | /                    | d on element flow in                                     | factor by 54<br>Viscosity fac<br>formation provi<br>ΔP <sub>filter</sub> = Δ<br>Exercise:<br>Determine<br>for BFT1BB<br><u>Solution:</u><br>ΔP <sub>housing</sub>                                    | i.9.<br>ided in t<br>$\Delta P$ at 16<br>Z3PCY2<br>= 2.5<br>= 160<br>or<br>= [600<br>= 2.5<br>or | of bars<br>ide visc<br>he Eler<br>$+ \Delta P_{0}$<br>0 gpm<br>using<br>) x .05<br>0 x (.05<br>+ 10.7 | BBDZ25<br>& L/min, div<br>osity by 150<br>ment Selecti<br>element<br>(600 L/min)<br>200 SUS (44<br>0 bar]<br>x (200÷150)                  | ide above<br>SUS (32 c<br>on chart a<br>cSt) fluid.<br>= 10.7 ps | 5t).<br>Ibove. | 1  | LTK<br>MRT<br>Accessories<br>for Tank-<br>Mounted<br>Filters |

#### Tank-Mounted Filter

| Filter<br>Model<br>Number | How to<br>BOX 1<br>BFT – | o Build a Va  |                |              | nber<br>BOX 6 | for a Schroeder KF3:<br>BOX 7 BOX 8 BOX 9 BOX 10           |                                   |                              |  |
|---------------------------|--------------------------|---|----------------|--------------|---------------|--|-----------------------------------|------------------------------|--|
| Selection                 |                          | NOTE: Only bo   | ,              |              |               | ,  |                                   |                              |  |
|                           | BFT-                     | BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6<br>BFT - 1 - BB10 P - |                |              |               | BOX 7 BOX 8 BOX 9 BOX 10<br>Y2 - = BFT1BB10PY2             |                                   |                              |  |
|                           | BOX 1                    | BOX 2   |                |              |               | BOX 3  |                                   | BOX 4                        |  |
|                           | Filter<br>Series         | Number of<br>Elements                                     |                |              | Elen          | nent Size and Media  |                                   | Seal Material                |  |
|                           |                          |   | BB<br>Length   | BL<br>Length |               |  |                                   | Omit = Buna N                |  |
|                           | BFT                      | 1   | BB3            | Length       | = 10          | μ E media (cellulose)                                      |                                   | H = EPR                      |  |
|                           |                          |   | BB10           |              |               | μ E media (cellulose)                                      |                                   | W = Buna N<br>H.5 = Skydrol® |  |
|                           |                          |   | BB25           |              | = 25          | μ E media (cellulose)                                      |                                   | compatibility                |  |
|                           |                          |   | BBZ1           | BLZ1         | = 1 µ         | Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthe      | etic)                             |                              |  |
|                           |                          |   | BBZ3           | BLZ3         | = 3 µ         | Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthe      | etic)                             |                              |  |
|                           |                          |   | BBZ5           | BLZ5         | = 5 µ         | Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthe      | etic)                             |                              |  |
|                           |                          |   | BBZ10          | BLZ10        | = 10          | μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synth     | netic)                            |                              |  |
|                           |                          |   | BBZ25          | BLZ25        | = 25          | μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synth     | netic)                            |                              |  |
|                           |                          |   | BBDZ1          |              | = BB s        | size DirtCatcher <sup>®</sup> 1 µ Excellement <sup>®</sup> | <sup>®</sup> Z-Media <sup>®</sup> |                              |  |
|                           |                          |   | BBDZ3          |              | = BB s        | size DirtCatcher <sup>®</sup> 3 µ Excellement <sup>®</sup> | <sup>®</sup> Z-Media <sup>®</sup> |                              |  |
|                           |                          |   | BBDZ5          |              | = BB s        | size DirtCatcher <sup>®</sup> 5 µ Excellement <sup>®</sup> | <sup>®</sup> Z-Media <sup>®</sup> |                              |  |
|                           |                          |   | BBDZ10         |              | = BB s        | ize DirtCatcher <sup>®</sup> 10 μ Excellement <sup>®</sup> | ® Z-Media®                        |                              |  |
|                           |                          | _   | BBDZ25         |              | = BB s        | ize DirtCatcher <sup>®</sup> 25 μ Excellement <sup>®</sup> | <sup>®</sup> Z-Media <sup>®</sup> | 201/2                        |  |
|                           |                          |   | OX 5<br>orting |              |               | BOX 6<br>Bypass Setting                                    | C                                 | BOX 7<br>Putlet Porting      |  |
|                           | P = 2                    | 1/2" NPTF   |                |              |               | Omit = 25 psi cracking                                     | Omi                               | t = 3" NPT male              |  |
|                           | PP = D                   | ual 2½" NPTF  |                |              |               | 40 = 40 psi cracking                                       | -                                 | T = 13" Tube extension       |  |
|                           | S = S.                   | AE-40   |                |              |               |  |                                   |                              |  |
|                           | SS = D                   | ual SAE-40  |                |              |               | BOX 8  |                                   |                              |  |
|                           | F = 2                    | 1/2 "SAE 4-bolt   | flange Cod     | e 61         |               | Optional Check Valve                                       |                                   |                              |  |
|                           | FF = D                   | ual 2½"SAE 4-   | -bolt flange   | Code 6       | 1             | Omit = None  |                                   |                              |  |
| ent element               |                          |   |                |              |               | C = Check valve  |                                   |                              |  |

#### NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4. E media elements are only available with Buna N seals.

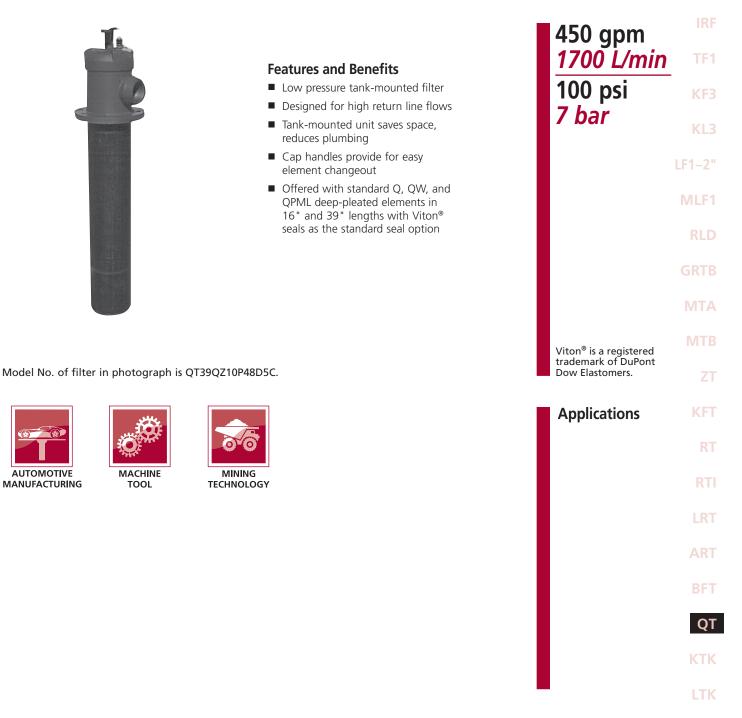
Н

- Box 4. For options H, W, and H.5 all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 8. See also "Accessories for Tank-Mounted Filters," page 307.

|            | BOX 9   | BOX 10  |
|------------|---|---|
|            | Dirt Alarm <sup>®</sup> Options   | Additional Options  |
|            | Omit = None   | Omit = None   |
|            | Y2 = Back-mounted tri-color gauge   | G547 = Two 1/8" gauge ports   |
| Visual     | Y2R = Back-mounted gauge mounted on opposite side<br>of standard location | G1476 = Three-terminal electric switch<br>M = Metric thread for SAE 4-bolt<br>flange mounting holes (specify after each |
|            | ES = Electric switch  | port designation)<br>40 = 40 psi bypass setting   |
| Electrical | ESR = Electric switch mounted on opposite side of<br>standard location    |   |
| Liectrical | ES1 = Heavy-duty electric switch with conduit connector                   |   |
|            | ES1R = Heavy-duty electric switch with conduit connector                  |   |

mounted on opposite side of standard location

#### Tank-Mounted Filter QT



| Filter MRT                 | Up to 450 gpm (1700 L/min) for 150 SUS (32 cSt) fluids    | Flow Rating:                                     |
|----------------------------|---|--|
| Housing                    | 100 psi (7 bar)   | Max. Operating Pressure:                         |
| Specifications Accessories | 300 psi (21 bar), per NFPA T2.6.1                         | Min. Yield Pressure:                             |
| for Tank-                  | 100 psi (7 bar), per NFPA T2.6.1-R1-2005                  | Rated Fatigue Pressure:                          |
| Mounted                    | -20°F to 225°F (-29°C to 107°C)                           | Temp. Range:                                     |
| Filters                    | Cracking: 30 psi (2.1 bar)<br>Full Flow: 55 psi (3.8 bar) | Bypass Setting:                                  |
| PAF1                       | Steel<br>Steel  | Porting Head:<br>Element Case:                   |
| MAF1                       | 100.0 lbs. (46 kg)<br>158.0 lbs. (72 kg)                  | Min. Weight of QT-16Q:<br>Min. Weight of QT-39Q: |
| MF2                        | 16Q 12.0" (305 mm)<br>39Q 33.8" (859 mm)                  | Element Change Clearance:                        |

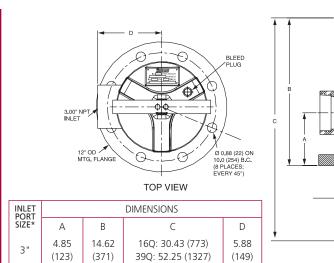
AUTOMOTIVE

MANUFACTURING

MACHINE

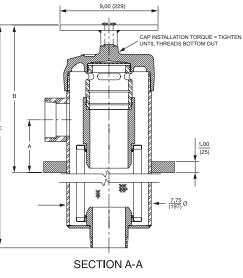
TOOL

#### Tank-Mounted Filter



16Q: 30.43 (773)

39Q: 52.25 (1327)



\*Outlet port is always 3".

16.12

(409)

Metric dimensions in ( ).

5.75

(146)

4"

| Element     |         |                            |         |                  | er ISO 4572/NF<br>counter (APC) calib | PA T3.10.8.8<br>prated per ISO 4402 |                       | o per ISO 16889<br>Ited per ISO 11171 |
|-------------|---------|----------------------------|---------|------------------|---------------------------------------|-------------------------------------|-----------------------|---------------------------------------|
| Performance | Element |                            |         | $\beta_x \ge 75$ | $\beta_x \ge 100$                     | $\beta_x \ge 200$                   | $\beta_x(c) \geq 200$ | $\beta_x(c) \ge 1000$                 |
| Information |         | Z1/PMLZ1                   |         | <1.0             | <1.0                                  | <1.0                                | <4.0                  | 4.2                                   |
|             |         | Z3/PMLZ3/AS3V/             | PMLAS3V | <1.0             | <1.0                                  | <2.0                                | <4.0                  | 4.8                                   |
|             | 160     | Z5/PMLZ5/AS5V/             | PMLAS5V | 2.5              | 3.0                                   | 4.0                                 | 4.8                   | 6.3                                   |
|             | 100     | Z10/PMLZ10/AS1<br>PMLAS10V | 0V/     | 7.4              | 8.2                                   | 10.0                                | 8.0                   | 10.0                                  |
|             |         | Z25/PMLZ25                 |         | 18.0             | 20.0                                  | 22.5                                | 19.0                  | 24.0                                  |
|             |         | Z1/PMLZ1                   |         | <1.0             | <1.0                                  | <1.0                                | <4.0                  | 4.2                                   |
|             |         | Z3/PMLZ3/AS3V/             | PMLAS3V | <1.0             | <1.0                                  | <2.0                                | <4.0                  | 4.8                                   |
|             | 390     | Z5/PMLZ5/AS5V/             | PMLAS5V | 2.5              | 3.0                                   | 4.0                                 | 4.8                   | 6.3                                   |
|             | JJQ     | Z10/PMLZ10/AS1<br>PMLAS10V | 0V/     | 7.4              | 8.2                                   | 10.0                                | 8.0                   | 10.0                                  |
|             |         | Z25/PMLZ25                 |         | 18.0             | 20.0                                  | 22.5                                | 19.0                  | 24.0                                  |

6.13

(156)

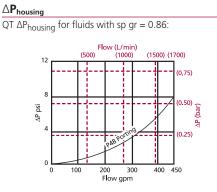
| Dirt Holding | Eleme              | nt                | DHC (gm)        | Element                            | DHC (gm)                                  |
|--------------|--------------------|-------------------|-----------------|------------------------------------|---|
| Capacity     |                    | Z1                | 276             | PMLZ1                              | 307                                       |
|              |                    | Z3/AS3V           | 283             | PMLZ3/PN                           | MLAS3V 315                                |
|              | 16Q                | Z5/AS5V           | 351             | PMLZ5/PN                           | MLAS5V 364                                |
|              |                    | Z10/AS10V         | 280             | PMLZ10/P                           | <b>PMLAS10V</b> 330                       |
|              |                    | Z25               | 254             | PMLZ25                             | 299                                       |
|              |                    | Z1                | 974             | PMLZ1                              | 1485                                      |
|              | 39Q                | Z3/AS3V           | 1001            | PMLZ3/PN                           | MLAS3V 1525                               |
|              |                    | Z5/AS5V           | 954             | PMLZ5/PN                           | MLAS5V 1235                               |
|              |                    | Z10/AS10V         | 940             | PMLZ10/P                           | /PMLAS10V 1432                            |
|              |                    | Z25               | 853             | PMLZ25                             | 1299                                      |
|              |                    | Element Co        | ollapse Rating: | Q and QPN                          | PML: 150 psid (10 bar)                    |
|              |                    | F                 | low Direction:  | Outside In                         | n   |
|              | Element Nominal Di |                   | al Dimensions:  | 16Q:<br>16QPML:<br>39Q:<br>39QPML: | 6.0" (150 mm) O.D. x 38.70" (985 mm) long |
| 29           | 92 SCH             | ROEDER INDUSTRIES |                 |                                    |   |

#### 

## Tank-Mounted Filter



| h Water Content A Invert Emulsions 1 Water Glycols 3 Phosphate Esters A A Element Part No. | ll Z-Media <sup>®</sup> and ASP <sup>®</sup><br>0 and 25 μ Z-Media <sup>®</sup><br>, 5, 10 and 25 μ Z-Me<br>Il Z-Media <sup>®</sup> (synthetic   | <sup>9</sup> media (synth<br>and 10 μ ASP<br>edia <sup>®</sup> and all <i>Α</i><br>c) with H (EPR   | etic)<br><sup>®</sup> media (syr<br>ASP <sup>®</sup> media   | nthetic)<br>(synthetic)   |  |  | Compatibility  | TF<br>KF<br>KL   |  |
|--|--|---|--|---|--|--|--|--|--|
| Invert Emulsions 1<br>Water Glycols 3<br>Phosphate Esters A<br>Element<br>Part No.         | 0 and 25 µ Z-Media <sup>®</sup><br>, 5, 10 and 25 µ Z-Me<br>II Z-Media <sup>®</sup> (synthetic<br>.SP <sup>®</sup> media (synthetic)<br>Element selection  | and 10 µ ASP<br>edia <sup>®</sup> and all <i>A</i><br>c) with H (EPR  | <sup>®</sup> media (syı<br>ASP <sup>®</sup> media  | roleum Based FluidsAll E media (cellulose), Z-Media® and ASP® media (synthetic)High Water ContentAll Z-Media® and ASP® media (synthetic)Invert Emulsions10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)Water Glycols3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)Phosphate EstersAll Z-Media® (synthetic) with H (EPR) seal designation and all ASP® media (synthetic)   |  |  |  |  |  |
| Water Glycols 3 Phosphate Esters A A Element Part No.                                      | , 5, 10 and 25 μ Z-Me<br>II Z-Media® (synthetic<br>SP® media (synthetic)<br>Element selection  | edia <sup>®</sup> and all A<br>c) with H (EPR   | ASP <sup>®</sup> media   | (synthetic)   | 11   |  |  |  |  |
| Phosphate Esters A<br>A<br>Element<br>Part No.   | II Z-Media <sup>®</sup> (synthetic)<br>SP <sup>®</sup> media (synthetic)   | c) with H (EPR  |  | · ,   | II   |  |  | KL   |  |
| A<br>Element<br>Part No.   | SP <sup>®</sup> media (synthetic)  |   | ) seal desigr  | nation and a  | ll   |  |  | KL   |  |
| Part No.   |  | s are predica   |  |   |  |  |  |  |  |
|  |  |   | tod on the   | use of 1E0  | CI IC (22 cC+  |  | Element  | LF1-2  |  |
|  |  |   |  |   | •  |  | Selection  | MLF  |  |
| 16 & 39QZ1   | 16QZ1  | 39Q   | Z1   |   |  |  | Based on<br>Flow Rate  | 10121  |  |
| 16 & 39QZ3   | 16QZ3  |   | 390  | QZ3   |  |  | FIOW Rate  | RLI  |  |
| 16 & 39QZ5   | 16QZ5  |   | 390  | QZ5   |  |  |  |  |  |
| 16 & 39QZ10  | 16QZ10   |   |  | 39QZ10  |  |  |  | GRT  |  |
| 16 & 39QZ25  |  | & 39QZ25  |  |   |  |  |  |  |  |
| <sup>®</sup> 16 & 39QPMLZ1   | 16QPMLZ1   |   |  |   | 39QPML   |  |  | MT   |  |
| 16 & 39QPMLZ3  | 16QPMLZ3   |   | 39QPMLZ3   |   |  |  |  |  |  |
| 16 & 39QPMLZ5  | 16QPML   | Z5  |  | 39QPMLZ5  |  |  |  | MT   |  |
| 16 & 39QPMLZ10   | 16QPN  | VLZ10   |  | 39QPML  | Z10  |  |  |  |  |
| 16 & 39QPMLZ25   |  | 16QPMLZ2  | 5  |   | 39QPMLZ25  |  |  | Z  |  |
| gpm  | 0 150 2  | 200   | 300  | 400   | 45   | C  |  |  |  |
| (L/min)  | <u>o 500</u>   | 100   | 00   | 1500  | 170  | 0  |  | KF   |  |
|  | 16 & 39QZ5         16 & 39QZ10         16 & 39QZ25         16 & 39QPMLZ1         16 & 39QPMLZ3         16 & 39QPMLZ5         16 & 39QPMLZ10         16 & 39QPMLZ25         16 & 39QPMLZ25         16 & 39QPMLZ25         16 & 39QPMLZ25         gpm         (L/min)         the elements most consort regarding use of L | 16 & 39QZ5         16QZ5           16 & 39QZ10         16QPMLZ1           16 & 39QPMLZ1         16QPMLZ1           16 & 39QPMLZ3         16QPMLZ3           16 & 39QPMLZ5         16QPMLZ3           16 & 39QPMLZ5         16QPMLZ3           16 & 39QPMLZ5         16QPML           16 & 39QPMLZ5         16QPML           16 & 39QPMLZ5         16QPML           16 & 39QPMLZ25         16QPML           gpm         0         150           (L/min)         0         500           the elements most commonly used in this hory regarding use of E media in High Wate         16 Wate | 16 & 39QZ5       16QZ5         16 & 39QZ10       16QZ10         16 & 39QZ25       16QZ25         16 & 39QPMLZ1       16QPMLZ1         16 & 39QPMLZ3       16QPMLZ3         16 & 39QPMLZ5       16QPMLZ5         16 & 39QPMLZ10       16QPMLZ5         16 & 39QPMLZ25       16QPMLZ10         16 & 39QPMLZ25       16QPMLZ20         16 & 39QPMLZ25       16QPMLZ20         16 & 39QPMLZ00       16QPMLZ20         16 & 39QPMLZ00       16QPMLZ20         16 & 39QPMLZ00       1000         0       5000       1000         0       5000       1000         0       5000       1000         0       5000       1000         0       5000       1000 | 16 & 39QZ5       16QZ5       39Q         16 & 39QZ10       16QZ10         16 & 39QZ25       16QZ25 & 39QZ25         16 & 39QPMLZ1       16QPMLZ1       39QPML         16 & 39QPMLZ3       16QPMLZ3       39QPML         16 & 39QPMLZ5       16QPMLZ3       39QPML         16 & 39QPMLZ5       16QPMLZ5       16QPMLZ5         16 & 39QPMLZ5       16QPMLZ5       16QPMLZ5         16 & 39QPMLZ25       16QPMLZ25       16QPMLZ25         16 & 39QPMLZ25       16QPMLZ25       300         (L/min)       0       500       1000         the elements most commonly used in this housing.       1000       1000 | 16 & 39QZ5       16QZ5       39QZ5         16 & 39QZ10       16QZ10       39Q         16 & 39QZ25       16QZ25 & 39QZ25       39QZ25         16 & 39QPMLZ1       16QPMLZ1       39QPMLZ1         16 & 39QPMLZ3       16QPMLZ3       39QPMLZ3         16 & 39QPMLZ5       16QPMLZ5       39QPMLZ5         16 & 39QPMLZ5       16QPMLZ5       39QPMLZ5         16 & 39QPMLZ5       16QPMLZ10       39QPMLZ5         16 & 39QPMLZ25       16QPMLZ10       300       400         (L/min)       0       500       1000       1500         the elements most commonly used in this housing.       1500       1500       1500 | 16 & 39QZ5       16QZ5       39QZ5         16 & 39QZ10       16QZ10       39QZ10         16 & 39QZ10       16QZ10       39QZ10         16 & 39QZ25       16QZ25 & 39QZ25       16QZ25 & 39QPMLZ1         16 & 39QPMLZ3       16QPMLZ3       39QPMLZ3         16 & 39QPMLZ5       16QPMLZ3       39QPMLZ5         16 & 39QPMLZ5       16QPMLZ5       39QPMLZ5         16 & 39QPMLZ10       16QPMLZ10       39QPMLZ10         16 & 39QPMLZ25       16QPMLZ10       39QPMLZ10         16 & 39QPMLZ25       16QPMLZ10       39QPMLZ25         gpm       0       150       200       300       400       450         (L/min)       0       500       1000       1500       170         the elements most commonly used in this housing.       1000       1500       170 | 16 & 39QZ5       16QZ5       39QZ5         16 & 39QZ10       16QZ10       39QZ10         16 & 39QZ25       16QZ25 & 39QZ25       16QZ25 & 39QZ25         16 & 39QPMLZ1       16QPMLZ1       39QPMLZ1         16 & 39QPMLZ3       16QPMLZ3       39QPMLZ3         16 & 39QPMLZ5       16QPMLZ3       39QPMLZ5         16 & 39QPMLZ5       16QPMLZ5       39QPMLZ5         16 & 39QPMLZ5       16QPMLZ10       39QPMLZ5         16 & 39QPMLZ5       16QPMLZ10       39QPMLZ10         16 & 39QPMLZ25       16QPMLZ25       39QPMLZ25         gpm       0       150       200       300       400       450         (L/min)       0       500       1000       1500       1700         the elements most commonly used in this housing. | $\begin{array}{c c c c c c c c c c c c c c c c c c c $ |  |



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

#### Exercise:

Determine  $\Delta P$  at 200 gpm (757 L/min) for QT39QZ3VP48D5C using 200 SUS (44 cSt) fluid.

#### Solution:

| ∆P <sub>housing</sub> | = 1.5 psi [.10 bar]  |
|-----------------------|--|
| $\Delta P_{element}$  | = 200 x .04 x (200÷150) = 10.7 psi   |
|                       | or   |
|                       | $= [757 \text{ x} (.04 \div 54.9) \text{ x} (44 \div 32) = .76 \text{ bar}]$ |
| $\Delta P_{total}$    | = 1.5 + 10.7 = 12.2 psi  |
|                       | or   |
|                       | = [.10 + .76 = .86 bar]  |

| El. ΔP factors @ 150<br><b>16QZ1</b> | .09       | 39QZ1                    | .03      |
|--------------------------------------|-----------|--------------------------|----------|
| 16QZ3/                               | .09       | 390Z3/                   | .05      |
| 16QAS3V                              | .04       | 39QAS3V                  | .02      |
| 16QZ5/                               |           | 39QZ5/                   |          |
| 16QAS5V                              | .04       | 39QAS5V                  | .02      |
| 16QZ10/                              |           | 39QZ10/                  |          |
| 16QAS10V                             | .03       | 39QAS10V                 | .01      |
| 16QZ25                               | .01       | 39QZ25                   | .01      |
| 16QPMLZ1                             | .08       | 39QPMLZ1                 | .03      |
| 16QPMLZ3/                            |           | 39QPMLZ3/                |          |
| 16QPMLAS3V                           | .05       | 39QPMLAS3V               | .02      |
| 16QPMLZ5/<br>16OPMLAS5V              | .05       | 39QPMLZ5/                | .02      |
| 16OPMLZ10/                           | .05       | 39QPMLAS5V<br>39OPMLZ10/ | .02      |
| 16QPMLAS10V                          | .04       | 36QPMLAS10V              | .01      |
| 16QPMLZ25                            | .02       | 39QPMLZ25                | .01      |
|                                      | s of bars | & L/min, divide abov     | e factor |
| by 54.9.                             |           |                          |          |
| Viscosity factor: D                  | ivide vis | cosity by 150 SUS (32    | cSt).    |
|                                      |           |                          |          |
|                                      |           |                          |          |
|                                      |           |                          |          |

| Pressure              | RH          |
|-----------------------|-------------|
| Drop<br>Information   | LRT         |
| Based on<br>Flow Rate | ART         |
| and Viscosity         | BFT         |
|                       | QT          |
|                       | КТК         |
|                       | LTK         |
|                       | MRT         |
|                       | Accessories |

Accessories for Tank Mounted Filters

PAF1

MAF1

## **QT** Tank-Mounted Filter

| Filter<br>Model<br>Number<br>Selection   | How to Build a Valid Model Number for a Schroeder QT:<br>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$                         |  |  |  |   |  |  |
|--|--|--|--|--|---|--|--|
|  | Filter<br>Series Length (in) El<br>QT 16<br>39   | QCLQF<br>V   | BOX 4<br>Media Type<br>Z = Excellement <sup>®</sup> Z-Media <sup>®</sup><br>(synthetic)<br>V = W media (water removal)<br>S = Anti-Static Pleat Media<br>(synthetic)   | BOX 5<br>Micron<br>Rating<br>1 = 1 $\mu$ Z-Media <sup>®</sup><br>3 = 3 $\mu$ AS and Z-Media <sup>®</sup><br>5 = 5 $\mu$ AS and Z-Media <sup>®</sup><br>10 = 10 $\mu$ AS and Z-Media <sup>®</sup><br>25 = 25 $\mu$ Z-Media <sup>®</sup> | BOX 6<br>Housing Seal<br>Material<br>Omit = Buna N<br>H = EPR<br>V = Viton® |  |  |
|  | BOX 7  |  |  | BOX 10   |   |  |  |
|  | Inlet Porting  |  | Dirt   | Alarm <sup>®</sup> Options   |   |  |  |
|  | P48 = 3" NPTF  |  | Omit = None  |  |   |  |  |
|  | P64 = 4" NPTF  | Visual   | D5C = Visual pop-u   | p in cap   |   |  |  |
|  | BOX 8  | Visual with<br>Thermal<br>Lockout                  | D8C = Visual w/ the  | rmal lockout in cap  |   |  |  |
|  | Bypass Setting<br>Omit = 30 psi cracking<br>15 = 15 psi cracking<br>40 = 40 psi cracking<br>50 = 50 psi cracking<br>X = Blocked bypass | Electrical   | MS5C = Electrical w/ 12 in. 18 gauge 4-conductor cable in cap<br>MS5LCC = Low current MS5 in cap<br>MS10C = Electrical w/ DIN connector (male end only) in cap<br>MS10LCC = Low current MS10 in cap<br>MS11C = Electrical w/ 12 ft. 4-conductor wire in cap<br>MS12C = Electrical w/ 5 pin Brad Harrison connector (male end only) in cap<br>MS12LCC = Low current MS12 in cap |  |   |  |  |
|  | BOX 9<br>Outlet Porting  |  | MS16C = Electrical w/ weather-packed sealed connector in cap<br>MS16LCC = Low current MS16 in cap  |  |   |  |  |
| blacement element<br>t numbers are a<br>nbination of Boxes<br>8, 4 and 5, plus the<br>ter V. <i>Example</i> :<br>221V  | Omit = 3 " NPT Male<br>C = Check valve<br>D = Diffuser<br>CD = Check valve and<br>diffuser   | Electrical<br>with                                 |  |  |   |  |  |
| _QF element are not<br>ilable in ASP <sup>®</sup> media.   |  | Thermal<br>Lockout                                 | MS12TC = MS12 (see above) w/ thermal lockout<br>MS12LCTC = Low current MS12T in cap  |  |   |  |  |
| edia elements are<br>available for the<br>filter housing.  |  |  | MS16TC = MS16 (see above) w/ thermal lockout in cap<br>MS16LCTC = Low current MS16T in cap<br>MS17LCTC = Low current MS17T in cap  |  |   |  |  |
| itact factory<br>more information.<br>Option W, Box  |  | Electrical<br>Visual                               |  | threaded connector & light in cap<br>5 pin Brad Harrison connector & ligl<br>1 cap   | nt  |  |  |
| ust equal Q.<br>on <sup>®</sup> is a registered<br>demark of DuPont<br>v Elastomers.<br>elements for this<br>er are supplied<br>n Viton <sup>®</sup> seals. Seal |  | Electrical<br>Visual<br>vith<br>Thermal<br>Lockout | MS13DCLCTC = Low current   | oove), direct current, w/ thermal lock   | ·   |  |  |

#### NOTES:

- Box 2. Repla part comb 2, 3, 4 letter 16QZ
- Box 3. QCLC avail
- Box 4. E me also QT fi Cont for n
- Box 4. For C 3 mu
- Box 6. Viton trade Dow All ele filter with Viton<sup>®</sup> seals. Seal designation in Box 6 applies to housing only.

# Tank-Mounted Filter Kit KTK

|                                   | Factoria and Danafita   | 100 gpm<br>380 L/min TF1          |
|-----------------------------------|---|-----------------------------------|
| (                                 | <ul><li>Features and Benefits</li><li>Special tank-mounted filter kit</li></ul>         | 100 psi кгз                       |
|                                   | <ul> <li>Includes: cap assembly, weld ring<br/>assembly, element and bushing</li> </ul> | 7 bar                             |
|                                   | <ul> <li>Available with standard K, KK<br/>or 27K-size elements</li> </ul>              | KL3                               |
| ar                                | <ul> <li>Bypass valve in cap assembly</li> </ul>  | LF1-2"                            |
|                                   |   | MLF1                              |
|                                   | ·   | RLD                               |
|                                   |   | GRTB                              |
|                                   |   | МТА                               |
| Model No. of filter in photograph | is KTK-KKZ10.   | МТВ                               |
|                                   |   | ZT                                |
|                                   |   | Applications KFT                  |
|                                   |   | RT                                |
| MOBILE<br>VEHICLES                |   | RTI                               |
|                                   |   | LRT                               |
|                                   |   |                                   |
|                                   |   | ART                               |
|                                   |   | BFT                               |
|                                   |   | QT                                |
|                                   |   | ктк                               |
|                                   |   | LTK                               |
|                                   |   | LIK                               |
|                                   |   | MRT                               |
| Flow Rating:                      | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids                                   | Filter Accessories                |
|                                   | 100 psi (7 bar) exclusive of tank design  | nousing                           |
| Min. Yield Pressure:              |   | Specifications Hounted<br>Filters |
| Rated Fatigue Pressure:           |   |                                   |
|                                   | -20°F to 225°F (-29°C to 107°C)   | PAF1                              |
| Bypass Setting:                   | Cracking: 25 psi (1.7 bar)<br>Full Flow: 40 psi (2.8 bar)                               |                                   |

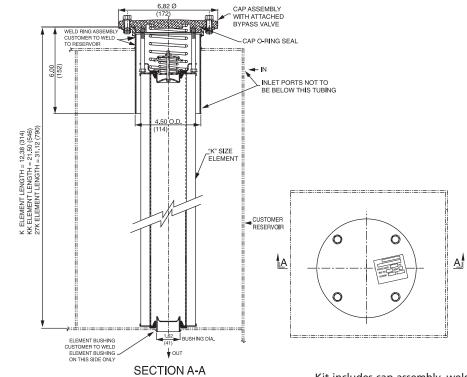
Full Flow: 40 psi (2.8 bar)

Element Change Clearance: 8.0" (205 mm) for K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

Porting Cap:Die Cast AluminumWeld Ring:Steel

MAF1

## **KTK** Tank-Mounted Filter Kit



Metric dimensions in ( ).

Kit includes cap assembly, weld ring assembly, element, and bushing.

| Element<br>Performance |              |                  | tio Per ISO 4572/N<br>article counter (APC) cal | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|--------------|------------------|---|--|----------------------|-----------------------|
| Information            | Element      | $\beta_x \ge 75$ | $B_x \ge 100$                                   | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | К3           | 6.8              | 7.5   | 10.0   | N/A                  | N/A                   |
|                        | K10          | 15.5             | 16.2  | 18.0   | N/A                  | N/A                   |
|                        | KZ1          | <1.0             | <1.0  | <1.0   | <4.0                 | 4.2                   |
|                        | KZ3/KAS3     | <1.0             | <1.0  | <2.0   | <4.0                 | 4.8                   |
|                        | KZ5/KAS5     | 2.5              | 3.0   | 4.0  | 4.8                  | 6.3                   |
|                        | KZ10/KAS10   | 7.4              | 8.2   | 10.0   | 8.0                  | 10.0                  |
|                        | KZ25         | 18.0             | 20.0  | 22.5   | 19.0                 | 24.0                  |
|                        | KZW1         | N/A              | N/A   | N/A  | <4.0                 | <4.0                  |
|                        | KZW3/KKZW3   | N/A              | N/A   | N/A  | 4.0                  | 4.8                   |
|                        | KZW5/KKZW5   | N/A              | N/A   | N/A  | 5.1                  | 6.4                   |
|                        | KZW10/KKZW10 | N/A              | N/A   | N/A  | 6.9                  | 8.6                   |
|                        | KZW25/KKZW25 | N/A              | N/A   | N/A  | 15.4                 | 18.5                  |

| Dirt Holding<br>Capacity | Element    | DHC<br>(gm) | Element    | DHC<br>(gm) | Element      | DHC<br>(gm)   | Element      | DHC<br>(gm) | Element | DHC<br>(gm) |
|--------------------------|------------|-------------|------------|-------------|--------------|---------------|--------------|-------------|---------|-------------|
|                          | К3         | 54          | ККЗ        | 108         | 27K3         | 162           |              |             |         |             |
|                          | К10        | 44          | КК10       | 88          | 27K10        | 132           |              |             |         |             |
|                          | KZ1        | 112         | KKZ1       | 224         | 27KZ1        | 336           | KZW1         | 61          |         |             |
|                          | KZ3/KAS3   | 115         | KKZ3       | 230         | 27KZ3        | 345           | KZW3         | 64          | KKZW3   | 128         |
|                          | KZ5/KAS5   | 119         | KKZ5       | 238         | 27KZ5        | 357           | KZW5         | 63          | KKZW5   | 126         |
|                          | KZ10/KAS10 | 108         | KKZ10      | 216         | 27KZ10       | 324           | KZW10        | 57          | KKZW10  | 114         |
|                          | KZ25       | 93          | KKZ25      | 186         | 27KZ25       | 279           | KZW25        | 79          | KKZW25  | 158         |
|                          |            | Flement     | Collapse R | ating.      | 150 psid (1( | ) har) for st | andard eleme | nts         |         |             |

Flow Direction: Outside In

Element Collapse Rating: 150 psid (10 bar) for standard elements Element Nominal Dimensions: 3.9" (99 mm) O.D. x 9.0" (230 mm) long

# Tank-Mounted Filter Kit KTK

| Type Fluid             | Appropriate Schroeder Media   |  |           |                                   | Fluid  |  |  |
|------------------------|---|--|-----------|-----------------------------------|--|--|--|
| Petroleum Based Fluids | All E media (cellulose), Z-Media <sup>®</sup> a   | Compatibility  |           |                                   |  |  |  |
| -                      | All Z-Media <sup>®</sup> and all ASP <sup>®</sup> media (s  |  |           |                                   |  |  |  |
|                        | 10 and 25 $\mu$ Z-Media® and 10 $\mu$ AS  | KF3  |           |                                   |  |  |  |
| -                      |   | 5, 10 and 25 μ Z-Media <sup>®</sup> and all ASP <sup>®</sup> media (synthetic) |           |                                   |  |  |  |
|                        | All Z-Media <sup>®</sup> (synthetic) with H (EF<br>E media (cellulose) with H (EPR) sea                                       | al designatio  | n and A   | SP <sup>®</sup> media (synthetic) | KL3  |  |  |
| Skydrol®               | 3, 5, 10 and 25 µ Z-Media <sup>®</sup> (synthe<br>(EPR seals and stainless steel wire r<br>coating on housing exterior) and a | nesh in elem   | ent, and  | l light oil                       | LF1-2"   |  |  |
|                        |   | ii Asi medi  | a (synth  |                                   | Skydrol <sup>®</sup> is a registered<br>trademark of Solutia Inc. MLF1 |  |  |
|                        |   |  |           |                                   | RLD  |  |  |
|                        | $\Delta \mathbf{P}_{element}$   |  |           |                                   | Pressure   |  |  |
|                        | $\Delta P_{element} = flow >$   | k element ∆P   | factor x  | viscosity factor                  | Drop GRTB  |  |  |
|                        | El. ΔP factors @ 1  | 50 SUS (32   | cSt):     |                                   | Based on MTA   |  |  |
|                        |   | 1K   | 2К        | 27K                               | Flow Rate  |  |  |
|                        | КЗ  | .25  | .12       | .08                               | and Viscosity MTB  |  |  |
|                        | К10   | .09  | .05       | .03                               |  |  |  |
|                        | К25   | .02  | .01       | .01                               | ZT   |  |  |
|                        | KZ1   | .20  | .10       | .05                               |  |  |  |
|                        | KZ3/KAS3  | .10  | .05       | .03                               | KFT  |  |  |
|                        | KZ5/KAS5  | .08  | .03       | .02                               |  |  |  |
|                        | KZ10/KAS10  | .05  | .04       | .02                               | RT   |  |  |
|                        |   |  |           | .02                               |  |  |  |
|                        | KZ25  | .04  | .02       | .01                               | RTI  |  |  |
|                        |   | 1K   | 2K        |                                   | LRT  |  |  |
|                        | KZW1  | .43  |           |                                   |  |  |  |
|                        | KZW3  | .32  | .16       |                                   | ART  |  |  |
|                        | KZW5  | .28  | .14       |                                   | DET  |  |  |
|                        | KZW10   | .23  | .12       |                                   | BFT  |  |  |
|                        | KZW25   | .14  | .07       |                                   | QT   |  |  |
|                        | If working in unit<br>by 54.9.  | s of bars & L  | /min, div | vide above factor                 | ктк  |  |  |
|                        | Viscosity factor: E   | Divide viscosi   | ty by 15  | 0 SUS (32 cSt).                   | LTK  |  |  |
| Notes                  |   |  |           |                                   | MRT  |  |  |
|                        |   |  |           |                                   | Accessories  |  |  |
|                        |   |  |           |                                   | for Tank-  |  |  |
|                        |   |  |           |                                   | Mounted  |  |  |
|                        |   |  |           |                                   | Filters  |  |  |
|                        |   |  |           |                                   | PAF1   |  |  |
|                        |   |  |           |                                   | MAF1   |  |  |
|                        |   |  |           |                                   | MF2  |  |  |

### **KTK** Tank-Mounted Filter Kit

|         | 2 BOX 3<br>- <b>Z3</b> | BOX 4 BOX 5<br>   |  |
|---------|------------------------|---|--|
| BOX 1 B | OX 2                   | BOX 3   |  |
|         | ement<br>ength         | Element Part Number   |  |
|         | К                      | 3 = 3 μ E media (cellulose)   |  |
| КТК     | КК                     | 10 = 10 µ E media (cellulose)   |  |
| 2       | 27K                    | 25 = 25 μ E media (cellulose)   |  |
|         |                        | Z1 = 1 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)            |  |
|         |                        | Z3/AS3 = 3 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)    |  |
|         |                        | Z5/AS5 = 5 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)    |  |
|         |                        | Z10/AS10 = 10 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |  |
|         |                        | Z25 = 25 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)      |  |
|         |                        | ZW1 = 1 $\mu$ Aqua-Excellement <sup><math>m</math></sup> ZW media             |  |
|         |                        | ZW3 = 3 $\mu$ Aqua-Excellement <sup><math>m</math></sup> ZW media             |  |
|         |                        | ZW5 = 5 µ Aqua-Excellement <sup>™</sup> ZW media                              |  |
|         |                        | ZW10 = 10 µ Aqua-Excellement <sup>™</sup> ZW media                            |  |
|         |                        | ZW25 = 25 µ Aqua-Excellement <sup>™</sup> ZW media                            |  |
|         |                        | ZW1 = 1 µ Aqua-Excellement <sup>™</sup> ZW media                              |  |
|         |                        | ZW3 = 3 µ Aqua-Excellement <sup>™</sup> ZW media                              |  |
|         |                        | ZW5 = 5 µ Aqua-Excellement <sup>™</sup> ZW media                              |  |
|         |                        | ZW10 = 10 µ Aqua-Excellement <sup>™</sup> ZW media                            |  |
|         |                        | ZW25 = 25 µ Aqua-Excellement <sup>™</sup> ZW media                            |  |
|         |                        |   |  |
| BOX 4   |                        | BOX 5   |  |

| BOX 4                                    |   | BOX 5       |  |
|--|---|-------------|--|
| Seal Material                            | Dirt Alarm <sup>®</sup> Options         |             |  |
| Omit = Buna N                            |   | Omit = None |  |
| H = EPR                                  | Visual Y2C = Bottom-mounted gauge in ca |             |  |
| W = Buna N                               |   |             |  |
| H.5 = Skydrol <sup>®</sup> Compatibility |   |             |  |

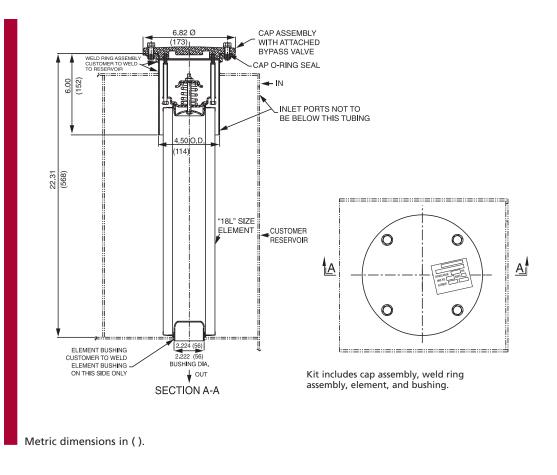
NOTES:

- Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, and 4.
- Box 4. For options H and W, cap is anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.

## Tank-Mounted Filter Kit

| Model No. of filter in photograph   | | 57                    | IRF<br>D L/min<br>D L/min<br>D psi<br>KF3<br>KL3<br>LF1-2"<br>MLF1<br>RLD<br>GRTB<br>MTA<br>MTB<br>ZT |
|---|---|-----------------------|---|
| MOBILE         BURHICLES  |   |                       | lications KFT<br>RT<br>RTI<br>LRT<br>ART<br>BFT<br>QT<br>KTK<br>LTK<br>MRT                            |
| Flow Rating:<br>Max. Operating Pressure:<br>Min. Yield Pressure:<br>Rated Fatigue Pressure: | Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids<br>100 psi (7 bar) exclusive of tank design<br>Contact factory<br>Contact factory   | Filte<br>Hou:<br>Spec | f a set T a set la  |

## LTK Tank-Mounted Filter Kit



| Element<br>Performance |         |                  | tio Per ISO 4572/NI<br>article counter (APC) cali | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                       |
|------------------------|---------|------------------|---|--|----------------------|-----------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                 | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$ |
|                        | 18L3    | 6.8              | 7.5   | 10.0   | N/A                  | N/A                   |
|                        | 18L10   | 15.5             | 16.2  | 18.0   | N/A                  | N/A                   |
|                        | 18LZ1   | <1.0             | <1.0  | <1.0   | <4.0                 | 4.2                   |
|                        | 18LZ3   | <1.0             | <1.0  | <2.0   | <4.0                 | 4.8                   |
|                        | 18LZ5   | 2.5              | 3.0   | 4.0  | 4.8                  | 6.3                   |
|                        | 18LZ10  | 7.4              | 8.2   | 10.0   | 8.0                  | 10.0                  |
|                        | 18LZ25  | 18.0             | 20.0  | 22.5   | 19.0                 | 24.0                  |

#### Dirt Holding Capacity

| Capacity | Element    | DHC (gm)            |  |
|----------|------------|---------------------|--|
| capacity | 18L3       | 108                 |  |
|          | 18L10      | 88                  |  |
|          | 18LZ1      | 224                 |  |
|          | 18LZ3      | 230                 |  |
|          | 18LZ5      | 238                 |  |
|          | 18LZ10     | 216                 |  |
|          | 18LZ25     | 186                 |  |
|          |            |                     |  |
|          | Eleme      | nt Collapse Rating: | 150 psid (10 bar)                        |
|          |            | Flow Direction:     | Outside In                               |
|          | Element No | ominal Dimensions:  | 4.0" (100 mm) O.D. x 18.5" (470 mm) long |
| -        |            |                     |  |

# Tank-Mounted Filter Kit LTK

| Type Fluid             | Appropriate Schroeder Media  | Fluid  |
|------------------------|--|--|
| Petroleum Based Fluids | All E media (cellulose) and Z-Media <sup>®</sup> (synthetic)   | Compatibility TF1                                  |
| High Water Content     | All Z-Media® (synthetic)   |  |
|                        | 10 and 25 μ Z-Media® (synthetic)   | KF3  |
|                        | 3, 5, 10 and 25 µ Z-Media <sup>®</sup> (synthetic)   |  |
|                        | All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 $\mu$ E media (cellulose) with H (EPR) seal designation  | KL3  |
| Skydrol®               | 3, 5, 10 and 25 $\mu$ Z-Media <sup>®</sup> (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior) | Skydrol® is a registered trademark of Solutia Inc. |
|                        |  | MLF1   |
|                        |  | RLD  |
|                        |  | GRTB   |
|                        |  | МТА  |
|                        |  | МТВ  |
|                        |  | ZT   |
|                        | $\Delta \mathbf{P}_{element}$  | Pressure KFT                                       |
|                        | $\Delta P_{element} = flow x element \Delta P factor x viscosity factor El. \Delta P factors @ 150 SUS (32 cSt):$  | Drop<br>Information RT                             |
|                        | 18L  | Based on<br>Flow Rate RTI<br>and Viscosity         |
|                        | <b>18LZ1</b> .10   | -  |
|                        | <b>18LZ3</b> .05   | LRT  |
|                        | <b>18LZ5</b> .04   | ART  |
|                        | <b>18LZ10</b> .03  |  |
|                        | <b>18LZ25</b> .02  | BFT  |
|                        | If working in units of bars & L/min, divide above factor<br>by 54.9.   | QT   |
|                        | Viscosity factor: Divide viscosity by 150 SUS (32 cSt).  | ктк  |
|                        |  | LTK  |
| Notes                  |  | MRT  |
|                        |  | Accessories<br>for Tank-<br>Mounted<br>Filters     |
|                        |  | PAF1   |
|                        |  | MAF1   |
|                        |  | MF2  |

### LTK Tank-Mounted Filter Kit

| Filter    | How to Build a Valid Model Number for a Schroeder LTK:  |
|-----------|---|
| Model     | BOX 1 BOX 2 BOX 3 BOX 4 BOX 5   |
| Number    |   |
| Selection | Example: NOTE: One option per box   |
|           | BOX 1         BOX 2         BOX 3         BOX 4         BOX 5           LTK         18         LZ3         —         —         =         LTK18LZ3 |
|           |   |

| BOX 1            | BOX 2                        | BOX 3  | BOX 4                                    |
|------------------|------------------------------|--|--|
| Filter<br>Series | Length of<br>Element<br>(in) | Element Size and Media   | Seal Material                            |
|                  |                              | L3 = L size 3 µ E media (cellulose)  | Omit = Buna N                            |
| LTK              | 18                           | L10 = L size 10 µ E media (cellulose)  | H = EPR                                  |
|                  |                              | L25 = L size 25 $\mu$ E media (cellulose)  | W = Buna N                               |
|                  |                              | LZ1 = L size 1 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | H.5 = Skydrol <sup>®</sup> Compatibility |
|                  |                              | LZ3 = L size 3 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)       |  |
|                  |                              | LZ5 = L size 5 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |  |
|                  |                              | LZ10 = L size 10 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |  |
|                  |                              | LZ25 = L size 25 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)     |  |

| BOX | 5 |
|-----|---|
| DOX | 2 |

|        | Dirt Alarm <sup>®</sup> Options   |
|--------|-----------------------------------|
|        | Omit = None                       |
| Visual | Y2C = Bottom-mounted gauge in cap |

NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 18LZ3H
- Box 4. For options H and W, cap is anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.

### Medium Pressure In-Tank Filter MRT

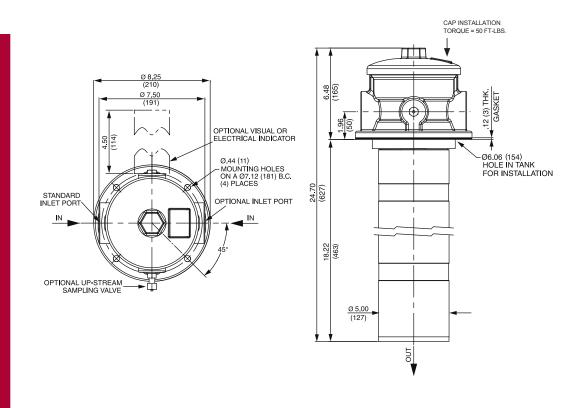
| Model No. of filter | in photograph is MRT18LZ10SJ | | 150 gpm<br><u>570 L/min</u><br>900 psi<br>62 bar | IRF<br>TF1<br>KF3<br>KL3<br>LF1–2"<br>MLF1<br>RLD<br>GRTB<br>MTA<br>MTB |
|---------------------|------------------------------|--|--|---|
|                     |                              |  | Applications                                     | KFT<br>RT   |
| INDUSTRIAL          | MOBILE<br>VEHICLES           |  |  | RTI   |
|                     | JT I                         |  |  | LRT   |
|                     |                              |  |  | ART   |
| STEEL<br>MAKING     | AGRICULTURE                  |  |  | BFT   |
|                     |                              |  |  | QT  |
|                     |                              |  |  | КТК   |
|                     |                              |  |  | LTK   |
|                     |                              |  | -  | MRT   |

| MRT |
|-----|
|-----|

| Flow Rating:                         | Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids |                | cessories |
|--------------------------------------|---|----------------|-----------|
| Max. Operating Pressure:             | 900 psi (62 bar)                                      |                | for Tank- |
| Min. Yield Pressure:                 | 2700 psi (186 bar), per NFPA T2.6.1                   | Specifications | Mounted   |
| Rated Fatigue Pressure:              | 750 psi (52 bar), per NFPA T2.6.1-2005                |                | Filters   |
| Temp. Range:                         | -20°F to 225°F (-29°C to 107°C)                       |                |           |
| Bypass Setting:                      | Cracking: 40 psi (2.8 bar)                            |                | PAF1      |
| Porting Head & Cap:<br>Element Case: | Cast Aluminum (Anodized)<br>Steel                     |                | MAF1      |
| Weight of MRT:                       | 36.0 lbs. (16.4 kg)                                   |                |           |
| Element Change Clearance:            | 17.0" (432 mm)  |                | MF2       |



#### MRT Medium Pressure In-Tank Filter



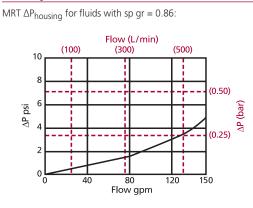
Metric dimensions in ( ).

| Element<br>Performance |         |                  | t <b>io Per ISO 4572/N</b><br>article counter (APC) cal |                   |                       | o per ISO 16889<br>ted per ISO 11171 |
|------------------------|---------|------------------|---|-------------------|-----------------------|--------------------------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                       | $\beta_x \ge 200$ | $\beta_x(c) \geq 200$ | $\beta_x(c) \geq 1000$               |
|                        | 18L3    | 6.8              | 7.5   | 10.0              | N/A                   | N/A                                  |
|                        | 18LZ1   | <1.0             | <1.0  | <1.0              | <4.0                  | 4.2                                  |
|                        | 18LZ3   | <1.0             | <1.0  | <2.0              | <4.7                  | 5.8                                  |
|                        | 18LZ5   | 2.5              | 3.0   | 4.0               | 6.5                   | 7.5                                  |
|                        | 18LZ10  | 7.4              | 8.2   | 10.0              | 10.0                  | 12.7                                 |
|                        | 18LZ25  | 18.0             | 20.0  | 22.5              | 19.0                  | 24.0                                 |
|                        | 18LDZ1  | <1.0             | <1.0  | <1.0              | <4.0                  | 4.2                                  |
|                        | 18LDZ3  | <1.0             | <1.0  | <2.0              | <4.7                  | 5.8                                  |
|                        | 18LDZ5  | 2.5              | 3.0   | 4.0               | 6.5                   | 7.5                                  |
|                        | 18LDZ10 | 7.4              | 8.2   | 10.0              | 10.0                  | 12.7                                 |
|                        | 18LDZ25 | 18.0             | 20.0  | 22.5              | 19.0                  | 24.0                                 |

| Dirt Holding | Element | DHC (gm)                 | Element      | DHC (gm)                      |  |
|--------------|---------|--------------------------|--------------|-------------------------------|--|
| Capacity     | 18L3    | 108                      |              |                               |  |
|              | 18L10   | 88                       |              |                               |  |
|              | 18LZ1   | 224                      | 18LDZ1       | 194                           |  |
|              | 18LZ3   | 230                      | 18LDZ3       | 199                           |  |
|              | 18LZ5   | 238                      | 18LDZ5       | 149                           |  |
|              | 18LZ10  | 216                      | 18LDZ10      | 186                           |  |
|              | 18LZ25  | 186                      | 18LDZ25      | 169                           |  |
|              |         | Element Collapse Rating: | 150 psid (10 | bar)                          |  |
|              |         | Flow Direction:          | Outside In   |                               |  |
|              | Eler    | nent Nominal Dimensions: | 4.0" (100 m  | m) O.D. x 18.5" (470 mm) long |  |
|              |         |                          |              |                               |  |

## Medium Pressure In-Tank Filter MRT

|                               |                           | Type Fluid A       | ppropriate Schro               | oeder Media                   |                          |                |               |      | Fluid                 | IRF    |
|-------------------------------|---------------------------|--------------------|--------------------------------|-------------------------------|--------------------------|----------------|---------------|------|-----------------------|--------|
|                               | Petroleur                 | n Based Fluids A   | ll E media (cellulo            | se) and Z-Media               | <sup>®</sup> (synthetic) |                |               |      | Compatibility         | TEA    |
|                               | High V                    | Vater Content A    | ll Z-Media <sup>®</sup> (synth | etic)                         |                          |                |               |      |                       | TF1    |
|                               | Inv                       | vert Emulsions 1   | 0 and 25 µ Z-Mec               | ia <sup>®</sup> (synthetic)   |                          |                |               |      |                       | 1/20   |
|                               |                           | Water Glycols 3    | •                              |                               | tic)                     |                |               |      |                       | KF3    |
|                               |                           |                    | -, p -                         | (-)                           |                          |                |               |      | •                     | KI S   |
|                               |                           |                    |                                |                               |                          |                |               |      |                       | KL3    |
|                               | Ele                       | ment               | Element select                 | ions are predic               | ated on the              | e use of 15    | 0 SUS (32     | cSt) | Element               | LF1-2" |
| Pressure                      | Series                    | Part No.           |                                | ed fluid and a                |                          |                |               |      | Selection             |        |
|                               |                           | 18LZ1/18LDZ1       |                                | 18LDZ1                        |                          |                | 18LZ1         |      | Based on<br>Flow Rate | MLF1   |
| Return                        |                           | 18LZ3/18LDZ3       |                                | 18L                           | Z3/18LDZ3                |                |               |      | now nate              |        |
| Line                          | Z-Media®                  | 18LZ5/18LDZ5       |                                | 18L                           | Z5/18LDZ5                |                |               |      |                       | RLD    |
| Tank-<br>Mounted              |                           | 18LZ10/18LDZ10     |                                | 1817                          | 10/18LDZ10               |                |               |      |                       | NED.   |
| Mounted                       |                           | 18LZ25/18LDZ25     |                                |                               | 25/18LDZ25               |                |               |      |                       | GRTB   |
|                               |                           |                    |                                | 50                            | 75                       | 100            | 125           | 150  |                       | GRID   |
|                               | Flow                      | gpm                |                                |                               |                          |                | 125           | 150  |                       | МТА    |
|                               |                           | (L/min)            | 0 100                          | 200                           | 300                      | 400            |               | 570  |                       |        |
| shown abo                     | ove are the               | elements most cor  | nmonly used in th              | is housing.                   |                          |                |               |      |                       | МТВ    |
|                               |                           | regarding use of l |                                |                               |                          |                |               |      |                       |        |
| Аррисатіог                    | is. For mor               | e information, ref | er to Fluid Compa              | tibility: Fire Resi           | stant Fluids,            | pages ZT a     | na 22.        |      |                       | ZT     |
|                               |                           |                    |                                |                               |                          |                |               |      |                       | 21     |
| ∆ <b>P</b> <sub>housing</sub> |                           |                    |                                | $\Delta \mathbf{P}_{element}$ |                          |                |               |      | Pressure              | KFT    |
|                               | <sub>ing</sub> for fluids | with sp gr = 0.86: |                                | $\Delta P_{element} = flo$    | w x element ∆            | P factor x vis | cosity factor |      | Drop                  |        |
|                               | -                         |                    |                                | El. ΔP factors @              | 150 SUS (32 c            | St)·           |               |      | Information           | RT     |





| $\Delta \mathbf{P}_{element}$ |             |                                  |                |
|-------------------------------|-------------|----------------------------------|----------------|
| ∆P <sub>element</sub> =       | = flow x el | ement $\Delta P$ factor x viscos | ity factor     |
| El. ∆P factor                 | rs @ 150 S  | US (32 cSt):                     |                |
|                               | 18L         |                                  | 18LD           |
| 18LZ1                         | .10         | 18LDZ1                           | .12            |
| 18LZ3                         | .05         | 18LDZ3                           | .06            |
| 18LZ5                         | .04         | 18LDZ5                           | .05            |
| 18LZ10                        | .03         | 18LDZ10                          | .03            |
| 18LZ25                        | .02         | 18LDZ25                          | .02            |
|                               |             |                                  |                |
| lf working<br>by 54.9.        | in units (  | of bars & L/min, divid           | e above factor |
| Viscosity fa                  | actor: Div  | ide viscosity by 150 S           | US (32 cSt).   |

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

| Notes | ∆P <sub>filter</sub> =                       | = $\Delta \mathbf{P}_{housing} + \Delta \mathbf{P}_{element}$                        |
|-------|--|--|
| notes | Exercise                                     | ::   |
|       |  | ne $\Delta P$ at 120 gpm (455 L/min) for<br>Z5S24S24D5 using 200 SUS (44 cSt) fluid. |
|       | Solution                                     | 1:   |
|       | $\Delta P_{housing}$<br>$\Delta P_{element}$ |  |
|       | ΔP <sub>total</sub>                          | = 3.0 + 6.4 = 9.4 psi<br>or<br>= [.21 + .23 = .44 bar]                               |
|       |  |  |

QT KTK LTK MRT

|     |  | Accessories<br>for Tank-<br>Mounted<br>Filters |
|-----|--|--|
| ir] |  | PAF1   |
|     |  | MAF1   |
|     |  |  |

Based on

Flow Rate

and Viscosity

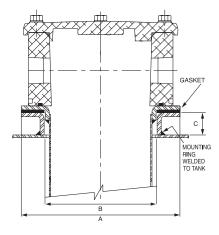
## MRT Medium Pressure In-Tank Filter

| ber<br>Example: NOTE: One option per box                                      | DX 4 BOX 5  | BOX 6 BOX 7  |   |
|---|---|--|---|
|   | БОХ 4 ВОХ 5<br>- S24 S24 -  | $\frac{BOX 6}{-} = \mathbf{N}$   | RT18LZ10S24S24  |
| BOX 1BOX 2  | BOX 3   |  | BOX 4   |
| Filter Element<br>Series Length (in)  | Element Size and  | d Media  | Seal Material   |
|   | - L size 3 μ E media (cellu   | lose)  | Omit = Buna N   |
|   | E size 10 μ E media (cell   |  |   |
|   | L size 1 µ Excellement®   | -  |   |
|   | L size 3 µ Excellement <sup>®</sup>   | ,  |   |
|   | <ul> <li>L size 5 µ Excellement<sup>®</sup></li> <li>L size 10 µ Excellement<sup>®</sup></li> </ul>           |  |   |
|   | L size 25 μ Excellement   | •  |   |
|   | L size DirtCatcher <sup>®</sup> 1 μ l   |  |   |
|   | L size DirtCatcher <sup>®</sup> 3 μ l   |  |   |
|   | :L size DirtCatcher <sup>®</sup> 5 μ l<br>:L size DirtCatcher <sup>®</sup> 10 μ                               |  |   |
|   | <ul> <li>L size DirtCatcher<sup>®</sup> 25 µ</li> </ul>   |  |   |
|   |   |  | -   |
| BOX 5   |   |  |   |
| Specification of both ports is requ   | uired   |  | 8 6<br>® 0  |
| Inlet Porting   |   |  | <sup>®</sup> Options  |
| Port A         Port B           S = S24         S = S24         Inlet Porting | Location Visual   | Omit = None<br>D5 = Visual po  | n-un  |
| N = None $N = None$   | Visual with   |  | thermal lockout   |
| Indica  | tor Thermal   |  |   |
|   |   | MS5 = Electrical   | w/ 12 in. 18 gauge 4-conductor cab  |
| A T Top View  | <b>N</b>  |  |   |
|   | , <b>Д</b> В  | MS5LC = Low curr   |   |
|   |   | MS10 = Electrical  | w/ DIN connector (male end only)  |
|   |   | MS10 = Electrical<br>MS10LC = Low curr   | w/ DIN connector (male end only)<br>ent MS10  |
| C<br>Sampling Valv  |   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire  |
|   | re (Optional)   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector  |
|   | re (Optional)   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12   |
|   | re (Optional)   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16 = Electrical   | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector   |
|   | re (Optional)   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16 = Electrical<br>MS16LC = Low curr  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connecto<br>ent MS16  |
|   | re (Optional)   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16 = Electrical<br>MS16LC = Low curr<br>MS16LC = Low curr<br>MS17LC = Electrical  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>ent MS16   |
|   | re (Optional)   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16 = Electrical<br>MS16LC = Low curr<br>MS17LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr   | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T   |
|   | re (Optional)   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16LC = Low curr<br>MS16LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10T = MS10 (se  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>e above) w/ thermal lockout  |
|   | Electrical<br>Electrical<br>Electrical<br>with  | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16LC = Low curr<br>MS16LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10T = MS10 (se<br>MS10LCT = Low curr  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>re above) w/ thermal lockout<br>ent MS10T  |
|   | Electrical<br>Electrical<br>Electrical<br>with<br>Thermal   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16LC = Low curr<br>MS16LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10T = MS10 (se<br>MS10LCT = Low curr  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>ie above) w/ thermal lockout<br>ent MS10T<br>e above) w/ thermal lockout   |
|   | Electrical<br>Electrical<br>Electrical<br>with  | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16LC = Low curr<br>MS16LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10T = MS10 (se<br>MS10LCT = Low curr<br>MS12T = MS12 (se<br>MS12LCT = Low curr  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>ie above) w/ thermal lockout<br>ent MS10T<br>e above) w/ thermal lockout   |
|   | Electrical<br>Electrical<br>Electrical<br>with<br>Thermal   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16 = Electrical<br>MS16LC = Low curr<br>MS17LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10LCT = Low curr<br>MS10LCT = Low curr<br>MS12LCT = Low curr<br>MS12LCT = Low curr<br>MS16T = MS16 (se<br>MS16LCT = Low curr   | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>above) w/ weather-packed sealed connector<br>above) w/ thermal lockout<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>e above) w/ thermal lockout<br>ent MS10T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS12T   |
|   | Electrical<br>Electrical<br>Electrical<br>with<br>Thermal   | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16LC = Low curr<br>MS16LC = Low curr<br>MS17LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10LT = Low curr<br>MS10LCT = Low curr<br>MS12LCT = Low curr<br>MS16LC = Low curr<br>MS16LC = Low curr<br>MS16LCT = Low curr<br>MS16LCT = Low curr<br>MS16LCT = Low curr<br>MS16LCT = Low curr  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>above) w/ weather-packed sealed connector<br>above) w/ thermal lockout<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>e above) w/ thermal lockout<br>ent MS10T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS17T   |
| Sampling Valv   | Electrical<br>Electrical<br>With<br>Thermal<br>Lockout<br>Electrical  | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16 = Electrical<br>MS16LC = Low curr<br>MS17LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10T = MS10 (se<br>MS10LCT = Low curr<br>MS12T = MS12 (se<br>MS12LCT = Low curr<br>MS16T = MS16 (se<br>MS16LCT = Low curr<br>MS16T = Low curr<br>MS16LCT = Low curr<br>MS16LCT = Low curr<br>MS16LCT = Low curr<br>MS16LCT = Low curr<br>MS17LCT = Low curr<br>MS17LCT = Low curr<br>MS13 = Supplied<br>MS14 = Supplied   | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>above) w/ weather-packed sealed connector<br>above) w/ thermal lockout<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>e above) w/ thermal lockout<br>ent MS10T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS16T<br>ent MS17T<br>w/ threaded connector & light<br>w/ 5 pin Brad Harrison connector                               |
|   | e (Optional)<br>Electrical<br>Electrical<br>with<br>Thermal<br>Lockout<br>Electrical<br>Visual                | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16 = Electrical<br>MS16LC = Low curr<br>MS17LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10T = MS10 (se<br>MS10LCT = Low curr<br>MS12T = MS12 (se<br>MS12LCT = Low curr<br>MS16T = MS16 (se<br>MS16LCT = Low curr<br>MS16T = MS16 (se<br>MS16LCT = Low curr<br>MS16LCT = Low curr<br>MS17LCT = Low curr<br>MS13 = Supplied<br>MS14 = Supplied   | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>above) w/ weather-packed sealed connector<br>above) w/ thermal lockout<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>e above) w/ thermal lockout<br>ent MS10T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS12T<br>w/ threaded connector & light<br>w/ 5 pin Brad Harrison connector<br>nale end)                               |
| Sampling Valv   | re (Optional)<br>Electrical<br>Electrical<br>with<br>Thermal<br>Lockout<br>Electrical<br>Visual<br>Electrical | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16 = Electrical<br>MS16LC = Low curr<br>MS17LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10T = MS10 (se<br>MS10LCT = Low curr<br>MS12LCT = Low curr<br>MS12LCT = Low curr<br>MS16T = MS16 (se<br>MS16LCT = Low curr<br>MS16LCT = Low curr<br>MS17LCT = Low curr<br>MS13 = Supplied<br>& light (r<br>MS13DCT = MS13 (see | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>above) w/ weather-packed sealed connector<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>e above) w/ thermal lockout<br>ent MS10T<br>e above) w/ thermal lockout<br>ent MS10T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS16T<br>ent MS17T<br>w/ threaded connector & light<br>w/ 5 pin Brad Harrison connector<br>nale end)<br>above), direct current, w/ thermal lockout |
| BOX 7   | e (Optional)<br>Electrical<br>Electrical<br>with<br>Thermal<br>Lockout<br>Electrical<br>Visual                | MS10 = Electrical<br>MS10LC = Low curr<br>MS11 = Electrical<br>MS12 = Electrical<br>(male en<br>MS12LC = Low curr<br>MS16 = Electrical<br>MS16LC = Low curr<br>MS17LC = Electrical<br>MS5T = MS5 (see<br>MS5LCT = Low curr<br>MS10T = MS10 (se<br>MS10LCT = Low curr<br>MS12T = MS12 (se<br>MS12LCT = Low curr<br>MS16T = MS16 (se<br>MS16LCT = Low curr<br>MS16LCT = Low curr<br>MS13 = Supplied<br>MS14 = Supplied<br>& light (r<br>MS13DCT = MS13 (see<br>MS13DCLCT = Low curr  | w/ DIN connector (male end only)<br>ent MS10<br>w/ 12 ft. 4-conductor wire<br>w/ 5 pin Brad Harrison connector<br>d only)<br>ent MS12<br>w/ weather-packed sealed connector<br>above) w/ weather-packed sealed connector<br>ent MS16<br>w/ 4 pin Brad Harrison male connector<br>above) w/ thermal lockout<br>ent MS5T<br>e above) w/ thermal lockout<br>ent MS10T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS12T<br>e above) w/ thermal lockout<br>ent MS16T<br>ent MS17T<br>w/ threaded connector & light<br>w/ 5 pin Brad Harrison connector<br>nale end)<br>above), direct current, w/ thermal lockout |

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 18L3

### **Accessories for Tank-Mounted Filters**



The mounting ring is welded directly to the hydraulic reservoir. The filter is then mounted to the mounting ring with bolts converting the filter to a "weld in" design. The mounting ring eliminates the need to drill and tap the hydraulic reservoir.

| Model                               | RT, RTI and<br>LRT Models |               |               |              |  |
|-------------------------------------|---------------------------|---------------|---------------|--------------|--|
| Number                              | Number                    | Α             | В             | с            |  |
| ST, RT,<br>RTI, LRT                 | A-LFT-813                 | 7.00<br>(178) | 5.00<br>(127) | 1.00<br>(25) |  |
| ST, RT, RTI,<br>LRT High<br>Version | A-LFT-1448                | 7.00<br>(178) | 5.00<br>(127) | 1.50<br>(38) |  |
| ZT                                  | A-LFT-1295                | 6.25<br>(159) | 3.62<br>(92)  | .88<br>(22)  |  |

The diffuser option (designated as D for outlet porting option in model number) is threaded to the bushing on the filter bowl below the outlet opening to help decrease turbulent flow in the hydraulic reservoir.

No other outlet port options are available if the diffuser is used.

| Model<br>Number | Part<br>Number | NPTF |
|-----------------|----------------|------|
| RT, KFT         | A-LFT-1506     | 1½"  |
| LRT             | A-LFT-1507     | 2 "  |

The check valve option (designated as C for outlet porting option in model number) makes it possible to service the filter without draining the oil from the reservoir when the filter is mounted below the oil level. It also prevents reservoir siphoning when system components are serviced.

The check valve can also be used on other reservoir return flow lines, where components upstream of the check valve can be serviced without the loss of reservoir oil. The spring setting is .75-1.00 psi cracking. Order by part number shown in chart.

No other outlet port options are available if the check valve is used.

| Model<br>Number | Part<br>Number | NPTF   | А          |
|-----------------|----------------|--------|------------|
| ST, KFT, RT     | A-LFT-158Q-1   | 11/2 " | 2.34 (59)  |
| LRT             | A-LFT-880      | 2 "    | 2.34 (59)  |
| BFT             | A-BFT-103      | 3"     | 4.50 (114) |

The diffuser/check valve option (designated as CD for outlet porting option in model number) is threaded on to the outlet port and combines the advantages of both separate options in one assembly.

Available as a separate item with  $1^{1}\!/_{2}$  " NPT female threads, order part number A-LFT-1208.

No other outlet port options are available if the check valve/ diffuser is used.

|   | LTK   |
|---|---|
| Check<br>Valve<br>Diffuser<br>Combination<br>for KFT and<br>RT Models | MRT<br>Accessories<br>for Tank-<br>Mounted<br>Filters |
|   | PAF1  |
|   | MAF1  |
|   | MF2   |

Mounting

for ST, ZT,

Diffuser

for KFT, RT and

**LRT Models** 

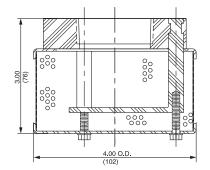
Check Valve

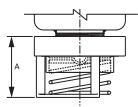
for ST, KFT,

RT, LRT and

**BFT Models** 

Ring





<u>3.90 Ø</u> (99)

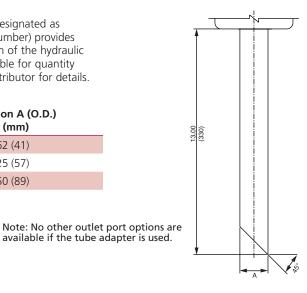
3.50 (89)

2.94

### **Accessories for Tank-Mounted Filters**

Tube Adapter Outlet Port for KFT, RT, LRT and BFT Models The tube adapter outlet port option (designated as T for outlet porting option in model number) provides the means to direct flow to the bottom of the hydraulic reservoir. Other tube lengths are available for quantity purchases. Contact your Schroeder distributor for details.

| Model<br>Number | Dimension A (O.D.)<br>in. (mm) |
|-----------------|--------------------------------|
| RT              | 1.62 (41)                      |
| LRT             | 2.25 (57)                      |
| BFT             | 3.50 (89)                      |
|                 |                                |



The threaded male outlet port is standard on the KFT, RT, LRT and BFT models, and is available as an option on the ZT filter by designating OP for the outlet porting options in the model number.

Threaded Outlet Port for ZT, KFT, RT, LRT and BFT Models

- RT is furnished with 1<sup>1</sup>/<sub>2</sub>" NPT Male (standard) BFT is furnished with 3" NPT Male (standard)
- LRT is furnished with 2 " NPT Male (standard)
  - T is furnished with  $1\frac{1}{2}$ " NPT Male (optional)
- KFT is furnished with 1 1/2 " NPT Male (standard)

#### SAME DAY SHIPMENT MODEL AVAILABLE!

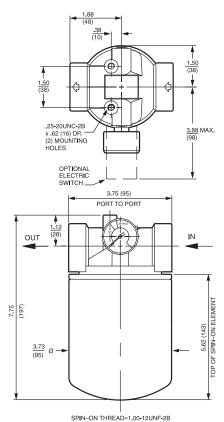
# Spin-On Filter PAF1

| Model No. of filter in photograph is F | <ul> <li>Fortunes and Benefits</li> <li>Spin-On with full ported die cast aluminum head for minimal pressure drop</li> <li>Offered in pipe and SAE straight thread porting</li> <li>Spin-On thread = 1.00-12UNF-2B</li> <li>Visual gauge or electrical switch dirt alarms</li> <li>Small profile for use in limited space</li> <li>Same day shipment model available</li> </ul>  | 20 gpm<br><u>75 L/min</u><br>100 psi<br>7 bar | IRF<br>TF1<br>KF3<br>KL3<br>LF1-2"<br>MLF1<br>RLD<br>GRTB<br>MTA<br>MTB |
|--|--|---|---|
| STEEL       GRICULTURE                 | With the second secon | Applications                                  | KFT<br>RT<br>RTI<br>LRT<br>ART<br>BFT<br>QT<br>KTK<br>LTK<br>MRT        |

| Flow Rating                        | Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids   | Fliter         |                        |
|------------------------------------|---|----------------|------------------------|
| Max. Operating Pressure            | 100 psi (7 bar)                                       | nousing        | cessories<br>for Tank- |
| Min. Yield Pressure                | 150 psi (10 bar), per NFPA T2.6.1                     | Specifications | Mounted                |
| Rated Fatigue Pressure             | Contact factory                                       |                | Filters                |
| Temp. Range                        | -20°F to 225°F (-29°C to 107°C)                       |                | There                  |
| Bypass Setting                     | Cracking: 30 psi (2 bar)<br>Full Flow: 36 psi (2 bar) |                | PAF1                   |
| Porting Head & Cap<br>Element Case |   |                | MAF1                   |
| Weight of PAF1-6P                  | 1.8 lbs. (0.8 kg)                                     |                |                        |
| Element Change Clearance           | 2.50" (65 mm)   |                | MF2                    |

#### SAME DAY SHIPMENT MODEL AVAILABLE!





Metric dimensions in ( ).

Installation instructions included on element.

| Element<br>Performance |         |                  | tio Per ISO 4572/N<br>article counter (APC) cali |                   |                      | o per ISO 16889<br>ted per ISO 11171 |
|------------------------|---------|------------------|--|-------------------|----------------------|--------------------------------------|
| Information            | Element | $\beta_x \ge 75$ | $\beta_x \ge 100$                                | $\beta_x \ge 200$ | $\beta_x(c) \ge 200$ | $\beta_x(c) \ge 1000$                |
|                        | P10     | 15.5             | 16.2   | 18.0              | N/A                  | N/A                                  |
|                        | PZ10    | 7.4              | 8.2  | 10.0              | 8.0                  | 10.0                                 |
|                        | PZ25    | 18.0             | 20.0   | 22.5              | 19.0                 | 24.0                                 |

| Dirt Holding<br>Capacity | Element | DHC (gm)              |   |
|--------------------------|---------|-----------------------|---|
| Capacity                 | P10     | 37                    |   |
|                          | PZ10    | N/A                   |   |
|                          | PZ25    | N/A                   |   |
|                          |         |                       |   |
|                          | Ele     | ment Collapse Rating: | 100 psid (7 bar)                        |
|                          |         | Flow Direction:       | Outside In                              |
|                          | Element | Nominal Dimensions:   | 3.75" (95 mm) O.D. x 5.5" (140 mm) long |
|                          |         |                       |   |
|                          |         |                       |   |
|                          |         |                       |   |
|                          |         |                       |   |
|                          |         |                       |   |
|                          |         |                       |   |
|                          |         |                       |   |
|                          |         |                       |   |
|                          |         |                       |   |

#### SAME DAY SHIPMENT MODEL AVAILABLE!

# Spin-On Filter PAF1

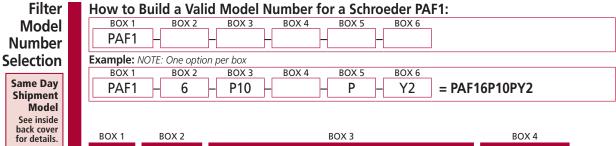
|                    | Ту                   | ype Fluid                      | Appropriate Schroeder Media  |                  |          | Fluid                 | IRF         |
|--------------------|----------------------|--------------------------------|--|------------------|----------|-----------------------|-------------|
| Pet                | roleum Bas           | ed Fluids                      | 10 µ E media (cellulose) and 25 µ Z-Me                                     | dia® (synthetic) |          | Compatibility         | TEA         |
| I                  | ligh Water           | Content                        | 10, 25 μ Z-Media <sup>®</sup> (synthetic)                                  |                  |          |                       | TF1         |
|                    | Invert E             | mulsions                       | 10, 25 μ Z-Media <sup>®</sup> (synthetic)                                  |                  |          |                       | KF3         |
|                    | Wate                 | er Glycols                     | 10, 25 μ Z-Media <sup>®</sup> (synthetic)                                  |                  |          |                       | KFJ         |
|                    |                      |                                |  |                  |          |                       | KL3         |
|                    | Elem                 | ent                            |  |                  |          | Element               | LF1-2"      |
| Pressure           | Series               | Part<br>No.                    | Element selections are predicated or<br>petroleum based fluid and a 30 psi | -                | 2 cSt)   | Selection<br>Based on | MLF1        |
|                    |                      |                                |  |                  |          |                       |             |
| То                 | E<br>Media           | P10                            | P10  |                  |          | Flow Rate             | ם ופ        |
| 100 psi            | E<br>Media<br>Z-     | P10<br>PZ10                    | P10<br>PZ25  |                  |          | Flow Rate             | RLD         |
|                    |                      |                                |  |                  |          | Flow Rate             |             |
| 100 psi            | Z-<br>Media®         | PZ10                           | PZ25   |                  | 20       | Flow Rate             | RLD<br>GRTB |
| 100 psi            | Z-                   | PZ10<br>PZ25                   | PZ25<br>PZ25   |                  |          | Flow Rate             |             |
| 100 psi<br>(7 bar) | Z-<br>Media®<br>Flow | PZ10<br>PZ25<br>gpm<br>(L/min) | PZ25<br>PZ10<br>D 10   |                  | 20<br>75 | Flow Rate             |             |

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

ΖT

| Phousing   | $\Delta \mathbf{P}_{element}$   | Pressure   |
|--|---|--|
| $\Delta F1 \Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:  | $\Delta P_{element} = flow x element \Delta P factor x viscosity factor$  | Drop R1  |
| Flow (L/min)   | El. ΔP factors @ 150 SUS (32 cSt):  | Based on RT  |
|  | <b>P10</b> .17  | Flow Rate  |
| 8 (0.50)   | <b>PZ25</b> .15   | and Viscosity  |
|  | If working in units of bars & L/min, divide above factor by 54.9.   | ART  |
| 2 (0.25)   | <i>Viscosity factor:</i> Divide viscosity by 150 SUS (32 cSt).  | BFT  |
| $0 \underbrace{1}_{0} \underbrace{1}_{0} \underbrace{1}_{1} \underbrace{1} \underbrace{1}_{1} \underbrace{1}_{1} \underbrace{1}_{1} \underbrace{1}_{1} \underbrace{1}_{1} \underbrace{1}_{1} 1$ |   | Q  |
| p gr = specific gravity  |   |  |
| izing of elements should be based on element flow  | nformation provided in the Element Selection  | KTK  |
| izing of elements should be based on element flow hart above.  | nformation provided in the Element Selection  | LTR  |
|  | $\Delta \mathbf{P}_{filter} = \Delta \mathbf{P}_{housing} + \Delta \mathbf{P}_{element}$  |  |
| hart above.  | $\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$<br>Exercise:  |  |
| hart above.  | $\Delta \mathbf{P}_{filter} = \Delta \mathbf{P}_{housing} + \Delta \mathbf{P}_{element}$ <b>Exercise:</b> Determine $\Delta P$ at 10 gpm (38 L/min) for   | LTK<br>MRT<br>Accessorie                                   |
| hart above.  | $\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$<br><b>Exercise:</b><br>Determine $\Delta P$ at 10 gpm (38 L/min) for<br>PAF16P10SY2 using 200 SUS (44 cSt) fluid.   | LTK<br>MRT<br>Accessorie<br>for Tank                       |
| hart above.  | $\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$ <b>Exercise:</b> Determine $\Delta P$ at 10 gpm (38 L/min) for PAF16P10SY2 using 200 SUS (44 cSt) fluid. <b>Solution:</b>   | LTH<br>MRT<br>Accessorie<br>for Tank<br>Mounted            |
| hart above.  | $\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$<br><b>Exercise:</b><br>Determine $\Delta P$ at 10 gpm (38 L/min) for<br>PAF16P10SY2 using 200 SUS (44 cSt) fluid.   | LTK<br>MRT<br>Accessorie<br>for Tank                       |
| hart above.  | $\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$ Exercise:<br>Determine $\Delta P$ at 10 gpm (38 L/min) for<br>PAF16P10SY2 using 200 SUS (44 cSt) fluid.<br>Solution:<br>$\Delta P_{\text{housing}} = 2.0 \text{ psi } [.18 \text{ bar}]$ $\Delta P_{\text{element}} = 10 \times .17 \times (200 \div 150) = 2.3 \text{ psi}$ or  | LTK<br>MRT<br>Accessories<br>for Tank<br>Mounted<br>Filter |
| hart above.  | $\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$ Exercise: Determine $\Delta P$ at 10 gpm (38 L/min) for PAF16P10SY2 using 200 SUS (44 cSt) fluid.<br>Solution: $\Delta P_{\text{housing}} = 2.0 \text{ psi } [.18 \text{ bar}]$ $\Delta P_{\text{element}} = 10 \times .17 \times (200 \div 150) = 2.3 \text{ psi}$ or $= [38 \times (.17 \div 54.9) \times (44 \div 32) = .16 \text{ bar}]$ | LTH<br>MRT<br>Accessorie<br>for Tank<br>Mounted            |
| hart above.  | $\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$ Exercise:<br>Determine $\Delta P$ at 10 gpm (38 L/min) for<br>PAF16P10SY2 using 200 SUS (44 cSt) fluid.<br>Solution:<br>$\Delta P_{\text{housing}} = 2.0 \text{ psi } [.18 \text{ bar}]$ $\Delta P_{\text{element}} = 10 \times .17 \times (200 \div 150) = 2.3 \text{ psi}$ or  | LTK<br>MRT<br>Accessories<br>for Tank<br>Mounted<br>Filter |





| BOX 1            | BOX 2                  | BOX 3  | BOX 4         |
|------------------|------------------------|--|---------------|
| Filter<br>Series | Element<br>Length (in) | Element Size and Media   | Seal Material |
| PAF1             | 6                      | P10 = P size 10 µ E media (cellulose)  | Omit = Buna N |
| PAFI             |                        | PZ10 = P size 10 µ Excellement® Z-Media® (synthetic)                             |               |
|                  |                        | PZ25 = P size 25 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |               |

| BOX 5         | BOX 6                           |                                   |  |
|---------------|---------------------------------|-----------------------------------|--|
| Inlet Porting | Dirt Alarm <sup>®</sup> Options |                                   |  |
| P = 3/4" NPTF |                                 | Omit = None                       |  |
| S = SAE-12    | Visual                          | Y2 = Back-mounted tri-color gauge |  |
|               | Electrical                      | ES = Electric switch              |  |

NOTE:

Box 2. Replacement element part numbers are a combination of Boxes 3 and 4. *Example*: P10

Spin-On Filter MAF1

|  |  | <b>5</b> 0 gpm | IRF    |
|--|--|----------------|--------|
|  | Features and Benefits  | 190 L/min      | TF1    |
|  | <ul> <li>Spin-On with full ported die cast aluminum<br/>head for minimal pressure drop</li> </ul>        | 100 psi        | KF3    |
|  | <ul> <li>Offered in pipe, SAE straight thread and<br/>ISO 228 porting</li> </ul>                         | 7 bar          | KL3    |
|  | ■ Spin-On thread = 1.50-16UN-2B  |                |        |
|  | <ul> <li>Visual gauge or electrical switch dirt alarms</li> </ul>  |                | LF1-2" |
|  | <ul><li>Small profile for use in limited space</li><li>Available in 7" and 10" element lengths</li></ul> |                | MLF1   |
|  | <ul> <li>Available with NPTF inlet and outlet female<br/>test ports</li> </ul>                           |                | RLD    |
|  |  |                | GRTB   |
|  |  |                | МТА    |
|  |  |                | МТВ    |
| Model No. of filter in photograph is MAF17M1 | 05.  |                | ZT     |
|  | × tte  | Applications   | KFT    |
|  |  |                | RT     |
| INDUSTRIAL MOBILE AUTOMO<br>VEHICLES MANUFAC |  |                | RTI    |
|  |  |                | LRT    |
|  |  |                | ART    |

STEEL MAKING



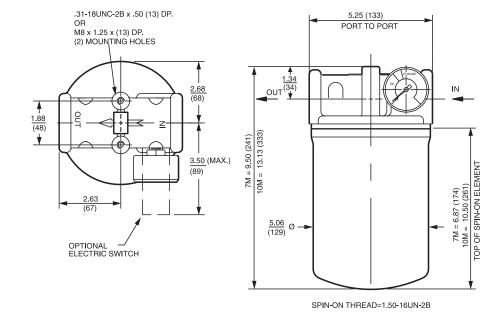


PULP & PAPER

| LTK                      |   |   |
|--------------------------|---|---|
| MRT                      |   |   |
| Filter                   | Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids  | Flow Rating:                              |
| Housing Accessories      | 100 psi (7 bar)                                       | Max. Operating Pressure:                  |
| Specifications for Tank- | 200 psi (10 bar), per NFPA T2.6.1                     | Min. Yield Pressure:                      |
| Mounted                  | Contact factory                                       | Rated Fatigue Pressure:                   |
| Filters                  | -20°F to 225°F (-29°C to 107°C)                       | Temp. Range:                              |
| PAF1                     | Cracking: 30 psi (2 bar)<br>Full Flow: 48 psi (3 bar) | Bypass Setting:                           |
|                          | Die Cast Aluminum<br>Steel                            | Porting Head & Cap:<br>Element Case:      |
| MAF1                     | 4.2 lbs. (1.9 kg)<br>5.0 lbs. (2.3 kg)                | Weight of MAF1-7M:<br>Weight of MAF1-10M: |
| MF2                      | 2.50" (65 mm)   | Element Change Clearance:                 |

KTK





Installation instructions included on element.

Metric dimensions in ( ).

| Element<br>Performance |              |                  | tio Per ISO 4572/<br>article counter (APC) c | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                       |                       |
|------------------------|--------------|------------------|--|--|-----------------------|-----------------------|
| Information            | Element      | $\beta_x \ge 75$ | $\beta_x \ge 100$                            | $\beta_x \ge 200$  | $\beta_x(c) \geq 200$ | $\beta_x(c) \ge 1000$ |
|                        | 7M3          | 6.8              | 7.5  | 10.0   | N/A                   | N/A                   |
|                        | 7M10         | 15.5             | 16.2   | 18.0   | N/A                   | N/A                   |
|                        | 7MZ3/10MZ3   | <1.0             | <1.0   | <2.0   | <4.0                  | 4.8                   |
|                        | 7MZ10/10MZ10 | 7.4              | 8.2  | 10.0   | 8.0                   | 10.0                  |
|                        | 10MZW10      | N/A              | N/A  | N/A  | 6.9                   | 8.6                   |

| Dirt Holding | Element | DHC (gm)                    | Element          | DHC (gm)                       |  |
|--------------|---------|-----------------------------|------------------|--------------------------------|--|
| Capacity     | 7M3     | 50                          |                  |                                |  |
|              | 7M10    | 37                          |                  |                                |  |
|              | 7MZ3    | 105                         |                  |                                |  |
|              | 7MZ10   | 104                         | 10MZW10          | 53                             |  |
|              |         |                             | •                |                                |  |
|              |         | Element Collapse Rating:    | 100 psid (7 bar) |                                |  |
|              |         | Flow Direction:             | Outside In       |                                |  |
|              |         | Element Nominal Dimensions: | 7M: 5.0" (125 i  | mm) O.D. x 7.0" (180 mm) long  |  |
|              |         |                             | 10M: 5.0" (125   | mm) O.D. x 10.5" (261 mm) long |  |
|              |         |                             |                  |                                |  |
|              |         |                             |                  |                                |  |
|              |         |                             |                  |                                |  |
|              |         |                             |                  |                                |  |
|              |         |                             |                  |                                |  |
|              |         |                             |                  |                                |  |

# Spin-On Filter MAF1

KFT

|               | т              | ype Fluid  | Аррі     | ropriate Schro   | oeder Me    | dia         |          |             |         | Fluid                 | IRF    |
|---------------|----------------|------------|----------|--|-------------|-------------|----------|-------------|---------|-----------------------|--------|
| P€            | etroleum Ba    | sed Fluids | All E    | media (cellulo   | se) and Z-N | √edia® (sy  | nthetic  | )           |         | Compatibility         | TF1    |
|               | High Wate      | r Content  | 3 and    | d 10 µ Z-Media   | a® (synthet | .ic)        |          |             |         |                       | IFI    |
|               | Invert I       | Emulsions  | 10 µ     | Z-Media <sup>®</sup> (syn  | thetic)     |             |          |             |         |                       | KF3    |
|               | Wat            | er Glycols | 3 and    | d 10 µ Z-Media   | a® (synthet | .ic)        |          |             |         |                       | KI J   |
|               |                |            |          |  |             |             |          |             |         |                       | KL3    |
|               |                |            |          |  |             |             |          |             |         |                       |        |
|               |                |            |          |  |             |             |          |             | _       |                       | LF1-2" |
|               | Elem           | ent        | Eleme    | element selections are predicated on the use of 150 SUS (32 cSt) |             |             |          | (32 cSt)    | Element |                       |        |
| Pressure      | Series         | Part No.   | petro    | oleum based f  | fluid and a | a 30 psi (2 | 2.1 bar) | bypass valv | е.      | Selection             | MLF1   |
|               | E              | M3         |          |  | M3          |             |          |             | See RLT | Based on<br>Flow Rate |        |
| To<br>100 psi | Media          | M10        |          |  |             | M10         |          |             | See RLT |                       | RLD    |
| (7 bar)       | Z-             | MZ3        |          |  |             | MZ3         |          |             | See RLT |                       |        |
| · /           | Media®         | MZ10       |          |  |             | MZ10        |          |             | See RLT |                       | GRTB   |
|               | Flow           | gpm        | 0        | 10   | 20          |             | 30       | 40          | 50      |                       |        |
|               | FIOW           | (L/min)    | 0        | 50   |             | 100         |          | 150         | 190     |                       | MTA    |
|               |                |            | <u> </u> |  |             | -           |          |             |         |                       |        |
|               |                |            |          |  |             |             |          |             |         |                       | MATO   |
| shown abo     | ove are the el | (2)        | ost comn | monly used in 1  | this housin | g.          |          |             |         |                       | MTB    |

| <b>P</b> housing  | $\Delta \mathbf{P}_{element}$   | Pressure                |
|---|---|-------------------------|
| AF1 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86: | $\Delta P_{element} = flow x element \Delta P factor x viscosity factor$                                      | Drop                    |
|   | El. ΔP factors @ 150 SUS (32 cSt):  | - Information Based on  |
| Flow (L/min)<br>(50) (100) (150)                              | <b>7M3</b> .23  | Flow Rate RT            |
|   | <b>7M10</b> .14   | and Viscosity           |
| 8   | <b>7MZ3</b> .22   | LR                      |
|   | (Teg) ad d → 17   | ART                     |
| <sup>a</sup> 4 (0.2!  | Lf working in units of bars & L/min, divide above factor<br>by 54.9.  |                         |
|   | Viscosity factor: Divide viscosity by 150 SUS (32 cSt).   |                         |
| 0 10 20 30 40 50<br>Flow gpm                                  |   | Ţ                       |
| gr = specific gravity   |   | ктк                     |
| zing of elements should be based on element                   | ow information provided in the Element Selection chart above.   | LTK                     |
| Notes   | $\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$ | MRT                     |
|   | <b>Exercise:</b><br>Determine ΔP at 25 gpm (95 L/min) for<br>MAF17M3P using 200 SUS (44 cSt) fluid.           | Accessories<br>for Tank |
|   | Solution:   | Mounted                 |
|   | $\Delta P_{\text{housing}} = 1.0 \text{ psi} [.08 \text{ bar}]$   | Filters                 |
|   | $\Delta P_{element} = 25 \times .23 \times (200 \div 150) = 7.7 \text{ psi}$                                  | PAF1                    |
|   | $= [95 \times (.23 \div 54.9) \times (44 \div 32) = .54 \text{ bar}]$   |                         |
|   | $\Delta P_{\text{total}} = 1.0 + 7.7 = 8.7 \text{ psi}$   | MAF1                    |
|   | = [.08 + .54 = .62 bar]   |                         |

## MAF1 Spin-On Filter

# Filter H Model Number Selection

| How to Build a Valid Model Number for a Schroeder MAF1: |
|---|
| BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7               |
|   |
| Example: NOTE: One option per box                       |
| BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7               |
| MAF1 – 7 – M3 – P – Y2 – <b>= MAF17M3PY2</b>            |
|   |

|         | BOX 1            | BOX 2                  | BOX 3  | BOX 4         |
|---------|------------------|------------------------|--|---------------|
|         | Filter<br>Series | Element<br>Length (in) | Element Size and Media   | Seal Material |
|         |                  | 7                      | M3 = M size 3 µ E media (cellulose)  | Omit = Buna N |
| MAF1 10 |                  | 10                     | M10 = M size 10 µ E media (cellulose)  | V = Viton®    |
|         |                  |                        | MZ3 = M size 3 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |               |
|         |                  |                        | MZ10 = M size 10 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |               |
|         |                  |                        | MZW10 = M size 10 µ Aqua-Excellement <sup>™</sup> ZW media                       |               |
|         |                  |                        | MW = M size W media (water removal)  |               |

| BOX 5   |            | BOX 6                             | BOX 7                              |
|---|------------|-----------------------------------|------------------------------------|
| Porting Options                               |            | Dirt Alarm <sup>®</sup> Options   | Additional Options                 |
| P = 11/4" NPTF                                |            | Omit = None                       | Omit = None                        |
| S = SAE-20                                    | Visual     | Y2 = Back-mounted tri-color gauge | L = Two ½" NPTF                    |
| B = ISO 228 G-1 <sup>1</sup> / <sub>4</sub> " | Electrical | ES = Electric switch              | inlet and outlet female test ports |

#### NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Replacement element part numbers for 7" length begin with M. Replacement element part numbers for 10" length begin with 10M. Examples: M3V; 10MZ3V 10" only available with MZ3 and MZ10.
- Box 3. ZW media only available for 10" element.
- Box 4. For option V, all aluminum parts are anodized. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 5. B porting option supplied with metric mounting holes.

Spin-On Filter MF2

|  |   |  | 60 gpm              | IRF     |
|--|---|--|---------------------|---------|
| See 2                                  | Features                                | and Benefits   | 60 gpm<br>230 L/min | TF1     |
|  | Spin-On<br>for minir                    | with full ported cast iron head<br>mal pressure drop | 150 psi             | KF3     |
|  | <ul> <li>Offered<br/>and ISO</li> </ul> | in pipe, SAE straight thread<br>228 porting          | 10 bar              | KL3     |
| and the second second                  |   | thread = 1.50-16UN-2B<br>Dirt Alarm® options         |                     | LF1-2"  |
|  |   | e in 7" and 10" element lengths                      |                     |         |
|  |   |  |                     | MLF1    |
|  |   |  |                     | RLD     |
|  |   |  |                     | GRTB    |
|  |   |  |                     | ΜΤΑ     |
| Model No. of filter in photograph is M | 15271/10505                             |  |                     | МТВ     |
|  | 11 27 W 10505.                          |  | -                   | ZT      |
|  |   |  | Applications        | KFT     |
|  |   |  |                     | RT      |
| INDUSTRIAL MOBILE                      | AUTOMOTIVE                              | MACHINE  |                     |         |
| VEHICLES N                             | MANUFACTURING                           | TOOL   |                     | RTI     |
|  |   |  |                     | LRT     |
|  |   | 00   |                     | ART     |
| STEEL AGRICULTURE<br>MAKING            | PULP & PAPER                            | MINING<br>TECHNOLOGY                                 |                     | BFT     |
|  |   |  |                     | QT      |
|  |   |  |                     | КТК     |
|  |   |  |                     | IX I IX |

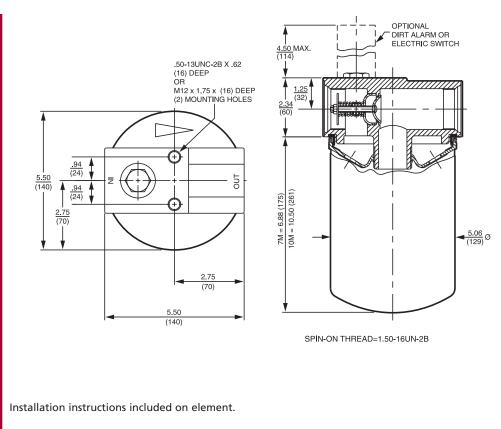
LTK

MRT

| Flow Rating:                   | Up to 60 gpm (230 L/min) for 150 SUS (32 cSt) fluids  | Filter<br>Housing Accessories |
|--------------------------------|---|-------------------------------|
| Max. Operating Pressure:       | 150 psi (10 bar)                                      | Tiousing                      |
| Min. Yield Pressure:           | 250 psi (17 bar), per NFPA T2.6.1                     | Specifications Mounted        |
| Rated Fatigue Pressure:        | Contact factory                                       | Filters                       |
| Temp. Range:                   | -20°F to 225°F (-29°C to 107°C)                       | Titters                       |
| Bypass Setting:                | Cracking: 30 psi (2 bar)<br>Full Flow: 48 psi (3 bar) | PAF1                          |
| Porting Head:<br>Element Case: | Cast Iron<br>Steel                                    | MAF1                          |
| Weight of MF2-7M:              | 8.6 lbs. (3.9 kg)                                     |                               |
| Element Change Clearance:      | 1.50" (40 mm)   | MF2                           |



# MF2 Spin-On Filter



Metric dimensions in ( ).

| Element<br>Performance |              |                  | o Per ISO 4572/NF<br>ticle counter (APC) calib | Filtration Ratio per ISO 16889<br>Using APC calibrated per ISO 11171 |                      |                        |
|------------------------|--------------|------------------|--|--|----------------------|------------------------|
| Information            | Element      | $\beta_x \ge 75$ | $\beta_x \ge 100$                              | $\beta_x \ge 200$  | $\beta_x(c) \ge 200$ | $\beta_x(c) \geq 1000$ |
|                        | 7M3          | 6.8              | 7.5  | 10.0   | N/A                  | N/A                    |
|                        | 7M10         | 15.5             | 16.2   | 18.0   | N/A                  | N/A                    |
|                        | 7MZ3/10MZ3   | <1.0             | <1.0   | <2.0   | <4.0                 | 4.8                    |
|                        | 7MZ10/10MZ10 | 7.4              | 8.2  | 10.0   | 8.0                  | 10.0                   |
|                        | 10MZW10      | N/A              | N/A  | N/A  | 6.9                  | 8.6                    |

| Dirt Holding | Element | DHC (gm)                 | Element         | DHC (gm)                         |
|--------------|---------|--------------------------|-----------------|----------------------------------|
| Capacity     | 7M3     | 50                       |                 |                                  |
|              | 7M10    | 37                       |                 |                                  |
|              | 7MZ3    | 105                      |                 |                                  |
|              | 7MZ10   | 104                      | 10MZW10         | 53                               |
|              |         |                          |                 |                                  |
|              |         | Element Collapse Rating: | 100 psid (7 bai | r)                               |
|              |         | Flow Direction:          | Outside In      |                                  |
|              | Elen    | nent Nominal Dimensions: | 7M: 5.0" (12    | 5 mm) O.D. x 7.0" (180 mm) long  |
|              |         |                          | 10M: 5.0" (12   | 5 mm) O.D. x 10.5" (261 mm) long |
|              |         |                          |                 |                                  |
|              |         |                          |                 |                                  |
|              |         |                          |                 |                                  |

# Spin-On Filter MF2

|                               | т                          | ype Fluid   | Appropriate Schroe                              | der Media  |             |             |            |               | Fluid                 | IRF    |
|-------------------------------|----------------------------|-------------|---|--|-------------|-------------|------------|---------------|-----------------------|--------|
| Petro                         | Petroleum Based Fluids All |             |   | All E media (cellulose) and Z-Media <sup>®</sup> (synthetic) |             |             |            | Compatibility | TE4                   |        |
| Hig                           | High Water Content         |             | 3 and 10 $\mu$ Z-Media <sup>®</sup> (synthetic) |  |             |             |            | TF1           |                       |        |
|                               | Invert Emulsions           |             | 10 µ Z-Media <sup>®</sup> (synth                | etic)  |             |             |            |               |                       | KF3    |
|                               | Water Glycols              |             | 3 and 10 µ Z-Media®                             | (synthetic)  |             |             |            |               |                       | KI J   |
|                               |                            |             |   |  |             |             |            |               |                       | KL3    |
|                               |                            |             |   |  |             |             |            |               |                       |        |
|                               | Ele                        | ment        | Element selections a                            | re predicated or   | the use     | of 150 SU   | S (32 cSt) |               | Element               | LF1-2" |
| Pressure                      | Series                     | Part No.    | petroleum based flu                             | •  |             |             |            |               | Selection             |        |
|                               | Е                          | 7M3         | 7M3   | 3  |             | Se          | ee RLT     |               | Based on<br>Flow Rate | MLF1   |
| To<br>150 psi                 | Media                      | 7M10        |   | 7M10   |             |             | See RL     | Т             |                       |        |
| (10 bar)                      | Z-                         | 7MZ3        | 7   | MZ3  |             |             | See RLT    |               |                       | RLD    |
|                               | Media®                     | 7MZ10       |   | 7MZ10  |             |             |            | See RLT       |                       |        |
|                               | Flow                       | gpm (       | 20  | 30   | 40          | 50          | 6          | 50            |                       | GRTB   |
|                               | TIOW                       | (L/min)     | 5 50 1  | 00   | 150         |             | 2          | 30            |                       |        |
| Shown abov                    | ve are the                 | elements r  | nost commonly used in                           | this housing.  |             |             |            |               |                       | MTA    |
|                               |                            |             | use of E media in High                          |  |             |             |            | 1             |                       |        |
| Application                   | s. For moi                 | re informat | ion, refer to Fluid Comp                        | oatibility: Fire Res   | istant Flui | ds, pages 2 | 21 and 22. |               |                       | MTB    |
|                               |                            |             |   |  |             |             |            |               |                       | ZT     |
| $\Delta \mathbf{P}_{housing}$ |                            |             |   | $\Delta \mathbf{P}_{element}$                                |             |             |            |               | Pressure              | KFT    |

|   | $\Delta \mathbf{r}$ element   |                         |           |
|---|---|-------------------------|-----------|
| MF2 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86: | $\Delta P_{element} = flow x element \Delta P factor x viscosity factor$                                      | Drop                    |           |
| Flow (L/min)  | El. ΔP factors @ 150 SUS (32 cSt):  | Information<br>Based on | RT        |
| (25) (75) (125) (175)   | <b>7M3</b> .23  | Flow Rate               | DTI       |
| 10  | <b>7M10</b> .14   | and Viscosity           | RTI       |
|   | <b>7MZ3</b> .22   |                         | LRT       |
| isd d⊳ (0.5) sd d∨  | <b>7MZ10</b> .17  |                         | E.(.)     |
|   |   |                         | ART       |
| 4 (0.25)  | If working in units of bars & L/min, divide above factor by 54.9.   |                         |           |
|   | Viscosity factor: Divide viscosity by 150 SUS (32 cSt).   |                         | BFT       |
| 0 10 20 30 40 50 60<br>Flow gpm                               |   |                         |           |
|   |   |                         | QT        |
| sp gr = specific gravity                                      |   |                         | КТК       |
| Sizing of elements should be based on element flow            | information provided in the Element Selection   |                         | K I K     |
| chart above.  |   |                         | LTK       |
|   |   |                         |           |
| Notes   | $\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$ |                         | MRT       |
|   | <b>Exercise:</b><br>Determine ΔP at 30 gpm (115 L/min) for  |                         |           |
|   | MF27MZ3D5 using 200 SUS (44 cSt) fluid.   |                         | cessories |
|   | Solution:   |                         | or Tank-  |
|   | $\Delta P_{\text{housing}} = 3.0 \text{ psi} [.22 \text{ bar}]$   | l l                     | Nounted   |
|   | $\Delta P_{\text{element}} = 30 \text{ x} .22 \text{ x} (200 \div 150) = 8.8 \text{ psi}$                     |                         | Filters   |
|   | or<br>= [115 x (.22÷54.9) x (44÷32) = .63 bar]  |                         | PAF1      |
|   | $\Delta P_{\text{total}} = 3.0 + 8.8 = 11.8 \text{ psi}$  |                         | ГАГІ      |
|   |   |                         |           |

or

= [.22 + .63 = .83 bar]

MAF1

MF2



#### Filter Model Number Selection

| How to Bui    | id a Valid            | wodei               | Number fo        | or a Schr | roeder IVII | -2: |
|---------------|-----------------------|---------------------|------------------|-----------|-------------|-----|
| BOX 1         | BOX 2                 | BOX 3               | BOX 4            | BOX 5     | BOX 6       |     |
| MF2 –         | -                     |                     |                  |           |             |     |
|               |                       |                     |                  |           |             |     |
| Example: Opti | on 1 NOTE: (          | One option          | per box          |           |             |     |
| Example: Opti | on 1 NOTE: (<br>BOX 2 | One option<br>BOX 3 | per box<br>BOX 4 | BOX 5     | BOX 6       |     |

| BOX 1            | BOX 2                     | BOX 3  | BOX 4         | BOX 5             |
|------------------|---------------------------|--|---------------|-------------------|
| Filter<br>Series | Element<br>Length<br>(in) | Element Size and Media   | Seal Material | Porting Options   |
| MED              | 7                         | M3 = M size 3 $\mu$ E media (cellulose)  | Omit = Buna N | P = 11/4" NPTF    |
| MF2              | 10                        | M10 = M size 10 $\mu$ E media (cellulose)                                      | V = Viton®    | S = SAE-20        |
|                  |                           | MZ3 = M size 3 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |               | B = ISO 228 G-1¼" |
|                  |                           | MZ10 = M size 10 µ Excellement® Z-Media® (synthetic)                           |               |                   |
|                  |                           | MZW10 = M size 10 µ Aqua-Excellement <sup>™</sup> ZW media                     |               |                   |
|                  |                           | MW = M size W media (water removal)  |               |                   |

| BOX 6                           |   |  |  |  |  |  |
|---------------------------------|---|--|--|--|--|--|
| Dirt Alarm <sup>®</sup> Options |   |  |  |  |  |  |
|                                 | Omit = None   |  |  |  |  |  |
| Visual                          | D5 = Visual pop-up  |  |  |  |  |  |
| Visual with<br>Thermal Lockout  | D8 = Visual w/ thermal lockout                                      |  |  |  |  |  |
|                                 | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable               |  |  |  |  |  |
|                                 | MS5LC = Low current MS5   |  |  |  |  |  |
|                                 | MS10 = Electrical w/ DIN connector (male end only)                  |  |  |  |  |  |
|                                 | MS10LC = Low current MS10   |  |  |  |  |  |
| Electrical                      | MS11 = Electrical w/ 12 ft. 4-conductor wire                        |  |  |  |  |  |
| Liectrical                      | MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)  |  |  |  |  |  |
|                                 | MS12LC = Low current MS12   |  |  |  |  |  |
|                                 | MS16 = Electrical w/ weather-packed sealed connector                |  |  |  |  |  |
|                                 | MS16LC = Low current MS16   |  |  |  |  |  |
|                                 | MS17LC = Electrical w/ 4 pin Brad Harrison male connector           |  |  |  |  |  |
|                                 | MS5T = MS5 (see above) w/ thermal lockout                           |  |  |  |  |  |
|                                 | MS5LCT = Low current MS5T   |  |  |  |  |  |
|                                 | MS10T = MS10 (see above) w/ thermal lockout                         |  |  |  |  |  |
| Electrical with                 | MS10LCT = Low current MS10T   |  |  |  |  |  |
| Thermal                         | MS12T = MS12 (see above) w/ thermal lockout                         |  |  |  |  |  |
| Lockout                         | MS12LCT = Low current MS12T   |  |  |  |  |  |
|                                 | MS16T = MS16 (see above) w/ thermal lockout                         |  |  |  |  |  |
|                                 | MS16LCT = Low current MS16T   |  |  |  |  |  |
|                                 | MS17LCT = Low current MS17T   |  |  |  |  |  |
| Electrical                      | MS13 = Supplied w/ threaded connector & light                       |  |  |  |  |  |
| Visual                          | MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end) |  |  |  |  |  |
| Electrical                      | MS13DCT = MS13 (see above), direct current, w/ thermal lockout      |  |  |  |  |  |
| Visual                          | MS13DCLCT = Low current MS13DCT                                     |  |  |  |  |  |
| with<br>Thermal Lockout         | MS14DCT = MS14 (see above), direct current, w/ thermal lockout      |  |  |  |  |  |
| mermai Lockout                  | MS14DCLCT = Low current MS14DCT                                     |  |  |  |  |  |

#### NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Replacement element part numbers for 7" length begin with M. Replacement element part numbers for 10" length begin with 10M. *Example*: M3; 10MZ3 10" only available with MZ3 and MZ10.
- Box 3. ZW media only available for 10" element.
- Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 5. B porting option supplied with metric mounting holes.



# **Section 6** Suction Filters Selection Guide

|          |   | Pressure<br>psi (bar) | Flow<br>gpm (L/min) | Element<br>Length/Size | Page |
|----------|---|-----------------------|---------------------|------------------------|------|
|          | Tank-Mounted Suction Filter             |                       |                     |                        |      |
| , s      | ST                                      | NA                    | 20 (75)             | K, KT                  | 323  |
| ilters   | In-Line Magnetic Suction Separators     |                       |                     |                        |      |
| <u> </u> | TF-SKB                                  | NA                    | 12.5 (47)           | SKB                    | 327  |
| Suction  | KF3-SKB                                 | NA                    | 30 (130)            | SKB                    | 328  |
| S        | Tank-Mounted Magnetic Suction Separator |                       |                     |                        |      |
|          | BFT-SKB                                 | NA                    | 75 (285)            | SKB                    | 329  |

# Tank-Mounted Suction Filter ST



#### **Features and Benefits**

- Tank-mounted suction filter for hydrostatic suction service
- Optional check valve prevents reservoir siphoning
- Easy Element changeout
- Inlet filter protects pump, reduces start-up failures

Model No. of filter in photograph is ST1K10SY.





#### **Applications**

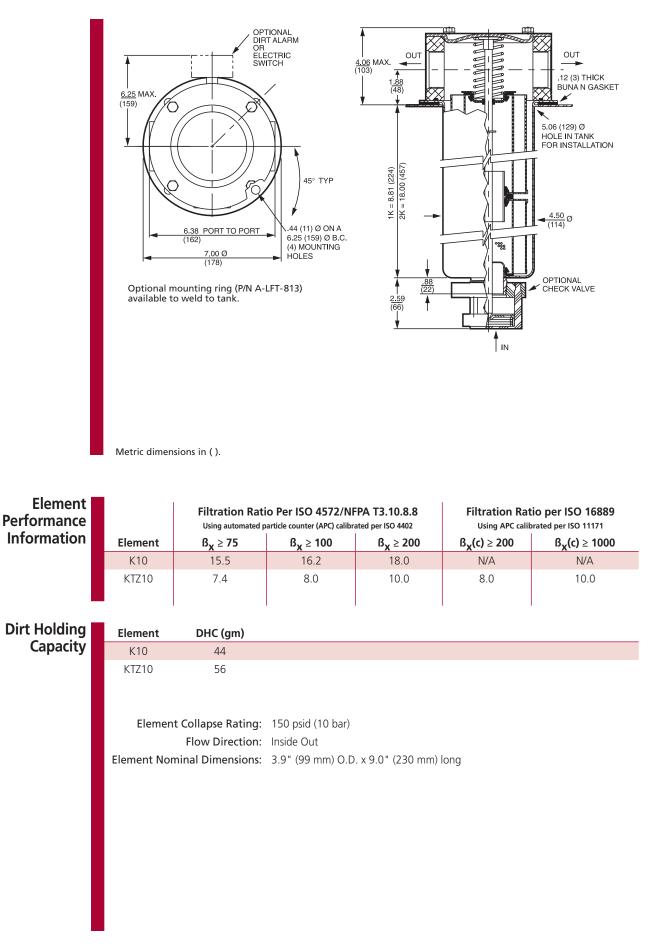
20 gpm 75 L/min

ST

Suction KF3

| Flow Rating:              | Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids | Filter         |
|---------------------------|---|----------------|
| Max. Operating Pressure:  | Suction Filter                                      | Housing        |
| Min. Yield Pressure:      | Not Applicable                                      | Specifications |
| Rated Fatigue Pressure:   | Not Applicable                                      |                |
| Temp. Range:              | -20°F to 225°F (-29°C to 107°C)                     |                |
| Bypass Setting:           | Non-bypassing                                       |                |
| Porting Head:             | Die Cast Aluminum                                   |                |
| Cap:                      | Steel   |                |
| Element Case:             | Steel   |                |
| Weight of ST-1K:          | 11.1 lbs. (5.0 kg)                                  |                |
| Weight of ST-2K:          | 14.7 lbs. (6.7 kg)                                  |                |
| Element Change Clearance: | 7.25" (185 mm) for 1K; 17.50" (445 mm) for KK       |                |





# Tank-Mounted Suction Filter ST

|  | Туре  | e Fluid Ap | propriate Schroeder Media  |         |                           |  | Fluid   | ST        |  |
|--|---|------------|--|---------|---------------------------|--|---|-----------|--|
| Petroleum Based Fluids All E media (cellulose) and Z-Media <sup>®</sup> (synthetic)  |   |            |  |         |                           |  | Compatibility   |           |  |
| High Water Content 10 µ Z-Media <sup>®</sup> (synthetic)   |   |            |  |         |                           |  |   |           |  |
| Invert Emulsions 10 µ Z-Media <sup>®</sup> (synthetic)   |   |            |  |         |                           |  | Su  | ction KF3 |  |
|  | Water O                                     | Glycols 10 | μ Z-Media <sup>®</sup> (synthetic)   |         |                           |  |   |           |  |
| I  | Phosphate                                   |            | μ Z-Media <sup>®</sup> (synthetic) with H (EPR) seal<br>llulose) with H (EPR) seal designation | designa | tion and 10 $\mu$ E media |  |   | TF-SKB    |  |
| <b>Skydrol</b> <sup>®</sup> 10 μ Z-Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior) |   |            |  |         |                           |  | Skydrol <sup>®</sup> is a registered<br>trademark of Solutia Inc. |           |  |
|  |   |            |  |         |                           |  |   | KF3-SKB   |  |
|  | Ele   | ement      | Element selections are predicated on   | the use | of 150 SUS (32 cSt)       |  | Element   |           |  |
| Pressure   | sure Series Part No. Petroleum based fluid. |            |  |         | Selection                 |  |   |           |  |
| Hydrostatic  | E Media                                     | K10        | 1K10   |         | 2K10†                     |  | Based on  | BFT-SKB   |  |
| Suction  |   | K25        | 1K25   |         | 2K25†                     |  | Flow Rate   |           |  |

2KTZ10†

20

75

15

50

Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

5

1KTZ10

25

10

#### $\triangle \mathbf{P}_{\mathsf{filter}} = \triangle \mathbf{P}_{\mathsf{housing}} + \triangle \mathbf{P}_{\mathsf{element}}$

Z-Media®

Flow

KTZ10

gpm

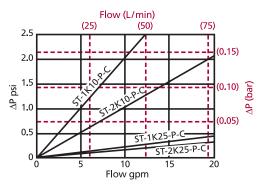
(L/min)

0

0

Service

Note: Plotted curves shown in graph below include both housing and elements as indicated for fluids with sp gr = 0.86.



Pressure Drop Information Based on Flow Rate and Viscosity

#### sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.



## **ST** Tank-Mounted Suction Filter

| Filter          | How to Build a Valid Model Number for a Schroeder ST:<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 |                                      |                         |                         |  |   |  |  |
|-----------------|--|--------------------------------------|-------------------------|-------------------------|--|---|--|--|
| Model<br>Number |  |                                      |                         |                         |  |   |  |  |
| Selection       | Example: NOTE: Only box 8 may contain more than one option   |                                      |                         |                         |  |   |  |  |
|                 | BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8  |                                      |                         |                         |  |   |  |  |
|                 | ST ST  | ST - 1 - K25 - P - Y - <b>= ST1K</b> |                         |                         |  |   |  |  |
|                 |  |                                      |                         |                         |  |   |  |  |
|                 | BOX 1  | BOX 2                                |                         | E                       | 3OX 3  | BOX 4   |  |  |
|                 | Filter<br>Series   | Number of<br>Elements                |                         | Element                 | Part Number                                      | Seal<br>Material  |  |  |
|                 | ст   | 1                                    | K10 = K size 10 µ E m   | nedia (cellu            | llose)   | Omit = Buna N   |  |  |
|                 | ST   | 2                                    | K25 = K size 25 µ E m   | nedia (cellu            | Ilose)   | H = EPR   |  |  |
|                 |  |                                      | KTZ3 = K size 3 µ Excel | ement <sup>®</sup> Z-N  | Media <sup>®</sup> (synthetic) inside-out flow   |   |  |  |
|                 |  |                                      | KTZ5 = K size 5 u Exce  | ellement <sup>®</sup> Z | -Media <sup>®</sup> (synthetic) inside-out flow  | W = Buna N  |  |  |
|                 |  |                                      |                         |                         | Z-Media <sup>®</sup> (synthetic) inside-out flow | H.5 = $\frac{\text{Skydrol}^{\otimes}}{\text{compatibility}}$ |  |  |
|                 |  |                                      |                         |                         | Z-Media <sup>®</sup> (synthetic) inside-out flow | $H.5 = \frac{compatibility}{compatibility}$                   |  |  |
|                 |  |                                      | 11120 110120 p 2.4      |                         |  |   |  |  |
|                 | B  | OX 5                                 | BOX 6                   |                         | BOX 7  | BOX 8   |  |  |
|                 | Outl   | et Port                              | Optional<br>Check Valve |                         | Dirt Alarm <sup>®</sup> Options                  | Additional Options  |  |  |
|                 | P = 1½   | " NPTF                               | Omit = None             |                         | Omit = None                                      | Omit = None   |  |  |
|                 | PP = Du  | al 1½" NPTF                          | C = Check Valve         | Visual                  | Y = Vacuum gauge                                 | G2293 = Cork Gasket   |  |  |
|                 | S = SA   | E 24                                 |                         |                         | YR = Vacuum guage mounted on                     | G547 = <sup>™o ⅓</sup> "                                      |  |  |
|                 | SS = Du  | SS = Dual SAE 24                     |                         |                         | opposite side of standard location               | gauge ports   |  |  |
|                 | B = ISC  | ) 228 G-1½"                          |                         | Electrical              | VS = Electrical Vacuum Switch                    |   |  |  |
|                 | BB = ISC   | ) 228 G-1½″                          |                         |                         | VSR = Electrical Vacuum Switch mounted           |   |  |  |
|                 | ·  |                                      |                         |                         | on opposite side of standard location            |   |  |  |
|                 |  |                                      |                         |                         | VSR1 = Heavy-Duty Vacuum Switch                  |   |  |  |
|                 |  |                                      |                         | L                       |  |   |  |  |

#### NOTES:

- Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.
- Box 4. For options H and W, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.
- Box 6. See also "Accessories for Tank-Mounted Filters," page 299.

## In-Line Magnetic Suction Separators **TF-SK**

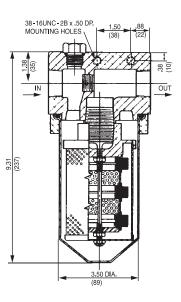
In addition to offering our magnetic suction strainer (SKB) as a stand alone product, we also offer the SKB enclosed in a housing, so that it can be used either in-line (TF-SKB or KF3-SKB) or as a reservoirmounted filter (BFT-SKB). Flow rates and available porting vary—refer to the specifications for each.

### **Features and Benefits**

Protects components downstream by capturing potentially harmful ferrous particles

### **Specifications**

| Flow Rating:                     | 12.5 gpm (47 L/min) |
|----------------------------------|---------------------|
| Element Replacement Part Number: | SKB-1               |
| Element Change Clearance:        | 2.5" (65 mm)        |
| Weight of TF-SKB:                | 5.8 lbs (2.6 kg)    |
|                                  |                     |
|                                  |                     |





### How to Build a Valid Model Number for a Schroeder TF-SKB:

| BOX 1 BOX 2 BOX 3 BOX 4           |  |
|-----------------------------------|--|
| TF-SKB – – –                      |  |
| Example: NOTE: One option per box |  |
| BOX 1 BOX 2 BOX 3 BOX 4           |  |
| TF-SKB – P – Y = TF-SKBPY         |  |

#### BOX 1 BOX 2 BOX 3 BOX 4 Filter Series Seal Material Porting Dirt Alarm<sup>®</sup> Options Omit = Buna N P = 1" NPTFOmit = None **TF-SKB** Visual Y = Vacuum guage Electrical VS = **Electrical Vacuum Switch** VS1 =Heavy-Duty Vacuum Switch



NOTE: Box 1. Element replacement part number: SKB-1.

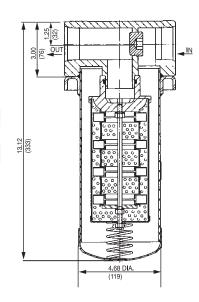
### **In-Line Magnetic Suction Separators** KF3-SKB

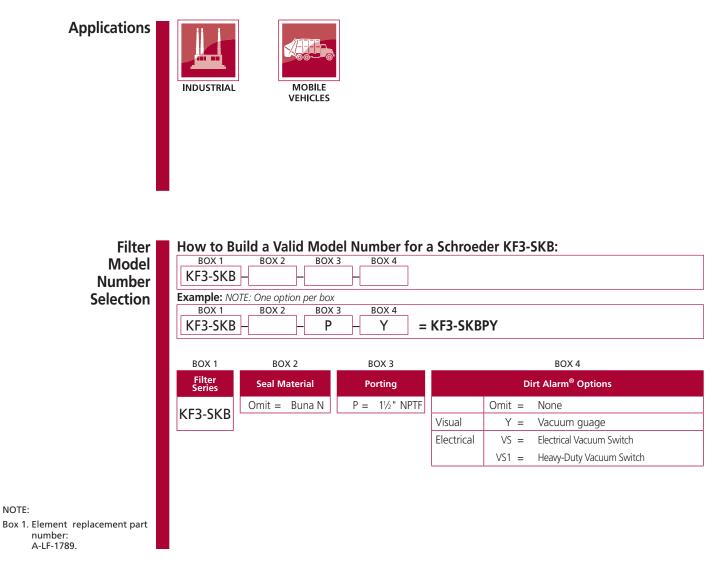
### **Features and Benefits**

Protects components downstream by capturing potentially harmful ferrous particles

#### **Specifications**

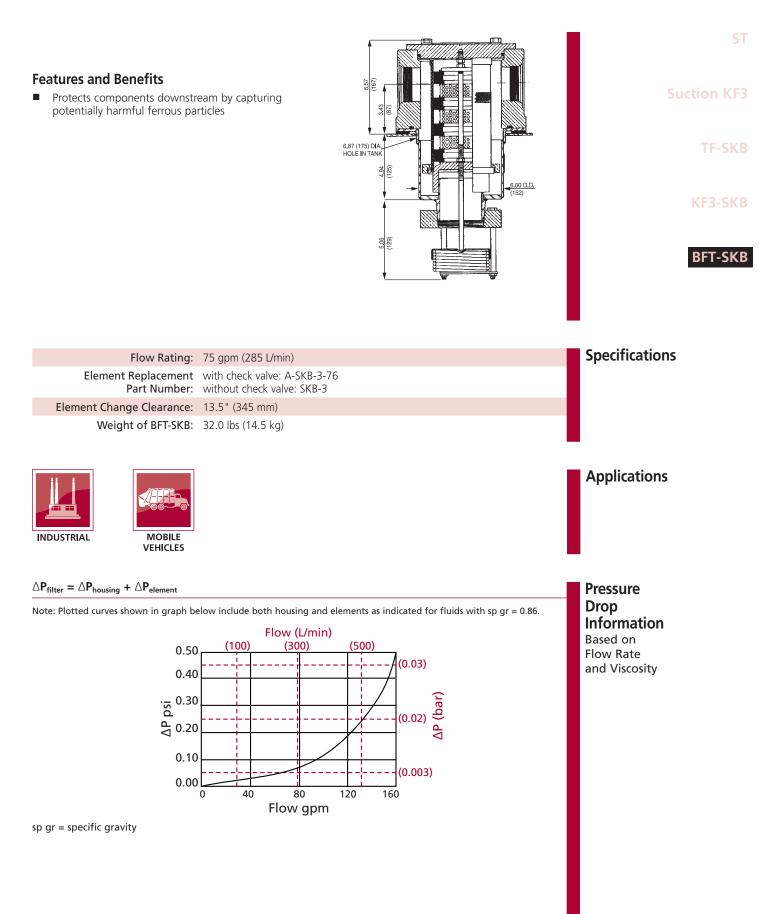
| Flow Rating:                     | 35 gpm (130 L/min) |
|----------------------------------|--------------------|
| Element Replacement Part Number: | A-LF-1789          |
| Element Change Clearance:        | 1.5" (40 mm)       |
| Weight of KF3-SKB:               | 11.5 lbs (5.2 kg)  |
|                                  |                    |





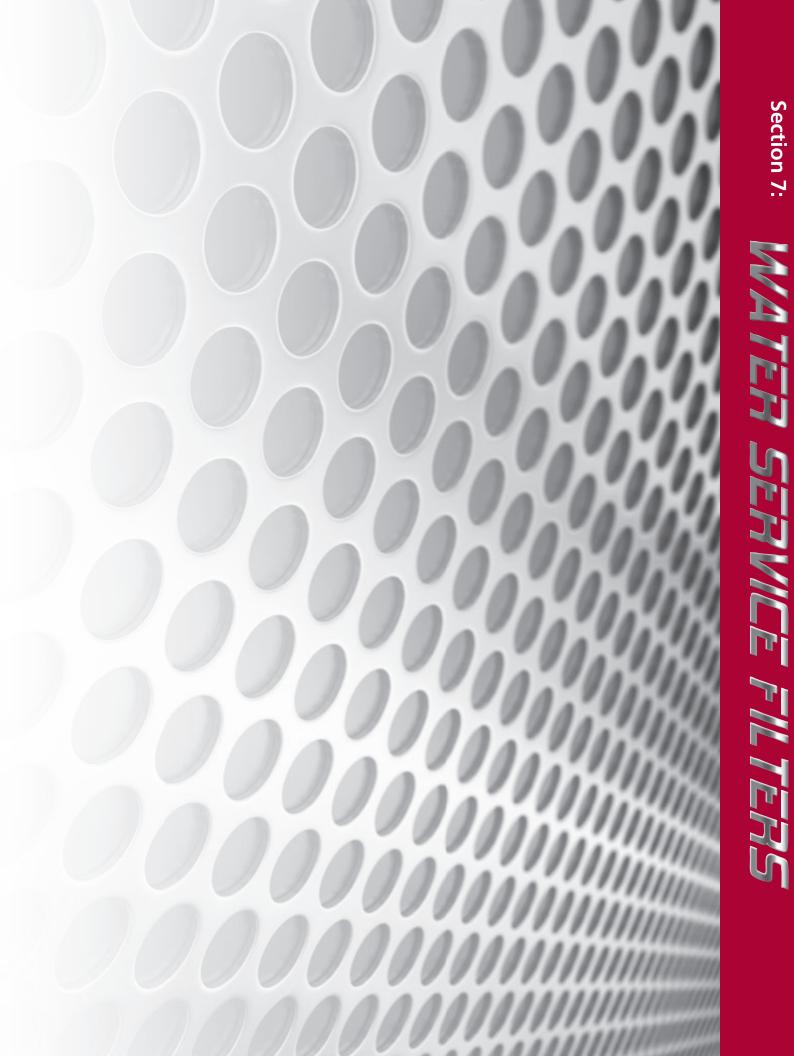
NOTE:

### Tank-Mounted Magnetic Suction Separators BFT-SKB



## **BFT-SKB** Tank-Mounted Magnetic Suction Separators

| ber BFT-SKB      |                                 | 3 BOX 4 BOX 5  |                 |
|------------------|---------------------------------|--|-----------------|
|                  |                                 |  |                 |
| BOX 1            | TE: One option per<br>BOX 2 BOX |  |                 |
| BFT-SKB          |                                 | – Y = BFT-SKBPY                                      |                 |
|                  | 507.2                           | 201/2  | 5.4             |
| BOX 1<br>Filter  | BOX 2                           | BOX 3  | Box 4           |
| Filter<br>Series | Seal Material                   | Porting  | Other Options   |
| BFT-SKB          | Omit = Buna N                   | $P = 2\frac{1}{2}$ " NPTF                            | Omit = None     |
|                  |                                 | $PP = Dual 2\frac{1}{2}" NPTF$                       | C = Check Valve |
|                  |                                 | $F = 2\frac{1}{2}$ " SAE 4-bolt flange Code 61       |                 |
|                  |                                 | $FF = Dual 2\frac{1}{2}$ " SAE 4-bolt flange Code 61 |                 |
|                  |                                 |  |                 |
|                  |                                 | BOX 5  |                 |
|                  |                                 | t Alarm <sup>®</sup> Options                         |                 |
| Or<br>Visual     | mit = None<br>Y = Vacuum guage  |  |                 |
|                  |                                 | ounted on opposite side of standard location         |                 |
|                  | VS = Electrical Vacuum          |  |                 |
|                  |                                 | Switch on opposite side of standard location         |                 |
|                  | /S1 = Heavy-Duty Vacuu          |  |                 |
|                  |                                 |  |                 |
|                  |                                 |  |                 |
|                  |                                 |  |                 |
| Notes            |                                 |  |                 |







Water Service Filters in use.

|                       |        | Flow<br>gpm (L/min) | Pressure<br>psi (bar) | Element<br>Length/Size | Page |
|-----------------------|--------|---------------------|-----------------------|------------------------|------|
|                       | WKC50  | 100 (380)           | 5000 (345)            | К                      | 333  |
|                       | WLF1   | 120 (455)           | 300 (20)              | К                      | 333  |
| ters                  | WKF5   | 100 (380)           | 500 (35)              | К                      | 333  |
| Water Service Filters | WKFN5  | 100 (380)           | 500 (35)              | К                      | 333  |
| ervic                 | WRLT   | 70 (265)            | 1000 (69)             | 9V                     | 334  |
| er S(                 | WQF5   | 300 (1135)          | 500 (35)              | 39Q                    | 334  |
| Wat                   | WQF15  | 450 (1700)          | 1500 (100)            | 39Q                    | 335  |
|                       | WQLF15 | 500 (1900)          | 1500 (100)            | 39Q                    | 336  |
|                       | WKF3   | 100 (380)           | 300 (20)              | К                      | 337  |
|                       | WKL3   | 120 (455)           | 300 (20)              | К                      | 338  |

Refer also to our catalog #L-2728 entitled "Process Filtration Products" for other water service products.

As a result of our experience in hydraulic filtration and the various markets that we serve, Schroeder Industries has had the opportunity to adapt some of our standard hydraulic filter models for water filtration. By treating or coating the filter components and using our stainless steel media M-elements, we are able to offer a limited line of filters designed to remove solid contaminant from water. One possible application for this type of water filter is on equipment that uses a water spray system to control dust.

The table below lists the Schroeder filter housings having models available for water service. For WKC50, WLF1, WKF5, and WKFN5, availability is currently limited to the specific model numbers shown. For WKF3, WRLT, WQF5, WQF15, and WQLF15, more combinations are possible and are presented in "box" format. If you do not see the particular model you desire, please contact our Technical Support Specialists.

|                 |         | Pressure |     | Flov | N     |
|-----------------|---------|----------|-----|------|-------|
|                 | Housing | psi      | bar | gpm  | L/min |
| Pressure        | WKC50   | 5000     | 345 | 100  | 380   |
| Return Line     | WKF3    | 300      | 20  | 100  | 380   |
| Medium Pressure | WLF1    | 300      | 20  | 120  | 455   |
|                 | WRLT    | 1000     | 69  | 70   | 265   |
|                 | WKF5    | 500      | 35  | 100  | 380   |
|                 | WKFN5   | 500      | 35  | 100  | 380   |
|                 | WKL3    | 300      | 20  | 120  | 300   |
|                 | WQF15   | 1500     | 100 | 450  | 1700  |
|                 | WQF5    | 300      | 20  | 500  | 1900  |
|                 | WQLF15  | 1500     | 100 | 500  | 1900  |

| Housing                                   | Specific Model Number   |  |  |  |
|---|---|--|--|--|
| WKC50*                                    | WKC501KM150PD   |  |  |  |
| WKF3                                      | See chart on page 337 for available model numbers                                     |  |  |  |
| WKL3                                      | See chart on page 338 for available model numbers                                     |  |  |  |
| WLF1                                      | WLF11KM150P32D<br>WLF11KM260P32D  |  |  |  |
| WRLT                                      | See chart on page 334 for available model numbers                                     |  |  |  |
| WKF5                                      | WKF51KM25P24DG2085 = (WKF5-3006)<br>(G2085 designates stainless steel name plate)     |  |  |  |
| WKFN5                                     | WKFN51KMXX25P24DG2085 = (WKFN5-3005)<br>(G2085 designates stainless steel name plate) |  |  |  |
| WQF5                                      | See chart on page 334 for available model numbers                                     |  |  |  |
| WQF15                                     | See chart on page 335 for available model numbers                                     |  |  |  |
| WQLF15                                    | See chart on page 336 for available model numbers                                     |  |  |  |
| *Detent No. 6.942.279 for filter cap coal |   |  |  |  |

\*Patent No. 6,843,378 for filter cap seal.



STEEL

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MACHINE TOOL



AGRICULTURE



MINING TECHNOLOGY



MOBILE VEHICLES



GENERATION



### Applications

WKL

**WKC50** 

WLF1

WKF5

WKFN5

### WRLT Water Service Filters

Electrical



#### NOTES:

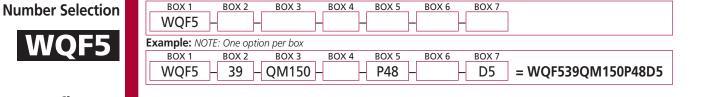
- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example:* 9VM150V
- Box 4. For options H and V, all aluminum parts are anodized. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 6. D9 indicator is the recommended option.

### How to Build a Valid Model Number for a Schroeder WRLT:

| How to Build a valid Model Number for a Schroeder WKLI: |  |  |                          |  |  |  |  |  |
|---|--|--|--------------------------|--|--|--|--|--|
| BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6                     |  |  |                          |  |  |  |  |  |
| WRLT -  |  |  |                          |  |  |  |  |  |
| Example: NOT  | E: One optio   | per box  |                          |  |  |  |  |  |
| BOX 1   | BOX 2  | BOX 3 BOX 4 BOX 5 BOX 6  |                          |  |  |  |  |  |
| WRLT –  | WRLT – 9 – VM150 – – P20 – D9 <b>= WRLT9VM150P20D9</b> |  |                          |  |  |  |  |  |
| BOX 1   | BOX 2  | BOX 3  | BOX 4                    |  |  |  |  |  |
| Filter<br>Series  | Element<br>Length (in                                  | Element Size and Media   | Seal<br>Material         |  |  |  |  |  |
| WRLT  | 9  | VM60 = V size 60 $\mu$ M media (reusable metal)<br>VM150 = V size 150 $\mu$ M media (reusable metal) | Omit = Buna N<br>H = EPR |  |  |  |  |  |
| <b>VVI</b> (2)  |  | $VM260 = V size 260 \mu M media (reusable metal)$  | V = Viton®               |  |  |  |  |  |
|   |  |  |                          |  |  |  |  |  |
| BOX 5   |  | BOX 6  |                          |  |  |  |  |  |
| Porting<br>Options                                      | Dirt Alarm <sup>2</sup> Untions                        |  |                          |  |  |  |  |  |
| P20 = 11/4" NPT   | rf   | Omit = None  |                          |  |  |  |  |  |
| S20 = SAE-20  | Vis  | al D5 = Visual pop-up<br>D9 = All stainless D5 (Recommended)   |                          |  |  |  |  |  |
|   | D9 = All stainless D5 (Recommended)                    |  |                          |  |  |  |  |  |

| Filter Model | How to Build a Valid Model Number for a Schroeder WQF15:  |
|--------------|---|
| Filler Wodel | now to build a valid wodel Nulliber for a Schoeder wQF15. |

MS5LC = Low current MS5



MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable

| BOX 1            | BOX 2                  | BOX 3   | BOX 4                                  |
|------------------|------------------------|---|--|
| Filter<br>Series | Element<br>Length (in) | Element Size and Media  | Seal Material                          |
| WQF5             | 39                     | $\begin{array}{l} QM25 = Q \text{ size } 25 \ \mu \ M \ media \ (reusable \ metal) \\ QM60 = Q \ size \ 60 \ \mu \ M \ media \ (reusable \ metal) \\ QM150 = Q \ size \ 150 \ \mu \ M \ media \ (reusable \ metal) \end{array}$ | Omit = Buna N<br>H = EPR<br>V = Viton® |

| BOX 5              | BOX 6          |                      | BOX 7  |
|--------------------|----------------|----------------------|--|
| Porting<br>Options | Bypass Setting |                      | Dirt Alarm <sup>®</sup> Options  |
| 8 = 3" NPTF        | Omit = 40 psi  |                      | Omit = None  |
|                    | cracking       | Visual               | D5 = Visual pop-up<br>D9 = All stainless D5 (Recommended)<br>D9C = D9 in cap (Recommended)   |
|                    |                | Electrical           | MS5SS = All stainless MS5<br>Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS10SS = All stainless MS10<br>Electrical w/ DIN connector (male end only) |
|                    |                | Electrical<br>Visual | MS13SS = All stainless MS13<br>Supplied w/ threaded connector & light  |

| 3       | 1000          |
|---------|---------------|
| Sec. 10 | 100           |
|         | in the second |
|         |               |

NOTES:

Box 4. All aluminum parts are anodized for water service filters. QM25 and QM60 elements only come with Viton® seals. P48 =

### Water Service Filters WQF15

|  | a Valid Mode                      | Number for a Schroeder WQF15:         BOX 4       BOX 5       BOX 6       BOX 7   |  | Filter Model<br>Number<br>Selection | WKC50          |
|--|-----------------------------------|---|--|-------------------------------------|----------------|
| Example: NOTE: O                                   |                                   |   |  |                                     | WLF1           |
|  | ох 2 вох 3<br>39 – QM150          | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | QF1539QM150P48D5                       | T                                   |                |
| BOX 1  | BOX 2                             | BOX 3   | BOX 4                                  |                                     | WKF5           |
|  | Element<br>ength (in)             | Element Size and Media  | Housing<br>Seal Material               |                                     | WKFN5          |
| WQF15  | 39 QM<br>QM1                      | 50 = Q size 60 μ M media (reusable metal)<br>50 = Q size 150 μ M media (reusable metal)   | Omit = Buna N<br>H = EPR<br>V = Viton® |                                     | WKINS          |
| BOX 5  |                                   | BOX 7   | V = VIION                              |                                     | WRLT           |
| Porting<br>Options                                 |                                   | Dirt Alarm <sup>®</sup> Options   |  |                                     |                |
| P48 = 3" NPTF                                      |                                   | Omit = None   |  | - 0-                                | WQF5           |
| BOX 6  | Visual                            | D5 = Visual pop-up<br>D9 = All stainless D5 (Recommende<br>D9C = D9 in cap (Recommended)  | d)                                     | Se                                  | WQF15          |
| Bypass<br>Setting<br>Omit = 30 psi                 | Visual with<br>Thermal<br>Lockout | D8 = Visual w/ thermal lockout $D8C = D8 in capD8R = D8 opposite standard location$   |  |                                     |                |
| 50 = 50 psi<br>cracking<br>50 = 50 psi<br>cracking | Electrical                        | MS5SS = All stainless MS5<br>Electrical w/ 12 in. 18 gauge 4-cc<br>MS10SS = All stainless MS10<br>Electrical w/ DIN connector (male |  |                                     | WQLF15<br>WKF3 |
|  | Electrical<br>Visual              | MS13SS = All stainless MS13<br>Supplied w/ threaded connector   | & light                                |                                     |                |
|  |                                   |   |  |                                     |                |

#### NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2 and 3, and the letter V. *Example:* 39QM60V
- Box 4. All elements for this filter are supplied with Viton<sup>®</sup> seals. Seal designation in Box 5 applies to housing only. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

Box 7. D9/D9C indicator is the recommended option.

### WQLF15 Water Service Filters

#### Filter Model How to Build a Valid Model Number for a Schroeder WQLF15: BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 Number Selection WQLF15 Example: NOTE: One option per box BOX 4 BOX 7 BOX 1 BOX 2 BOX 3 BOX 5 BOX 6 WQLF15 39 QM150 P48 = WQLF1539QM150P48D5 D5 BOX 1 BOX 3 BOX 2 BOX 4 Housing Filter Element **Element Size and Media** Length (in) Seal Material Series Omit = Buna N QM60 = Q size 60 $\mu$ M media (reusable metal) WQLF15 39 QM150 = Q size 150 $\mu$ M media (reusable metal) H = EPR $V = Viton^{\otimes}$ BOX 5 BOX 6 Seal Porting Material Options Omit = 30 psi P48 = 3" NPTF cracking 50 = 50 psicracking BOX 7 Dirt Alarm<sup>®</sup> Options Omit = None D5 = Visual pop-up DSC = D5 in cap D9 = All stainless D5 (Recommended) D9C = D9 in cap (Recommended) DPG = Differential pressure gauge Visual Visual with D8 = Visual w/ thermal lockout Thermal D8C = D8 in cap Lockout MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10IC = Iow current MS10MS11 = Electrical w/ 12 ft. 4-conductor wireFlectrical MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout Electrical MS10LCT = Low current MS10T with MS12T = MS12 (see above) w/ thermal lockout Thermal MS12LCT = Low current MS12T Lockout MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T Electrical MS13 = Supplied w/ threaded connector & light MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end) Visual MS13DCT = MS13 (see above), direct current, w/ thermal lockout **Electrical Visual** MS13DCLCT = Low current MS13DCT with Thermal MS14DCT = MS14 (see above), direct current, w/ thermal lockout Lockout MS14DCLCT = Low current MS14DCT

NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2 and 3, and the letter V. *Example:* 39QM60V
- Box 4. All elements for this filter are supplied with Viton® seals. Seal designation in Box 4 applies to housing only. Viton⊚ is a registered trademark of DuPont Dow Elastomers.
- Box 7. D9/D9C indicator is the recommended option.

### Water Service Filters WKF3

|                           | a Valid Model                                | Number for a Schroeder WKF3<br>BOX 4 BOX 5 BOX 6   | Filter Model WKC5<br>Number<br>Selection              |
|---------------------------|--|--|---|
|                           | Dine option per box<br>BOX 2 BOX 3           | BOX 4 BOX 5 BOX 6  | WLF   |
| WKF3 –                    | 1 – KM15                                     | 0 – P – D5 = WKF31KM1  | 50PD5 WKF   |
| BOX 1                     | BOX 2  | BOX 3  | BOX 4   |
| Filter<br>Series          | Number of<br>Elements                        | Element Size and Media   | Housing<br>Seal Material WKFN                         |
| WKF3                      |  | $\begin{array}{c} \text{KM10} = \text{K size 10 } \mu \text{ M media (reusable metal)} \\ \text{KM25} = \text{K size 25 } \mu \text{ M media (reusable metal)} \\ \text{KM60} = \text{K size 60 } \mu \text{ M media (reusable metal)} \\ \text{KM150} = \text{K size 150 } \mu \text{ M media (reusable metal)} \\ \text{KM260} = \text{K size 260 } \mu \text{ M media (reusable metal)} \end{array}$  | mit = Buna N<br>H = EPR<br>V = Viton <sup>®</sup> WRL |
| BOX 5                     |  | BOX 6  | WQF   |
| Porting<br>Options        |  | Dirt Alarm <sup>®</sup> Options  |   |
| $P = 1\frac{1}{2}$ " NPTF |  | Omit = None  | WQF1  |
|                           | Visual                                       | D = Pointer<br>D5 = Visual pop-up<br>D9 = All stainless D5 (Recommended)   |   |
|                           | Visual with<br>Thermal Lockout               | D8 = Visual w/ thermal lockout   | WQLF1   |
|                           | Electrical                                   | MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable<br>MS5LC = Low current MS5<br>MS10 = Electrical w/ DIN connector (male end only)<br>MS10LC = Low current MS10<br>MS11 = Electrical w/ 12 ft. 4-conductor wire<br>MS12 = Low current MS10<br>MS12LC = Low current MS12<br>MS16 = Electrical w/ weather-packed sealed connector<br>MS16LC = Low current MS16<br>MS17LC = Electrical w/ 4 pin Brad Harrison<br>male connector | WKE   |
|                           | Electrical<br>with<br>Thermal<br>Lockout     | MS5T = MS5 (see above) w/ thermal lockout<br>MS5LCT = Low current MS5T<br>MS10T = MS10 (see above) w/ thermal lockout<br>MS10LCT = Low current MS10T<br>MS12T = MS12 (see above) w/ thermal lockout<br>MS12LCT = Low current MS12T<br>MS16T = MS16 (see above) w/ thermal lockout<br>MS16LCT = Low current MS16T<br>MS17LCT = Low current MS17T  |   |
|                           | Electrical<br>Visual                         | MS = Cam operated switch w/ ½" conduit<br>female connection<br>MS13 = Supplied w/ threaded connector & light<br>MS14 = Supplied w/ 5 pin Brad Harrison<br>connector & light (male end)   |   |
|                           | Electrical Visual<br>with Thermal<br>Lockout | MS13DCT = MS13 (see above), direct current,<br>w/ thermal lockout<br>MS13DCLCT = Low current MS13DCT<br>MS14DCT = MS14 (see above), direct current,<br>w/ thermal lockout<br>MS14DCLCT = Low current MS14DCT   |   |

#### NOTES:

- Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.
- Box 4. For options H and V, all aluminum parts are anodized. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

Box 6. D9 indicator is the recommended option.



#### Filter Model How to Build a Valid Model Number for a Schroeder WQLF15: BOX 4 BOX 1 BOX 2 BOX 3 BOX 5 BOX 6 BOX 7 BOX 8 Number Selection WKL3 Example: NOTE: One option per box BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 P24 WKL3 2 **KM25** D9 = WKL32KM25P2D9 L BOX 1 BOX 2 BOX 3 BOX 4 Filter Series Number of Housing Seal Material **Element Size and Media** Elements KM10 = 10 µ M media (reusable metal) 1 Omit = Buna N WKL3 $KM25 = 25 \mu M$ media (reusable metal) H = EPR2 $KM60 = 60 \mu M media (reusable metal)$ V = Viton® 3 $KM150 = 150 \mu M media (reusable metal)$ $KM260 = 260 \mu M \text{ media (reusable metal)}$ BOX 5 BOX 6 Dirt Alarm<sup>®</sup> Options Porting Omit = None P24 = 11/2" NPTF D5 = Visual pop-up D9 = All stainless D5 (Recommended) D9C = D9 in cap (Recommended) Visual S24 = SAE-24 $F24 = 1\frac{1}{2}$ " SAE MS5SS = All stainless MS5 4-bolt flange Electrical w/ 12 in. 18 gauge 4-conductor cable Electrical MS10SS = All stainless MS10 Code 61 Electrical w/ DIN connector (male end only) B24 = ISO 228 G-11/2" MS13SS = All stainless MS13

Supplied w/ threaded connector & light

| BOX 7  | BOX 8  |
|--|--|
| Test Port<br>Options                                     | Bowl Drain Options   |
| Omit = None  | Omit = None  |
| L = Two ¼" NPTF<br>inlet and outlet<br>female test ports | DR = 7/ <sub>16</sub> " -20 drain<br>on bottom of<br>housing |

P32 = 2" NPTF

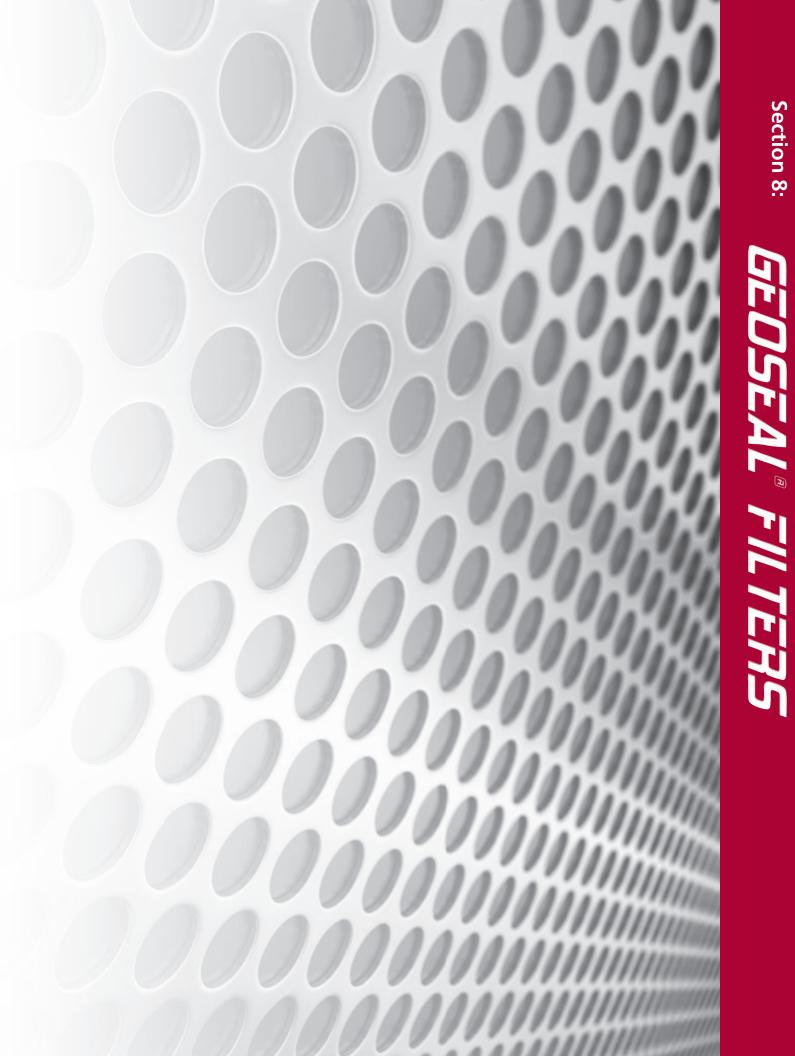
S32 = SAE-32 B32 = ISO 228 G-2" Electrical

Visual

NOTES:

- Box 4. Replacement element part numbers are a combination of Boxes 2 and 3, and the letter V. Example: KM10V
- Box 5. All elements for this filter are supplied with Viton<sup>®</sup> seals. Seal designation in Box 4 applies to housing only. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 6. D9/D9C indicator is the recommended option.

Contact factory for more Dirt Alarm<sup>®</sup> options



## High Pressure Filters with GeoSeal<sup>®</sup> Elements

Patented

| Filter Model  | How to E  | sulid a vall  | d Model Number for a Schr  | oeder GKF30:  |  |
|---|---|---|--|---|--|
| <b>Jumber Selection</b>   |   | OX 2 BOX 3  | BOX 4 BOX 5 BOX 6 BOX 7  | BOX 8 BOX 9 BOX 10  |  |
| CKEDO   | GKF30–  |   |  |   |  |
| GKF30   |   | IOTE: One optioi  | ·  |   |  |
|   |   | OX 2 BOX 3  | BOX 4 BOX 5 BOX 6 BOX 7  | BOX 8 BOX 9 BOX 10  | (6725655                                   |
| SAME DAY<br>SHIPMENT MODEL  | GKF30-1   | KG – Z  | - <u>25</u> - <u>S</u> - <u>-</u>  | D5 – – <b>GKF301</b>  | (GZ255D5                                   |
| AVAILABLE!  | BOX 1   | BOX 2   | BOX 3  | BOX 4   | BOX 5                                      |
| ES:   | Filter<br>Series  | Number of<br>Elements   | Media Type   | Micron Rating   | Seal<br>Material                           |
|   |   | 1KG, KKG,   | Z = Excellement <sup>®</sup> Z-Media <sup>®</sup>  | 1 = 1 µ Z, ZW, DZ media   | Omit = Buna N                              |
| per of elements must<br>1 when using KKG or   | GKF30   | 27KG  | (Synthetic)  | $3 = 3 \mu AS$ , E, Z, ZW, DZ media   | V = Viton                                  |
| elements.   |   | 2KG   | AS = Anti-Static Pleat Media   | 5 = 5 μ AS, Z, ZW, DZ media   |  |
| cement element part   |   | 3KG   | (Synthetic)  | 10 = 10 µ AS, E, M, Z, ZW,  |  |
| ers are identical to<br>nts of Boxes 2, 3, 4,   |   | DNC   | DZ = Dirt Catcher® with<br>Excellement®Z-Media®  | DZ media  |  |
| combined. Double<br>iple stacking of  |   |   | W = W Media (water removal)  | 25= 25 μ E, M, Z, ZW, DZ media  |  |
| elements can be<br>ed by single KKG and   |   |   |  | 60 = 60 µ M media   |  |
| elements, respectively.   |   | 0.0   | e 105 for options in boxes 6 through   |   |  |
|   | Please note:  | No-Element Ind  | dicator, X Blocked Bypass and Magneti  | ic Inserts <b>not offered</b> .   |  |
| CVEED   | How to E  | Build a Vali  | d Model Number for a Schr  | oeder GKF50:  |  |
| GKF50   |   | OX 2 BOX 3  | BOX 4 BOX 5 BOX 6 BOX 7  | BOX 8 BOX 9 BOX 10  |  |
|   | GKF50–  |   |  |   |  |
|   | Example: N  | IOTE: One optioi  | n per box  |   |  |
|   | BOX 1 B   | OX 2 BOX 3  | BOX 4 BOX 5 BOX 6 BOX 7  | BOX 8 BOX 9 BOX 10  |  |
|   | GKF50-1   | KG – Z –  | - 25 - S   | D5 – – <b>GKF501</b>  | (GZ25SD5                                   |
| Number of elements  | BOX 1   | BOX 2   | BOX 3  | BOX 4   | BOX 5                                      |
| must equal 1 when<br>using KKG or   | Filter<br>Series  | Number of<br>Elements   | Media Type   | Micron Rating   | Seal<br>Material                           |
| 7KG elements.   |   | 1KG, KKG,   | 7 = Excellement <sup>®</sup> Z-Media <sup>®</sup>  | 1 = 1 µ Z, ZW, DZ media   | Omit = Buna N                              |
| Replacement element   | GKF50   | 27KG  | (Synthetic)  | $3 = 3 \mu AS, E, Z, ZW, DZ media$  | V = Viton <sup>®</sup>                     |
| part numbers are<br>dentical to contents  |   | 21/5  | AS = Anti-Static Pleat Media   |   |  |
| of Boxes 2, 3, 4, and<br>5 combined. Double   |   | 2KG   | (Synthetic)  | $5 = 5 \mu AS, Z, ZW, DZ media$   |  |
| and triple stacking   |   | 3KG   | DZ = Dirt Catcher <sup>®</sup> with  | 10 = 10 μ AS, E, M, Z, ZW,  |  |
|   |   |   |  |   |  |
|   |   |   | Excellement <sup>®</sup> Z-Media <sup>®</sup>  | DZ media  |  |
| an be replaced<br>by single KKG and   |   |   | Excellement®Z-Media®<br>W = W Media (water removal)  |   |  |
| an be replaced<br>y single KKG and<br>7KG elements,   |   |   |  | DZ media  |  |
| an be replaced<br>y single KKG and<br>7KG elements,   |   |   | W = W Media (water removal)<br>e 113 for options in boxes 6 through  | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>n 10.   |  |
| an be replaced<br>by single KKG and<br>7KG elements,  |   |   | W = W Media (water removal)  | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>n 10.   |  |
| an be replaced<br>y single KKG and<br>7KG elements,<br>espectively.   | Please note:  | No-Element Ind  | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magneti   | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>in 10.<br>ic Inserts <i>not offered</i> .   |  |
| an be replaced<br>y single KKG and<br>7KG elements,<br>espectively.   | Please note:  | No-Element Ind  | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magneti<br>d Model Number for a Schr  | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>in 10.<br>ic Inserts <i>not offered</i> .   |  |
| an be replaced<br>y single KKG and<br>7KG elements,<br>espectively.   | Please note:<br>How to B  | No-Element Ind  | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magneti<br>d Model Number for a Schr  | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>in 10.<br>ic Inserts <i>not offered</i> .<br><b>roeder GKC50:</b>   |  |
| an be replaced<br>ny single KKG and<br>.7KG elements,<br>espectively.   | Please note:<br>How to E<br>BOX 1<br>GKC50-   | No-Element Inc<br>Build a Valid<br>BOX 2 BOX  | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magneti<br>d Model Number for a Schr<br>3 BOX 4 BOX 5 BOX 6   | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>in 10.<br>ic Inserts <i>not offered</i> .<br><b>roeder GKC50:</b>   |  |
| an be replaced<br>y single KKG and<br>7KG elements,<br>espectively.   | Please note:<br>How to E<br>BOX 1<br>GKC50<br>Example: N  | No-Element Ind  | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magneti<br>d Model Number for a Schr<br>3 BOX 4 BOX 5 BOX 6<br>   | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>in 10.<br>ic Inserts <i>not offered</i> .<br><b>roeder GKC50:</b>   |  |
| an be replaced<br>y single KKG and<br>7KG elements,<br>espectively.   | Please note:<br>BOX 1<br>GKC50<br>Example: <i>N</i><br>BOX 1  | No-Element Inc<br>Build a Valie<br>BOX 2 BOX<br>OTE: One option   | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magneti<br>d Model Number for a Schr<br>3 BOX 4 BOX 5 BOX 6<br>   | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>n 10.<br>ic Inserts not offered.<br>roeder GKC50:<br>BOX 7 BOX 8 BOX 9 BOX 10<br>BOX 8 BOX 9 BOX 10   | 1KGZ25SD                                   |
| an be replaced<br>y single KKG and<br>7KG elements,<br>espectively.   | Please note:<br>BOX 1<br>GKC50<br>Example: <i>N</i><br>BOX 1  | No-Element Ind<br>Build a Valid<br>BOX 2 BOX<br>OTE: One option<br>BOX 2 BOX 3  | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magneti<br>d Model Number for a Schr<br>BOX 4 BOX 5 BOX 6<br>a per box<br>BOX 4 BOX 5 BOX 6 BOX 7   | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>10.<br>ic Inserts not offered.<br><b>roeder GKC50:</b><br>BOX 7 BOX 8 BOX 9 BOX 10<br>BOX 8 BOX 9 BOX 10  | <b>1KGZ25SD</b><br>BOX 5                   |
| an be replaced<br>y single KKG and<br>7KG elements,<br>espectively.   | Please note:<br>BOX 1<br>GKC50-<br>Example: <i>N</i><br>BOX 1<br>GKC50-<br>BOX 1<br>Filter                | No-Element Ind<br>Build a Valid<br>BOX 2 BOX<br>OTE: One optior<br>BOX 2 BOX 3<br>1KG – Z<br>BOX 2<br>Number of   | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magnetic<br>d Model Number for a Schr<br>BOX 4 BOX 5 BOX 6<br>BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5   | DZ media<br>$25 = 25 \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \mu M media$<br>10.<br>ic Inserts not offered.<br><b>FOEDER GKC50:</b><br>BOX 7 BOX 8 BOX 9 BOX 10<br>BOX 8 BOX 9 BOX 10<br>- D5 = GKC50<br>BOX 4   | Seal                                       |
| can be replaced<br>by single KKG and<br>27KG elements,<br>respectively.   | Please note:<br>BOX 1<br>GKC50<br>Example: <i>N</i><br>BOX 1<br>GKC50<br>BOX 1                            | No-Element Ind<br>Build a Valid<br>BOX 2 BOX<br>OTE: One optior<br>BOX 2 BOX 3<br>1KG - Z<br>BOX 2<br>Number of<br>Elements                             | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magnetic<br>d Model Number for a Schr<br>3 BOX 4 BOX 5 BOX 6<br>a per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - 5 - 5<br>BOX 3<br>BOX 3<br>Media Type  | DZ media<br>$25 = 25 \ \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \ \mu M media$<br>n 10.<br>ic Inserts not offered.<br>roeder GKC50:<br>BOX 7 BOX 8 BOX 9 BOX 10<br>BOX 8 BOX 9 BOX 10<br>BOX 8 BOX 9 BOX 10<br>BOX 4<br>Micron Rating   | BOX 5<br>Seal<br>Material                  |
| tan be replaced<br>by single KKG and<br>27KG elements,<br>respectively.<br><b>GKC50</b><br>er of elements must<br>1 when using KKG or   | Please note:<br>BOX 1<br>GKC50-<br>Example: <i>N</i><br>BOX 1<br>GKC50-<br>BOX 1<br>Filter                | No-Element Ind<br>Build a Valid<br>BOX 2 BOX<br>OTE: One optior<br>BOX 2 BOX 3<br>1KG – Z<br>BOX 2<br>Number of   | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magnetic<br>d Model Number for a Schr<br>BOX 4 BOX 5 BOX 6<br>BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5   | DZ media<br>$25 = 25 \ \mu E, M, Z, ZW, DZ media$<br>$60 = 60 \ \mu M media$<br>10.<br>ic Inserts not offered.<br><b>roeder GKC50:</b><br>BOX 7 BOX 8 BOX 9 BOX 10<br>BOX 8 BOX 9 BOX 10<br><b>D5 BOX 9</b> BOX 10<br><b>BOX 4</b><br><b>Micron Rating</b><br>$1 = 1 \ \mu Z, ZW, DZ media$   | BOX 5<br>Seal<br>Material<br>Omit = Buna N |
| of K-size elements<br>can be replaced<br>by single KKG and<br>27KG elements,<br>respectively.<br><b>GKC50</b><br><b>BKC50</b><br><b>be</b> r of elements must<br>1 when using KKG or<br>elements. | Please note:<br>How to B<br>BOX 1<br>GKC50-<br>Example: N<br>BOX 1<br>GKC50-<br>BOX 1<br>Filter<br>Series | No-Element Ind<br>Build a Valid<br>BOX 2 BOX<br>OTE: One optior<br>BOX 2 BOX 3<br>1KG Z<br>Number of<br>Elements<br>1KG, KKG,<br>27KG                   | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magnetic<br>d Model Number for a Schr<br>3 BOX 4 BOX 5 BOX 6<br>a per box<br>8 BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - S - S<br>BOX 3<br>Media Type<br>z = Excellement® Z-Media®  | DZ media<br>25 = 25 $\mu$ E, M, Z, ZW, DZ media<br>60 = 60 $\mu$ M media<br>10.<br>ic Inserts not offered.<br><b>roeder GKC50:</b><br>BOX 7 BOX 8 BOX 9 BOX 10<br>BOX 8 BOX 9 BOX 10<br>BOX 4<br><b>BOX 4</b><br><b>Micron Rating</b><br>1 = 1 $\mu$ Z, ZW, DZ media<br>3 = 3 $\mu$ AS, E, Z, ZW, DZ media  | BOX 5<br>Seal                              |
| tan be replaced<br>by single KKG and<br>27KG elements,<br>respectively.<br><b>GKC50</b><br>er of elements must<br>1 when using KKG or   | Please note:<br>How to B<br>BOX 1<br>GKC50-<br>Example: N<br>BOX 1<br>GKC50-<br>BOX 1<br>Filter<br>Series | No-Element Ind<br>Build a Valid<br>BOX 2 BOX<br>OTE: One optior<br>BOX 2 BOX 3<br>1KG - Z<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG<br>2KG | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magnetic<br>d Model Number for a Schr<br>3 BOX 4 BOX 5 BOX 6<br>box 6<br>BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - S - S<br>BOX 3<br>Media Type<br>z = Excellement® Z-Media®<br>(Synthetic)<br>AS = Anti-Static Pleat Media<br>(Synthetic)  | DZ media<br>25 = 25 $\mu$ E, M, Z, ZW, DZ media<br>60 = 60 $\mu$ M media<br>10.<br>ic Inserts not offered.<br><b>Coeder GKC50:</b><br>BOX 7 BOX 8 BOX 9 BOX 10<br>BOX 8 BOX 9 BOX 10<br>BOX 4<br><b>BOX 8</b> BOX 9 BOX 10<br><b>BOX 4</b><br><b>Coeder GKC50:</b><br><b>BOX 7</b> BOX 8 BOX 9 BOX 10<br><b>BOX 8</b> BOX 9 BOX 10<br><b>BOX 4</b><br><b>Coeder GKC50:</b><br><b>BOX 4</b><br><b>Coeder GKC50:</b><br><b>BOX 4</b><br><b>Coeder GKC50:</b><br><b>BOX 4</b><br><b>Coeder GKC50:</b><br><b>BOX 4</b><br><b>Coeder GKC50:</b><br><b>BOX 5 COE COE</b><br><b>BOX 6</b><br><b>COEDER COE</b><br><b>COEDER COEDER COEDER COEDER COEDER<br/><b>COEDER COEDER COEDER COEDER COEDER<br/><b>COEDER COEDER COEDER COEDER<br/><b>COEDER COEDER COEDER COEDER COEDER COEDER COEDER<br/><b>COEDER COED</b></b></b></b></b></b></b></b></b></b></b></b></b></b></b></b></b></b></b> | BOX 5<br>Seal<br>Material<br>Omit = Buna N |
| tan be replaced<br>by single KKG and<br>27KG elements,<br>respectively.<br><b>EKC50</b><br>er of elements must<br>1 when using KKG or<br>elements.<br>tement element                              | Please note:<br>How to B<br>BOX 1<br>GKC50-<br>Example: N<br>BOX 1<br>GKC50-<br>BOX 1<br>Filter<br>Series | No-Element Ind<br>Build a Valid<br>BOX 2 BOX<br>OTE: One optior<br>BOX 2 BOX 3<br>1KG Z<br>Number of<br>Elements<br>1KG, KKG,<br>27KG                   | W = W Media (water removal)<br>e 113 for options in boxes 6 through<br>dicator, X Blocked Bypass and Magnetic<br>d Model Number for a Schr<br>BOX 4 BOX 5 BOX 6<br>box 4 BOX 5 BOX 6<br>box 6<br>C 25 S BOX 6 BOX 7<br>C 25 S BOX 6 BOX 7<br>C 25 S C 25<br>BOX 3<br>BOX 4 BOX 5 BOX 6 BOX 7<br>C 25 S C 25<br>BOX 3<br>BOX 4 BOX 5 BOX 6 BOX 7<br>C 25 S C 25<br>BOX 3<br>C 25 S C 25<br>C 25 S C 25<br>C 25<br>C 25 S C 25<br>C 25<br>C 25<br>C 25<br>C 25<br>C 25<br>C 25<br>C 25 | DZ media<br>25 = 25 $\mu$ E, M, Z, ZW, DZ media<br>60 = 60 $\mu$ M media<br>10.<br>ic Inserts not offered.<br><b>roeder GKC50:</b><br>BOX 7 BOX 8 BOX 9 BOX 10<br>BOX 8 BOX 9 BOX 10<br>BOX 4<br><b>BOX 4</b><br><b>Micron Rating</b><br>1 = 1 $\mu$ Z, ZW, DZ media<br>3 = 3 $\mu$ AS, E, Z, ZW, DZ media  | BOX 5<br>Seal<br>Material<br>Omit = Buna N |

W = W Media (water removal)  $25 = 25 \ \mu$  E, M, Z, ZW, DZ media  $60 = 60 \mu M \text{ media}$ Refer to KC50 catalog page 117 options in boxes 6 through 10. Please note: No-Element Indicator, X Blocked Bypass and Magnetic Inserts not offered.

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#### NOTES

Box 2.

Box 3. 3, 4, and 5 combined. Double and triple stacking of K-size elements can be replaced by single KKG and 27KG elements, respectively.

## High Pressure Filters with GeoSeal<sup>®</sup> Elements

Patented

| BOX 1   | BOX 2 E   | BOX 3 BOX 4 BOX 5 BC   | DX 6 BOX 7 BOX 8 BOX 9   | BOX 10  | GMKF50   |
|---|---|--|--|---|--|
| GMKF50  |   | HHHH   |  |   | GKF50  |
| BOX 1   | IOTE: One optio<br>BOX 2 BOX  | •  | BOX 8 BOX 9 BOX 10   |   |  |
| GMKF50  | –2KG– Z   | – 25 – – P – –   | D5 – – <b>= GMKF50</b> 2   | 2KGZ25PD5   | GKC50  |
| BOX 1   | BOX 2   | BOX 3  | BOX 4  | BOX 5   |  |
| Filter<br>Series  | Number of<br>Elements   | Media Type   | Micron Rating  | Seal<br>Material                                      | GMKF50   |
| GMKF50  | 2KG, KKG,   | Z = Excellement®Z-Media®   | 1 = 1 µ Z, ZW, DZ media  | Omit = Buna N   |  |
|   | 27KG  | (Synthetic)  | $3 = 3 \mu AS$ , E, Z, ZW, DZ media  | V = Viton®  | GKC6   |
|   | 4KG   | AS = Anti-Static Pleat Media<br>(Synthetic)  | $5 = 5 \mu AS$ , Z, ZW, DZ media   |   |  |
|   | 6KG   | DZ = Dirt Catcher <sup>®</sup> with<br>Excellement <sup>®</sup> Z-Media <sup>®</sup>   | 10 = 10 μ AS, E, M, Z, ZW,<br>DZ media   |   | GKF  |
|   |   | W = W Media (water removal)  | 25= 25 μ E, M, Z, ZW, DZ media   |   |  |
|   |   |  | 60 = 60 µ M media  |   | NOTES: GKS   |
|   |   |  |  |   | Box 2. Number of elements  |
|   |   | e 121 for options in boxes 6 through<br>licator, X Blocked Bypass and Magneti  |  |   | must equal 2 when using<br>KKG or 27KG elements. G2K             |
|   |   |  |  |   | Box 3. Replacement element<br>part numbers are identical         |
|   |   |  |  |   | to contents of Boxes 2,<br>3, 4, and 5 combined.                 |
|   |   |  |  |   | Double and triple stacking<br>of K-size elements can             |
|   |   |  |  |   | be replaced by single<br>KKG and 27KG elements                   |
|   |   |  |  |   |  |
|   |   |  |  |   | respectively.  |
| BOX 1   |   | d Model Number for a Sch   |  | BOX 10  | GKL<br>Filter<br>Model GMLF                                      |
| вох 1<br>GKC65 –  | BOX 2 B   | OX 3 BOX 4 BOX 5 BO>   |  | BOX 10  | GKL<br>Filter<br>Model GMLF<br>Number<br>Selection               |
| вох 1<br>GKC65 –  |   | OX 3 BOX 4 BOX 5 BOX<br>n per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E   |  |   | GKL3<br>Filter<br>Model GMLF <sup>4</sup><br>Number<br>Selection |
| BOX 1<br>GKC65<br>xample: N<br>BOX 1  | BOX 2 B<br>IOTE: One option<br>BOX 2 BOX  | OX 3 BOX 4 BOX 5 BOX<br>n per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E   | X 6 BOX 7 BOX 8 BOX 9 BOX 9 BOX 8 BOX 9 BOX 10   |   | GKL3<br>Filter<br>Model GMLF <sup>4</sup><br>Number              |
| BOX 1<br>GKC65 -<br>BOX 1<br>GKC65 -<br>BOX 1<br>Filter                           | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>-1KG - Z<br>BOX 2<br>BOX 2<br>Number of  | OX 3 BOX 4 BOX 5 BOX<br>n per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E<br>- 25 - F - F   | x 6         BOX 7         BOX 8         BOX 9           BOX 8         BOX 9         BOX 10           D9         -         -         =         GKC651K0 | GZ25FD9<br>BOX 5<br>Seal                              | GKL<br>Filter<br>Model GMLF<br>Number<br>Selection               |
| BOX 1<br>GKC65<br>xample: //<br>BOX 1<br>GKC65<br>BOX 1<br>Filter<br>Series       | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>-1KG - Z<br>BOX 2  | OX 3 BOX 4 BOX 5 BOX<br>n per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E<br>- 25 - F - F<br>BOX 3<br>Media Type<br>Z = Excellement® Z-Media®   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | GZ25FD9<br>BOX 5                                      | GKL<br>Filter<br>Model GMLF<br>Number<br>Selection               |
| BOX 1<br>GKC65<br>xample: //<br>BOX 1<br>GKC65<br>BOX 1<br>Filter<br>Series       | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>-1KG - Z<br>BOX 2<br>BOX 2<br>Number of<br>Elements  | OX 3 BOX 4 BOX 5 BOX<br>n per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E<br>- 25 - F - F   | x 6       BOX 7       BOX 8       BOX 9         BOX 8       BOX 9       BOX 10         D9       -       -       =         GKC651K         BOX 4        | GZ25FD9<br>BOX 5<br>Seal<br>Material                  | GKL<br>Filter<br>Model GMLF<br>Number<br>Selection               |
| BOX 1<br>GKC65<br>xample: //<br>BOX 1<br>GKC65<br>BOX 1<br>Filter<br>Series       | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>-1KG - Z<br>BOX 2<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,                                   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | $\frac{6}{1} = 1 \ \mu \ Z, \ ZW, \ DZ \ media$  | GZ25FD9<br>BOX 5<br>Seal<br>Material<br>Omit = Buna N | GKL<br>Filter<br>Model GMLF<br>Number<br>Selection               |
| BOX 1<br>GKC65 -<br>xample: //<br>BOX 1<br>GKC65 -<br>BOX 1<br>Filter<br>Series   | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>- 1KG - Z<br>BOX 2<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG                          | OX 3 BOX 4 BOX 5 BOX<br>a per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E<br>- 25 - F - F<br>BOX 3<br>Media Type<br>Z = Excellement® Z-Media®<br>(Synthetic)<br>AS = Anti-Static Pleat Media<br>(Synthetic)<br>DZ = Dirt Catcher® with  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | GZ25FD9<br>BOX 5<br>Seal<br>Material<br>Omit = Buna N | GKL<br>Filter<br>Model GMLF<br>Number<br>Selection               |
| BOX 1<br>GKC65 -<br>BOX 1<br>GKC65 -<br>BOX 1<br>Filter                           | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>-1KG - Z<br>BOX 2<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG<br>2KG                    | OX 3 BOX 4 BOX 5 BOX<br>a per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E<br>- 25 - F - F<br>BOX 3<br>Media Type<br>z = Excellement® Z-Media®<br>(Synthetic)<br>AS = Anti-Static Pleat Media<br>(Synthetic)<br>DZ = Dirt Catcher® with<br>Excellement® Z-Media®   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | GZ25FD9<br>BOX 5<br>Seal<br>Material<br>Omit = Buna N | GKL<br>Filter<br>Model GMLF<br>Number<br>Selection               |
| BOX 1<br>GKC65<br>xample: //<br>BOX 1<br>GKC65<br>BOX 1<br>Filter<br>Series       | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>-1KG - Z<br>BOX 2<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG<br>2KG                    | OX 3 BOX 4 BOX 5 BOX<br>a per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E<br>- 25 - F - F<br>BOX 3<br>Media Type<br>Z = Excellement® Z-Media®<br>(Synthetic)<br>AS = Anti-Static Pleat Media<br>(Synthetic)<br>DZ = Dirt Catcher® with  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | GZ25FD9<br>BOX 5<br>Seal<br>Material<br>Omit = Buna N | GKL<br>Filter<br>Model GMLF<br>Number<br>Selection               |
| BOX 1<br>GKC65<br>xample: <i>N</i><br>BOX 1<br>GKC65<br>BOX 1<br>Filter<br>Series | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>-1KG - Z<br>BOX 2<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG<br>2KG                    | OX 3 BOX 4 BOX 5 BOX<br>a per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E<br>- 25 - F - F<br>BOX 3<br>Media Type<br>z = Excellement® Z-Media®<br>(Synthetic)<br>AS = Anti-Static Pleat Media<br>(Synthetic)<br>DZ = Dirt Catcher® with<br>Excellement® Z-Media®   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | GZ25FD9<br>BOX 5<br>Seal<br>Material<br>Omit = Buna N | GKL<br>Filter<br>Model GMLF<br>Number<br>Selection               |
| BOX 1<br>GKC65 -<br>BOX 1<br>GKC65 -<br>BOX 1<br>Filter<br>Series<br>GKC65        | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>- 1KG - Z<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG<br>2 KG<br>3 KG<br>5 catalog page | OX 3       BOX 4       BOX 5       BOX 5         n per box         3       BOX 4       BOX 5       BOX 6       BOX 7         -       25       -       -       F       -         -       25       -       -       F       -       -         BOX 3       Media Type       Z       Excellement® Z-Media® (Synthetic)       C       South the constraint of th | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | GZ25FD9<br>BOX 5<br>Seal<br>Material<br>Omit = Buna N | GKL<br>Filter<br>Model<br>Number<br>Selection<br>GCC65           |
| BOX 1<br>GKC65 -<br>BOX 1<br>GKC65 -<br>BOX 1<br>Filter<br>Series<br>GKC65        | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>- 1KG - Z<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG<br>2 KG<br>3 KG<br>5 catalog page | OX 3 BOX 4 BOX 5 BOX<br>a per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7 E<br>- 25 - F - F<br>BOX 3<br>Media Type<br>z = Excellement® Z-Media®<br>(Synthetic)<br>AS = Anti-Static Pleat Media<br>(Synthetic)<br>DZ = Dirt Catcher® with<br>Excellement® Z-Media®<br>W = W Media (water removal)  | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | GZ25FD9<br>BOX 5<br>Seal<br>Material<br>Omit = Buna N | GKL<br>Filter<br>Model<br>Number<br>Selection<br>GKC65           |
| BOX 1<br>GKC65 -<br>BOX 1<br>GKC65 -<br>BOX 1<br>Filter<br>Series<br>GKC65        | BOX 2 B<br>OTE: One option<br>BOX 2 BOX<br>- 1KG - Z<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG<br>2 KG<br>3 KG<br>5 catalog page | OX 3       BOX 4       BOX 5       BOX 5         n per box         3       BOX 4       BOX 5       BOX 6       BOX 7         -       25       -       -       F       -         -       25       -       -       F       -       -         BOX 3       Media Type       Z       Excellement® Z-Media® (Synthetic)       C       South the constraint of th | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | GZ25FD9<br>BOX 5<br>Seal<br>Material<br>Omit = Buna N | GKL<br>Filter<br>Model<br>Number<br>Selection<br>GKC655          |

### **Medium Pressure Filters with GeoSeal<sup>®</sup> Elements**

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| <b>BOX</b> 1  |  | d Model Number for a Sch   |   |  |
|---|--|--|---|--|
| GKF5  | BOX 2 E  | BOX 3 BOX 4 BOX 5 BO   | DX 6 BOX 7 BOX 8 BOX 9  | BOX 10   |
| Example   | NOTE: One optio  | n per box  |   |  |
| BOX 1   | BOX 2 BOX  |  | BOX 8 BOX 9 BOX 10  |  |
| GKF5  | – 1KG – Z  | <u> </u>   | – D5 – <b>= GKF51KG</b>   | 5Z25S24D5  |
| BOX 1   | BOX 2  | BOX 3  | BOX 4   | BOX 5  |
| Filter<br>Series  | Number of<br>Elements  | Media Type   | Micron Rating   | Seal<br>Material                                   |
|   | 1KG, KKG,  | Z = Excellement <sup>®</sup> Z-Media <sup>®</sup>  | 1 = 1 µ Z, ZW, DZ media   | Omit = Buna N                                      |
| GKF5  | 27KG   | (Synthetic)  | $3 = 3 \mu AS, E, Z, ZW, DZ media$  | V = Viton <sup>®</sup>                             |
|   | 2KG  | AS = Anti-Static Pleat Media<br>(Synthetic)  | 5 = 5 $\mu$ AS, Z, ZW, DZ media   |  |
|   | 3KG  | DZ = Dirt Catcher <sup>®</sup> with<br>Excellement <sup>®</sup> Z-Media <sup>®</sup>   | $10 = 10 \ \mu \text{ AS, E, M, Z, ZW,}$<br>DZ media  |  |
|   |  | W = W Media (water removal)  | 25= 25 μ E, M, Z, ZW, DZ media  |  |
|   |  |  | 60 = 60 µ M media   |  |
| Refer to K  | F5 catalog page 1  | 73 for options in boxes 6 through 10   |   |  |
|   | Build a Vali   | d Model Number for a Sch   | <b>roeder GK9:</b><br>DX 6 BOX 7 BOX 8 BOX 9  | BOX 10_  |
| How to<br>BOX 1<br>GK9  | Build a Vali<br>BOX 2 E  | d Model Number for a Sch<br>30X 3 BOX 4 BOX 5 BO   |   | BOX 10   |
| How to<br>BOX 1<br>GK9<br>Example:  | Build a Vali<br>BOX 2 E  | d Model Number for a Sch<br>30X 3 BOX 4 BOX 5 BO   | DX 6 BOX 7 BOX 8 BOX 9  | BOX 10   |
| How to<br>BOX 1<br>GK9  | Build a Vali<br>BOX 2 E  | d Model Number for a Sch<br>30X 3 BOX 4 BOX 5 BO<br>n per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7   |   |  |
| How to<br>BOX 1<br>GK9<br>Example:<br>BOX 1                                     | Build a Vali<br>BOX 2 E<br>NOTE: One option<br>BOX 2 BOX   | d Model Number for a Sch<br>30X 3 BOX 4 BOX 5 BO<br>n per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7   | BOX 8 BOX 9 BOX 10  |  |
| How to<br>BOX 1<br>GK9<br>Example:<br>BOX 1<br>GK9                              | Build a Vali<br>BOX 2<br>NOTE: One optio<br>BOX 2<br>BOX 2<br>B | d Model Number for a Schu<br>30X 3 BOX 4 BOX 5 BOX<br><i>n per box</i><br>3 BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - B - S  | BOX 8 BOX 9 BOX 10<br>D5  | 225BSD5  |
| How to<br>BOX 1<br>GK9<br>Example:<br>BOX 1<br>GK9<br>BOX 1<br>Filter<br>Series | Build a Vali<br>BOX 2 E<br>BOX 2 E<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2<br>BOX 2<br>BOX 2<br>Number of<br>Elements<br>1 KG, KKG,   | d Model Number for a Schi<br>30X 3 BOX 4 BOX 5 BO<br><i>n per box</i><br>3 BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - B - S<br>BOX 3<br>Media Type<br>Z = Excellement® Z-Media®   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | Z25BSD5<br>BOX 5<br>Seal                           |
| How to<br>BOX 1<br>GK9<br>Example:<br>BOX 1<br>GK9<br>BOX 1<br>Filter           | Build a Vali<br>BOX 2 E<br>BOX 2 E<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2<br>BOX 2<br>Number of<br>Elements   | d Model Number for a Schi<br>30X 3 BOX 4 BOX 5 BO<br><i>n per box</i><br>3 BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - B - S<br>BOX 3<br>Media Type  | $\frac{BOX 8}{D5} = \frac{BOX 9}{BOX 9} = \frac{BOX 8}{BOX 9} = \frac{BOX 9}{BOX 10} = GK91KGZ$ BOX 4 Micron Rating   | Z25BSD5<br>BOX 5<br>Seal<br>Material               |
| How to<br>Box 1<br>GK9<br>Example:<br>BOX 1<br>GK9<br>BOX 1<br>Filter<br>Series | Build a Vali<br>BOX 2 E<br>BOX 2 E<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2<br>BOX 2<br>BOX 2<br>Number of<br>Elements<br>1 KG, KKG,   | d Model Number for a Schi<br>30X 3 BOX 4 BOX 5 BO<br><i>n per box</i><br>3 BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - B - S<br>BOX 3<br>Media Type<br>Z = Excellement® Z-Media®   | $\frac{BOX 8}{D5} = \frac{BOX 9}{BOX 9} = \frac{BOX 8}{BOX 9} = \frac{BOX 9}{BOX 10} = GK91KGZ$ BOX 4 $\frac{Micron Rating}{1 = 1 \mu Z, ZW, DZ media}$   | Z25BSD5<br>BOX 5<br>Seal<br>Material<br>B = Buna N |
| How to<br>BOX 1<br>GK9<br>Example:<br>BOX 1<br>GK9<br>BOX 1<br>Filter<br>Series | Build a Vali<br>BOX 2 E<br>BOX 2 E<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2<br>BOX 2<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG   | d Model Number for a Schi<br>30X 3 BOX 4 BOX 5 BO<br>a per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 B S<br>BOX 3<br>Media Type<br>z = Excellement® Z-Media®<br>(Synthetic)<br>AS = Anti-Static Pleat Media   | $\frac{BOX 8}{D5} = \frac{BOX 9}{BOX 9} = \frac{BOX 8}{BOX 9} = \frac{BOX 9}{BOX 10} = GK91KGZ$ $BOX 4$ $\frac{Micron Rating}{1 = 1 \ \mu \ Z, \ ZW, \ DZ \ media}{3 = 3 \ \mu \ AS, \ E, \ Z, \ ZW, \ DZ \ media}$ | Z25BSD5<br>BOX 5<br>Seal<br>Material<br>B = Buna N |
| How to<br>BOX 1<br>GK9<br>Example:<br>BOX 1<br>GK9<br>BOX 1<br>Filter<br>Series | Build a Vali<br>BOX 2 E<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2<br>BOX 2<br>BOX 2<br>IKG, KKG,<br>27KG<br>2 KG   | d Model Number for a Schi<br>30X 3 BOX 4 BOX 5 BOX<br>a per box<br>3 BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 - B - S   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | Z25BSD5<br>BOX 5<br>Seal<br>Material<br>B = Buna N |
| How to<br>BOX 1<br>GK9<br>Example:<br>BOX 1<br>GK9<br>BOX 1<br>Filter<br>Series | Build a Vali<br>BOX 2 E<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2 BOX<br>BOX 2<br>BOX 2<br>BOX 2<br>IKG, KKG,<br>27KG<br>2 KG   | d Model Number for a Schi<br>30X 3 BOX 4 BOX 5 BOX<br>a BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 B S 4 BOX 6 BOX 7<br>BOX 3<br>BOX 3<br>Redia Type<br>z = Excellement® Z-Media®<br>(Synthetic)<br>AS = Anti-Static Pleat Media<br>(Synthetic)<br>DZ = Dirt Catcher® with<br>Excellement® Z-Media® | BOX 6 BOX 7 BOX 8 BOX 9<br>BOX 8 BOX 9 BOX 10<br>D5   | Z25BSD5<br>BOX 5<br>Seal<br>Material<br>B = Buna N |

Refer to K9 catalog page 181 for options for options in boxes 6 through 10. Please note: X Blocked Bypass not offered.

#### NOTES:

- Box 2. Double and triple stacking of K-size elements can be replaced by single KKG and 27KG elements, respectively. Number of elements must equal 2 when using KKG or 27KG elements.
- Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5 combined.

## **Medium Pressure Filters with GeoSeal<sup>®</sup> Elements**

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| BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>G2K9   | BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11  | Model<br>Number   |
|---|--|---|
| cample: NOTE: One option per boxw         BOX 1         BOX 2         BOX 3         BOX 4         BOX 5         BOX 3         BOX 4         BOX 5         BOX 6   | OX 7 BOX 8 BOX 9 BOX 10 BOX 11   | Selection   |
|   | P16-P16-D5- G2K9109BBVP16P16D5   | G2K9 скс  |
| BOX 1 BOX 2 BOX 3   | BOX 4  |   |
| Filter Number of Length of Elements   | First Housing (with GeoSeal®)  | GMKF5   |
| <b>G2K9</b> 1 09 = K size element   | A = 1 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  |   |
| 2 18 = KK size element<br>3 27 = 27K size element   | B = 3 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)<br>C = 5 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | GKC   |
|   | $D = 10 \ \mu \text{ Excellement}^{\circ} \text{ Z-Media}^{\circ} \text{ (synthetic)}$   |   |
|   | $E = 25 \mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | GKI   |
|   | F = W media (water removal)  |   |
| BOX 5   | BOX 6  | Gk  |
| Second Housing  | Seal<br>Material   | NOTES:  |
| = 1 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | B = Buna N   | Box 2. Number of elements<br>must equal 1 when using 21                                     |
| = 3 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | V = Viton <sup>®</sup>   | KKG or 27KG elements.<br>For replacement element  |
| = 5 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |  | part numbers, please see<br>page 301 in this catalog  |
| = 10 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  |  | section. Double and   |
| = 25 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)  |  | triple stacking of<br>K-size elements can   |
| = W media (water removal)   |  | be replaced by single<br>KKG and 27KG elements,   |
| · · · · · · · · · · · · · · · · · · ·   |  |   |
| fer to 2K9 catalog page 185 for options in box  |  | respectively.   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Numb<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5   |  |   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Numb<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>G3K9   | er for a Schroeder G3K9:   | GML   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Numb<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>ample: NOTE: One option per boxw<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC  | er for a Schroeder G3K9:   | GML   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Numb<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>G3K9   | er for a Schroeder G3K9:<br>BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11<br>DX 7 BOX 8 BOX 9 BOX 10 BOX 11<br>B P16 P16 D5 = G3K9109ECABP16P16D5  | GML   |
| for to 2K9 catalog page 185 for options in box         Dow to Build a Valid Model Numbres         BOX 1       BOX 2       BOX 3       BOX 4       BOX 5         i3K9       -       -       -       -       -         ample: NOTE: One option per boxw       BOX 2       BOX 3       BOX 4       BOX 5       BOX 6       BC         i3K9       1       -       09       E       C       A       -         BOX 1       BOX 2       BOX 2       BOX 3       BOX 3       BOX 4       BOX 5       BOX 6       BC         BOX 1       BOX 2       BOX 3       BOX 3       BOX 3       BOX 3       BOX 3   | er for a Schroeder G3K9:<br>$\begin{array}{c} BOX 6 \\ BOX 7 \\ BOX 8 \\ BOX 9 \\ BOX 10 \\ BOX 11 \\ B \\ \hline P16 \\ \hline P16 \\ \hline P16 \\ \hline D5 \\ \hline D5 \\ \hline BOX 4 \\ \hline BOX 4 \\ \end{array}$  | respectively.<br>GK<br>G3K9<br>GML  |
| Ser to 2K9 catalog page 185 for options in box         Dow to Build a Valid Model Numbor         30X1       BOX 2       BOX 3       BOX 4       BOX 5         33K9       -       -       -       -       -         ample: NOTE: One option per boxw       BOX 2       BOX 3       BOX 4       BOX 5       BOX 6       BC         33K9       1       -       09       E       C       A       -         BOX 1       BOX 2       BOX 3       BOX 3       BOX 3       BOX 3         Filter       Number of Elements       Length of Elements       Elements       Elements   | er for a Schroeder G3K9:<br>BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 10 BOX 11 BOX 11 BOX 10 BOX 11               | respectively.<br>GK<br>G3K9<br>GML  |
| Ser to 2K9 catalog page 185 for options in box         Dow to Build a Valid Model Number         BOX 1       BOX 2       BOX 3       BOX 4       BOX 5         BOX 1       BOX 2       BOX 3       BOX 4       BOX 5         BOX 1       BOX 2       BOX 3       BOX 4       BOX 5       BOX 6       BC         BOX 1       BOX 2       BOX 3       BOX 4       BOX 5       BOX 6       BC         BOX 1       BOX 2       BOX 3       BOX 4       BOX 5       BOX 6       BC         BOX 1       BOX 2       BOX 3       BOX 3       Length of Elements       1       09 = K size element  | er for a Schroeder G3K9:<br>$BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 4 BOX 4 BOX 4 First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic)$   | GML   |
| The rest of 2K9 catalog page 185 for options in boxDow to Build a Valid Model NumberBOX 1BOX 2BOX 3BOX 1BOX 2BOX 3BOX 4BOX 1BOX 2BOX 3BOX 1BOX 2BOX 3C11BOX 311BOX 4BOX 3BOX 1BOX 2BOX 3BOX 2BOX 3BOX 3BOX 3BOX 4BOX 3BOX 4BOX 3BOX 1BOX 2BOX 3BOX 3BOX 4BOX 3BOX 4BOX 3BOX 5BOX 3BOX 4BOX 3BOX 4BOX 3BOX 5BOX 3BOX 4BOX 4BOX 5BOX 4BOX 4   | er for a Schroeder G3K9:<br>BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 4 B               | GML   |
| fer to 2K9 catalog page 185 for options in box         ow to Build a Valid Model Numbe         BOX 1       BOX 2       BOX 3       BOX 4       BOX 5         BOX 1       BOX 2       BOX 3       BOX 4       BOX 5         ample: NOTE: One option per boxw         BOX 1       BOX 2       BOX 3       BOX 6       BOX 6         BOX 1       BOX 2       BOX 3       BOX 6       BOX 6         BOX 1       BOX 2       BOX 3       BOX 3         Filter       Number of Elements       Length of Elements         1       09 = K size element  | er for a Schroeder G3K9:<br>BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 4               | GML   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Numb<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>33K9   | er for a Schroeder G3K9:<br>BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11<br>BOX 7 BOX 8 BOX 9 BOX 10 BOX 11<br>B P16 P16 D5 = G3K9109ECABP16P16D5<br>BOX 4<br>First Housing (with GeoSeal®)<br>A = 1 $\mu$ Excellement® Z-Media® (synthetic)<br>B = 3 $\mu$ Excellement® Z-Media® (synthetic)<br>C = 5 $\mu$ Excellement® Z-Media® (synthetic)<br>D = 10 $\mu$ Excellement® Z-Media® (synthetic)  | GK<br>G3K9<br>GML   |
| fer to 2K9 catalog page 185 for options in box<br><b>bow to Build a Valid Model Numb</b><br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br><b>i3K9</b><br><b>ample:</b> <i>NOTE: One option per boxw</i><br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX<br><b>i3K9</b><br><b>i</b> BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX<br><b>i</b> BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX<br><b>i</b> BOX 1 BOX 2 BOX 3<br><b>i</b> BOX 2 BOX 3<br><b>i</b> BOX 1 BOX 2 BOX 3<br><b>i</b> BOX 3<br><b>i</b> BOX 1 BOX 2 BOX 3<br><b>i</b> BOX 3<br><b>i</b> BOX 1 BOX 2 BOX 3<br><b>i</b> BOX 1 BOX 2 BOX 3<br><b>i</b> BOX 3<br><b>i</b> BOX 1 BOX 2 BOX 3<br><b>i</b> BOX 3<br><b>i</b> BOX 3<br><b>i</b> BOX 4 BOX 5<br><b>i</b> BOX 3<br><b>i</b> BOX 4 BOX 5<br><b>i</b> BOX 3<br><b>i</b> BOX 1 BOX 2 BOX 3<br><b>i</b> BOX 3<br><b>i</b> BOX 3<br><b>i</b> BOX 4 BOX 5<br><b>i</b> BOX 6<br><b>i</b> BOX 7<br><b>i</b> BO | er for a Schroeder G3K9:<br>BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 4               | GK<br>G3K9<br>GML   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Numb<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>33K9   | er for a Schroeder G3K9:<br>$BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 11 BOX 10 BOX 11 BOX 11 BOX 10 BOX 11 BOX 11 BOX 4 BOX 4 BOX 4 BOX 9 BOX 10 BOX 10 BOX 11 BOX 11 BOX 4 BOX 4 First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic) B = 3 \mu Excellement® Z-Media® (synthetic) C = 5 \mu Excellement® Z-Media® (synthetic) D = 10 \mu Excellement® Z-Media® (synthetic) E = 25 \mu Excellement® Z-Media® (synthetic)$   | GK<br>G3K9<br>GML   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Number<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>G3K9   | er for a Schroeder G3K9:   | respectively.<br>GML<br>G   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Numb<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>3K9  | er for a Schroeder G3K9:<br>BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 10 BOX 11 BOX 11 BOX 6 BOX 11 BOX 11 BOX 11 BOX 6 BOX 11 BOX 11 BOX 11 BOX 10 BOX 11 BOX 11 BOX 10 BOX 11 BOX 10 BOX 11 BOX 10 BOX 11 BOX 6 BOX 10 BOX 11 BOX 10 BOX 10 BOX 11 BOX 10 BOX 10 BOX 11 BOX 6 BOX 10               | respectively.<br>GAL<br>GI  |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Numb<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>G3K9 - 1 - 09 - E - C - A -<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC<br>G3K9 - 1 - 09 - E - C - A -<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC<br>G3K9 - 1 - 09 - E - C - A -<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC<br>G3K9 - 1 - 09 - E - C - A -<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC<br>G3K9 - 1 - 09 - E - C - A -<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC<br>G3K9 - 1 - 09 - E - C - A -<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC<br>1 09 - K size element<br>18 = KK size element<br>18 = KK size element<br>18 = KK size element<br>27 = 27K size element<br>BOX 5<br>BOX 5<br>BOX 5<br>BOX 5   | er for a Schroeder G3K9:<br>$BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 4 BOX 4 First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic)B = 3 \mu Excellement® Z-Media® (synthetic)D = 10 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)A = 1 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® Ex$  | respectively.   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Number<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>G3K9 1 09 E C A<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC<br>G3K9 1 09 E C A<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC<br>G3K9 1 09 E C A<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC<br>G3K9 1 09 E C A<br>Elements<br>1 2 BOX 3<br>Filter<br>Saries<br>1 2 BOX 3<br>Elements<br>1 8 = KK size element<br>18 = KK size element<br>18 = KK size element<br>27 = 27K size element<br>BOX 5<br>BOX 5<br>Second Housing<br>= 1 µ Excellement® Z-Media® (synthetic)<br>= 3 µ Excellement® Z-Media® (synthetic)   | er for a Schroeder G3K9:<br>$BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 4 BOX 4 BOX 4 First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic)B = 3 \mu Excellement® Z-Media® (synthetic)C = 5 \mu Excellement® Z-Media® (synthetic)D = 10 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)F = W media (water removal)BOX 6 BOX 7SealMaterialA = 1 \mu Excellement® Z-Media® (synthetic)F = W media (water removal)BOX 6 BOX 7SealMaterialA = 1 \mu Excellement® Z-Media® (synthetic)BOX 6 BOX 7BOX 6$   | respectively.<br>GK<br>GML<br>G<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Numb<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>G3K9   | er for a Schroeder G3K9:<br>$BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 10 BOX 11 BOX 11 BOX 4  BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 4  BOX 4  First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic)B = 3 \mu Excellement® Z-Media® (synthetic)C = 5 \mu Excellement® Z-Media® (synthetic)D = 10 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)E = 10 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)E = 3 \mu Excellement® Z-Media® (synthetic)B = 3 \mu Excellement® Z-Media® (synthetic)$   | Respectively.   |
| fer to 2K9 catalog page 185 for options in box<br>ow to Build a Valid Model Number<br>BOX 1 BOX 2 BOX 3 BOX 4 BOX 5<br>G3K9   | er for a Schroeder G3K9:<br>$ \begin{array}{c} BOX 6 & BOX 7 & BOX 8 & BOX 9 & BOX 10 & BOX 11 & BOX 4 & BO$ | Respectively.   |

### Low Pressure Filters with GeoSeal<sup>®</sup> Elements

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| GKF3<br>SAME DAY<br>HIPMENT MODEL<br>AVAILABLE!  | Example: <i>N</i><br>BOX 1<br>GKF3<br>BOX 1<br>Filter<br>Series<br>GKF3 | OTE: One option<br>BOX 2 BOX<br>-1KG - Z<br>BOX 2<br>Number of<br>Elements<br>1KG, KKG,<br>27KG<br>2 KG<br>3 KG | BOX 4 BOX 5 BOX 6 BOX 7   | BOX 8 BOX 9 BOX 10<br>D5   | iZ25SD5<br>BOX 5<br>Seal<br>Material<br>Omit = Buna N<br>V = Viton® |
|--|---|---|---|--|---|
| SAME DAY<br>HIPMENT MODEL<br>AVAILABLE!  | GKF3<br>BOX 1<br>Filter<br>Series                                       | BOX 2<br>BOX 2<br>Number of<br>Elements<br>1 KG, KKG,<br>27KG<br>2 KG   | BOX 3<br>BOX 3<br>Media Type<br>Z = Excellement <sup>®</sup> Z-Media <sup>™</sup><br>(Synthetic)<br>AS = Anti-Static Pleat Media<br>(Synthetic)<br>DZ = Dirt Catcher <sup>®</sup> with<br>Excellement <sup>®</sup> Z-Media <sup>™</sup> | $D5 - GKF31KG$ BOX 4 $\frac{Micron Rating}{1 = 1 \mu Z, ZW, DZ media}$ $3 = 3 \mu AS, E, Z, ZW, DZ media$ $5 = 5 \mu AS, Z, ZW, DZ media$ $10 = 10 \mu AS, E, M, Z, ZW,$ DZ media  | BOX 5<br>Seal<br>Material<br>Omit = Buna N                          |
| HIPMENT MODEL<br>AVAILABLE!  | Filter<br>Series  | Number of<br>Elements<br>1 KG, KKG,<br>27KG<br>2 KG   | Media Type         Z = Excellement® Z-Media™         (Synthetic)         AS = Anti-Static Pleat Media         (Synthetic)         DZ = Dirt Catcher® with         Excellement®Z-Media™  | $\label{eq:higher} \begin{array}{l} \mbox{Micron Rating} \\ 1 = 1 \ \mu \ Z, \ ZW, \ DZ \ media \\ 3 = 3 \ \mu \ AS, \ E, \ Z, \ ZW, \ DZ \ media \\ 5 = 5 \ \mu \ AS, \ Z, \ ZW, \ DZ \ media \\ 10 = 10 \ \mu \ AS, \ E, \ M, \ Z, \ ZW, \ DZ \ media \end{array}$ | Seal<br>Material<br>Omit = Buna N                                   |
| AVAILABLE!<br>C<br>Double and triple<br>stacking of K-size<br>elements can<br>be replaced by                               | Series  | Elements<br>1KG, KKG,<br>27KG<br>2KG  | z = Excellement®Z-Media™<br>(Synthetic)<br>AS = Anti-Static Pleat Media<br>(Synthetic)<br>DZ = Dirt Catcher® with<br>Excellement®Z-Media™   | 1 = 1 $\mu$ Z, ZW, DZ media<br>3 = 3 $\mu$ AS, E, Z, ZW, DZ media<br>5 = 5 $\mu$ AS, Z, ZW, DZ media<br>10 = 10 $\mu$ AS, E, M, Z, ZW,<br>DZ media   | Material<br>Omit = Buna N   |
| le and triple<br>ing of K-size<br>ents can<br>placed by  | GKF3  | 27KG<br>2KG   | (Synthetic)         AS = Anti-Static Pleat Media<br>(Synthetic)         DZ = Dirt Catcher® with<br>Excellement®Z-Media™   | $3 = 3 \mu AS, E, Z, ZW, DZ media$<br>$5 = 5 \mu AS, Z, ZW, DZ media$<br>$10 = 10 \mu AS, E, M, Z, ZW, DZ media$   |   |
| of K-size<br>is can<br>iced by   |   |   | (Synthetic)<br>DZ = Dirt Catcher® with<br>Excellement®Z-Media™  | 10 = 10 μ AS, E, M, Z, ZW,<br>DZ media   |   |
| f K-size<br>an<br>d by   |   | 3KG   | Excellement <sup>®</sup> Z-Media™   | DZ media   |   |
| <sup>:</sup> K-size<br>an<br>d by  |   |   | W = W Media (water removal)   | 2E - 2E ILE NA 7 7W/ D7 modia  |   |
| ng of K-size<br>ents can<br>placed by  |   |   |   | $z_3 = z_5 \mu c$ , ivi, $z$ , $z_{vv}$ , $Dz$ media   |   |
| nts can<br>laced by  |   |   |   | $60 = 60 \ \mu M \text{ media}$  |   |
| le KKG and<br>G respectively.<br>nber of elements<br>t equal 1 when<br>g KKG or<br>G elements.                             |   |   |   |  |   |
| mbers are<br>Il to contents<br>s 2, 3, 4, and 5  |   |   | 131 for options in boxes 6 through 10<br>dicator and Magnetic Inserts <b>not offe</b>   |  |   |
| 27KG elements.<br>Replacement element<br>part numbers are<br>identical to contents<br>of Boxes 2, 3, 4, and 5<br>combined. | Please note:  | No-Element Ind  | dicator and Magnetic Inserts <b>not offe</b>  | ered.  |   |
| GKL3   |   |   | d Model Number for a Sch  |  | DOV 44  |
|  | BOX 1   | BOX 2 E   | BOX 3 BOX 4 BOX 5 BO  | OX 6 BOX 7 BOX 8 BOX 9   | BOX 10  |

|                  | OTE: One option                | in per son   |   |   |
|------------------|--------------------------------|--|---|---|
| BOX 1<br>GKL3    | вох 2 вох<br>– 1KG – Z         | 3 BOX 4 BOX 5 BOX 6 BOX 7<br>- 25 S                                      | BOX 8 BOX 9 BOX 10<br>D5                                  | Z25SD5                                  |
| BOX 1            | BOX 2                          | BOX 3  | BOX 4   | BOX 5                                   |
| Filter<br>Series | Number of<br>Elements          | Media Type   | Micron Rating   | Seal<br>Material                        |
| GKL3             | <mark>1KG,</mark> KKG,<br>27KG | Z = Excellement®Z-Media™<br>(Synthetic)                                  | 1 = 1 μ Ζ, ΖW, DZ media<br>3 = 3 μ AS, Ε, Ζ, ΖW, DZ media | Omit = Buna N<br>V = Viton <sup>®</sup> |
|                  | 2KG                            | AS = Anti-Static Pleat Media<br>(Synthetic)                              | 5 = 5 $\mu$ AS, Z, ZW, DZ media                           |   |
|                  | 3KG                            | DZ = Dirt Catcher <sup>®</sup> with<br>Excellement <sup>®</sup> Z-Media™ | $10 = 10 \ \mu$ AS, E, M, Z, ZW,<br>DZ media              |   |
|                  |                                | W = W Media (water removal)  | 25 = 25 μ Ε, Μ, Ζ, ΖW, DZ media                           |   |
|                  |                                |  | 60 = 60 µ M media   |   |

Refer to KL3 catalog page 235 for options in boxes 6 through 10.

#### NOTES:

Box 2. Number of elements must equal 1 when using KKG or 27KG elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5 combined. Double and triple stacking of K-size elements can be replaced by single KKG and 27KG elements, respectively.

## Low Pressure Filters with GeoSeal<sup>®</sup> Elements

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| GMLF1 -<br>xample: /   | <br>NOTE: One opti  | on per box   |   | <u> - </u>  -   |   |  |                                    | Model<br>Iumber<br>election                              |
|--|---|--|---|---|---|--|------------------------------------|--|
| BOX 1<br>GMLF1   | BOX 2 BO  |  | OX 5 BOX 6 BC   | DX 7 BOX 8 BC   | BOX 10<br>- = GMLF11k   | GZ25SD5  | GM                                 |  |
| BOX 1  | BOX 2   |  | BOX 3   |   | BOX 4   | BOX 5  |                                    | GRE  |
| Filter<br>Series   | Number of<br>Elements   | Γ  | Media Type  |   | Micron Rating   | Seal<br>Material   |                                    | GMKF   |
| iMLF1  | 1KG, KKG,<br>27KG   | z = Excelle<br>(Synth  | ement® Z-Media®<br>netic)   |   | 1 $\mu$ Z, ZW, DZ media   | Omit = Buna N<br>V = Viton <sup>®</sup>  |                                    |  |
|  | 2KG   | AS = Anti-S  | Static Pleat Media  | -   | 3 μ AS, E, Z, ZW, DZ media<br>5 μ AS, Z, ZW, DZ media   | v = viton  |                                    | GKC  |
|  | 3KG   | (Synth)<br>DZ = Dirt C   | netic)<br>atcher® with  |   | 10 μ AS, E, M, Z, ZW,   |  |                                    | CVI  |
|  | L   |  | ement <sup>®</sup> Z-Media <sup>®</sup>   |   | DZ media  |  |                                    | GK   |
|  |   | VV = VV IVIE   | edia (water remo  |   | 25 μ E, M, Z, ZW, DZ media<br>60 μ M media  |  | NOTES:                             | Gł   |
|  |   |  |   |   |   | -  |                                    | and triple stacking                                      |
|  |   |  |   |   |   |  | be repla                           | e elements can<br>aced by single G2k<br>d 27KG elements, |
|  |   |  |   |   |   |  | respecti<br>element                | vely. Number of<br>ts must equal 2                       |
|  |   |  |   |   |   |  | when us<br>27KG el                 | sing KKG or G31<br>ements.                               |
|  |   |  |   |   |   |  | Box 3. Replace<br>part nur         | mbers are identical                                      |
|  |   |  | Ref   | fer to MLF catalog  | page 243 for options in box   | es 6 through 10.   | to conte<br>4 and 5                | ents of Boxes 2, 3,5K<br>combined.                       |
|  |   |  |   |   |   |  |                                    | CIV  |
|  |   |  |   |   |   |  |                                    | GKI  |
| ow to E  | Build a Val   | id Model N   | lumber for a  | Schroeder G   | iRT:  |  | CPT                                | GKI  |
| BOX 1  | Build a Val   |  | lumber for a  |   |   |  | GRT                                |  |
| 30X 1  |   | 3 BOX 4  |   |   |   |  | SAME D                             | GML  |
| GRT –  | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BO  | BOX 4<br>bn per box<br>DX 3 BOX 4  | BOX 5 BOX 6   | BOX 6 BOX 7   | 8<br>   | \$24\$24NY2  |                                    | MODEL GF   |
| GRT -<br>BOX 1<br>ample: M<br>BOX 1<br>GRT -   | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC  | BOX 4  | BOX 5 BOX 6   | BOX 7 BOX<br>BOX 6 BOX 7<br>BOX 6 POX 7<br>Y2   | 8   | S24S24NY2  | SAME D<br>SHIPMENT I               | GMLI<br>DAY<br>MODEL GF                                  |
| OX 1<br>GRT -<br>BOX 1<br>GRT -<br>SOX 1   | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of                  | BOX 4<br>bn per box<br>DX 3 BOX 4  | BOX 5 BOX 6   | BOX 7 BOX<br>BOX 6 BOX 7<br>- Y2<br>BOX 3   | 8<br>BOX 8<br>= GRT1KBGZ10  | S24S24NY2  | SAME D<br>SHIPMENT I               | GMLI<br>DAY<br>MODEL GF                                  |
| OX 1<br>GRT -<br>BOX 1<br>GRT -<br>SOX 1<br>Filter<br>Sox 1  | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2                               | BOX 4<br>bn per box<br>DX 3 BOX 4  | BOX 5 BOX 6   | BOX 6 BOX 7<br>BOX 6 BOX 7<br>Y2<br>BOX 3<br>BOX 3  | 8<br>BOX 8<br>= GRT1KBGZ10  | S24S24NY2  | SAME D<br>SHIPMENT I               | GMLI<br>DAY<br>MODEL GF                                  |
| OX 1<br>GRT -<br>BOX 1<br>GRT -<br>COX 1<br>Filter<br>eries  | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 KBC<br>BOX 2<br>Number of<br>Elements<br>1   | BOX 4<br>on per box<br>DX 3 BOX 4<br>GZ10<br>K Length<br>KBGZ1   | BOX 5 BOX 6   | BOX 7 BOX<br>BOX 6 BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 3<br>Cont Part Number<br>27K Length<br>27K BGZ1  | 8<br>BOX 8<br>= GRT1KBGZ10  |  | SAME D<br>SHIPMENT I               | GMLI<br>DAY<br>MODEL GF                                  |
| OX 1<br>GRT -<br>BOX 1<br>GRT -<br>COX 1<br>Filter<br>eries  | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of<br>Elements<br>1 | BOX 4<br>on per box<br>DX 3 BOX 4<br>GZ10<br>K Length  | BOX 5 BOX 6   | BOX 6 BOX 7<br>BOX 6 BOX 7<br>Y2<br>BOX 3<br>BOX 3<br>BOX 3<br>Cont Part Number<br>27K Length   | BOX 8<br>= GRT1KBGZ10<br>(with GeoSeal®)  | ® (synthetic)  | SAME D<br>SHIPMENT I               | GMLI<br>DAY<br>MODEL GF                                  |
| OX 1<br>GRT -<br>ample: A<br>BOX 1<br>GRT -<br>OX 1<br>illter<br>eries                               | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of<br>Elements<br>1 | BOX 4<br>on per box<br>DX 3 BOX 4<br>GZ10<br>K Length<br>KBGZ1<br>KBGZ3/<br>KBGZ3/<br>KBGAS3<br>KBGZ5/   | BOX 5 BOX 6   | BOX 7 BOX<br>BOX 6 BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 4<br>BOX 3<br>BOX 7<br>PY2<br>BOX 3<br>BOX 7<br>PY2<br>BOX 3<br>BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 6<br>BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 4<br>BOX 3<br>BOX 4<br>BOX 3<br>BOX 3<br>BO | BOX 8<br>- <b>GRT1KBGZ10</b><br>(with GeoSeal <sup>®</sup> )<br>= 1 μ Excellement <sup>®</sup> Z-Media  | <sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)   | SAME D<br>SHIPMENT I               | GML<br>DAY<br>MODEL GI                                   |
| OX 1<br>GRT -<br>BOX 1<br>GRT -<br>COX 1<br>Filter<br>eries  | BOX 2 BOX<br>JOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of<br>Elements      | BOX 4<br>on per box<br>DX 3 BOX 4<br>GZ10<br>K Length<br>KBGZ1<br>KBGZ3/<br>KBGZ3/<br>KBGAS3<br>KBGZ5/<br>KBGAS5<br>KBGZ10/                                | BOX 5 BOX 6   | BOX 7 BOX<br>BOX 6 BOX 7<br>P P P P P P P P P P P P P P P P P P P   | <ul> <li>BOX 8</li> <li>GRT1KBGZ10</li> <li>(with GeoSeal<sup>®</sup>)</li> <li>= 1 μ Excellement<sup>®</sup> Z-Media</li> <li>= 3 μ Excellement<sup>®</sup> Z-Media</li> <li>= 5 μ Excellement<sup>®</sup> Z-Media</li> </ul>  | <sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)   | SAME D<br>SHIPMENT I               | GML<br>DAY<br>MODEL GI                                   |
| OX 1<br>GRT -<br>BOX 1<br>GRT -<br>COX 1<br>Filter<br>eries  | BOX 2 BOX<br>JOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of<br>Elements      | BOX 4<br>on per box<br>DX 3 BOX 4<br>GZ10<br>K Length<br>KBGZ1<br>KBGZ3/<br>KBGZ3/<br>KBGZ5/<br>KBGAS5   | BOX 5 BOX 6   | BOX 7 BOX<br>BOX 6 BOX 7<br>P P P P P P P P P P P P P P P P P P P   | <ul> <li>BOX 8</li> <li>- GRT1KBGZ10</li> <li>(with GeoSeal<sup>®</sup>)</li> <li>= 1 μ Excellement<sup>®</sup> Z-Media<sup>4</sup></li> <li>= 3 μ Excellement<sup>®</sup> Z-Media<sup>4</sup></li> </ul>   | <sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic)                                | SAME D<br>SHIPMENT I               | GMLI<br>DAY<br>MODEL GF                                  |
| OX 1<br>GRT -<br>BOX 1<br>GRT -<br>SOX 1<br>Filter<br>Sox 1  | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of<br>Elements<br>1 | BOX 4<br>on per box<br>DX 3 BOX 4<br>GZ10<br>K Length<br>KBGZ1<br>KBGZ3/<br>KBGZ3/<br>KBGZ5/<br>KBGZ5/<br>KBGAS5<br>KBGZ10/<br>KBGAS10                     | BOX 5 BOX 6<br>BOX 5<br>BOX 5<br>-S24 S24 N<br>Elem<br>KK Length<br>KKBGZ1<br>KKBGZ3/<br>KKBGZ3/<br>KKBGZ5/<br>KKBGZ5/<br>KKBGZ5/<br>KKBGZ10/<br>KKBGZ10/<br>KKBGAS10 | BOX 7 BOX<br>BOX 6 BOX 7<br>P<br>BOX 6 BOX 7<br>P<br>27K Length<br>27K Length<br>27K BGZ1<br>27K BGZ3/<br>27K BGZ5/<br>27K BGZ5/<br>27K BGZ5/<br>27K BGZ5/<br>27K BGZ10/<br>27K BGZ10/<br>27K BGZ10/<br>27K BGZ10/<br>27K BGZ10/  | <ul> <li>BOX 8</li> <li>GRT1KBGZ10</li> <li>(with GeoSeal<sup>®</sup>)</li> <li>= 1 μ Excellement<sup>®</sup> Z-Media</li> <li>= 3 μ Excellement<sup>®</sup> Z-Media</li> <li>= 5 μ Excellement<sup>®</sup> Z-Media</li> <li>= 10 μ Excellement<sup>®</sup> Z-Media</li> </ul>  | <sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic) | SAME D<br>SHIPMENT I               | GML<br>DAY<br>MODEL GI                                   |
| OX 1<br>GRT -<br>ample: A<br>BOX 1<br>GRT -<br>BOX 1<br>Filter<br>Series                             | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of<br>Elements<br>1 | 3 BOX 4<br>an per box<br>DX 3 BOX 4<br>GZ10<br>GZ10<br>K Length<br>KBGZ1<br>KBGZ3/<br>KBGZ3/<br>KBGZ5/<br>KBGZ5/<br>KBGZ5/<br>KBGZ10/<br>KBGZ10/<br>KBGZ25 | BOX 5 BOX 6<br>BOX 5 BOX 6<br>BOX 5<br>-S24 S24 N<br>Elem<br>KK Length<br>KKBGZ1<br>KKBGZ3/<br>KKBGZ5/<br>KKBGAS5<br>KKBGZ10/<br>KKBGAS10<br>KKBGZ25                  | BOX 7 BOX<br>BOX 6 BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 4<br>BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 7<br>PY2<br>BOX 3<br>BOX 7<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2  | <ul> <li>BOX 8</li> <li>GRT1KBGZ10</li> <li>(with GeoSeal<sup>®</sup>)</li> <li>= 1 μ Excellement<sup>®</sup> Z-Media'</li> <li>= 3 μ Excellement<sup>®</sup> Z-Media</li> <li>= 5 μ Excellement<sup>®</sup> Z-Media</li> <li>= 10 μ Excellement<sup>®</sup> Z-Media</li> <li>= 25 μ Excellement<sup>®</sup> Z-Media</li> </ul> | <sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic) | SAME D<br>SHIPMENT I               | GML<br>DAY<br>MODEL GI                                   |
| BOX 1<br>GRT -<br>ample: A<br>BOX 1<br>GRT -<br>GRT -<br>BOX 4<br>Seal                               | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of<br>Elements<br>1 | 3 BOX 4<br>an per box<br>DX 3 BOX 4<br>GZ10<br>GZ10<br>K Length<br>KBGZ1<br>KBGZ3/<br>KBGZ3/<br>KBGZ5/<br>KBGZ5/<br>KBGZ5/<br>KBGZ10/<br>KBGZ10/<br>KBGZ25 | BOX 5 BOX 6<br>BOX 5 BOX 6<br>BOX 5<br>-S24 S24 N<br>Elem<br>KK Length<br>KKBGZ1<br>KKBGZ3/<br>KKBGZ5/<br>KKBGAS5<br>KKBGZ10/<br>KKBGAS10<br>KKBGZ25                  | BOX 7 BOX<br>BOX 6 BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 4<br>BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 7<br>PY2<br>BOX 3<br>BOX 7<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2  | <ul> <li>BOX 8</li> <li>GRT1KBGZ10</li> <li>(with GeoSeal<sup>®</sup>)</li> <li>= 1 μ Excellement<sup>®</sup> Z-Media'</li> <li>= 3 μ Excellement<sup>®</sup> Z-Media</li> <li>= 5 μ Excellement<sup>®</sup> Z-Media</li> <li>= 10 μ Excellement<sup>®</sup> Z-Media</li> <li>= 25 μ Excellement<sup>®</sup> Z-Media</li> </ul> | <sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic) | SAME D<br>SHIPMENT I               | GML<br>DAY<br>MODEL GI                                   |
| BOX 1<br>GRT -<br>ample: A<br>BOX 1<br>GRT -<br>BOX 1<br>GRT -<br>GRT -<br>BOX 4<br>Seal<br>Material | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of<br>Elements      | 3 BOX 4<br>an per box<br>DX 3 BOX 4<br>GZ10<br>GZ10<br>K Length<br>KBGZ1<br>KBGZ3/<br>KBGZ3/<br>KBGZ5/<br>KBGZ5/<br>KBGZ5/<br>KBGZ10/<br>KBGZ10/<br>KBGZ25 | BOX 5 BOX 6<br>BOX 5 BOX 6<br>BOX 5<br>-S24 S24 N<br>Elem<br>KK Length<br>KKBGZ1<br>KKBGZ3/<br>KKBGZ5/<br>KKBGAS5<br>KKBGZ10/<br>KKBGAS10<br>KKBGZ25                  | BOX 7 BOX<br>BOX 6 BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 4<br>BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 7<br>PY2<br>BOX 3<br>BOX 7<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2  | <ul> <li>BOX 8</li> <li>GRT1KBGZ10</li> <li>(with GeoSeal<sup>®</sup>)</li> <li>= 1 μ Excellement<sup>®</sup> Z-Media'</li> <li>= 3 μ Excellement<sup>®</sup> Z-Media</li> <li>= 5 μ Excellement<sup>®</sup> Z-Media</li> <li>= 10 μ Excellement<sup>®</sup> Z-Media</li> <li>= 25 μ Excellement<sup>®</sup> Z-Media</li> </ul> | <sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic) | NOTES:<br>Box 2. Number            | GML<br>MODEL<br>BLE! G                                   |
| BOX 1<br>GRT -<br>ample: A<br>BOX 1<br>GRT -<br>GRT -<br>BOX 4<br>Seal                               | BOX 2 BOX<br>IOTE: One optic<br>BOX 2 BC<br>-1 - KBC<br>BOX 2<br>Number of<br>Elements      | 3 BOX 4<br>an per box<br>DX 3 BOX 4<br>GZ10<br>GZ10<br>K Length<br>KBGZ1<br>KBGZ3/<br>KBGZ3/<br>KBGZ5/<br>KBGZ5/<br>KBGZ5/<br>KBGZ10/<br>KBGZ10/<br>KBGZ25 | BOX 5 BOX 6<br>BOX 5 BOX 6<br>BOX 5<br>-S24 S24 N<br>Elem<br>KK Length<br>KKBGZ1<br>KKBGZ3/<br>KKBGZ5/<br>KKBGAS5<br>KKBGZ10/<br>KKBGAS10<br>KKBGZ25                  | BOX 7 BOX<br>BOX 6 BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 3<br>BOX 4<br>BOX 7<br>PY2<br>BOX 3<br>BOX 3<br>BOX 7<br>PY2<br>BOX 3<br>BOX 7<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2<br>PY2  | <ul> <li>BOX 8</li> <li>GRT1KBGZ10</li> <li>(with GeoSeal<sup>®</sup>)</li> <li>= 1 μ Excellement<sup>®</sup> Z-Media'</li> <li>= 3 μ Excellement<sup>®</sup> Z-Media</li> <li>= 5 μ Excellement<sup>®</sup> Z-Media</li> <li>= 10 μ Excellement<sup>®</sup> Z-Media</li> <li>= 25 μ Excellement<sup>®</sup> Z-Media</li> </ul> | <sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br><sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic)<br>ia <sup>®</sup> (synthetic) | NOTES:<br>Box 2. Number<br>must eq | GMLI<br>AY<br>MODEL<br>BLE!<br>GF                        |

### Low Pressure Filters with GeoSeal<sup>®</sup> Elements

Patented

| Filter Model |  |
|--------------|--|
| Number       |  |
| Selection    |  |



SAME DAY SHIPMENT MODEL AVAILABLE!

| How to Build a Valid Model Number for a Schroede | r GZT:          |
|--|-----------------|
| BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX          | X 7             |
|  |                 |
| Example: NOTE: One option per box                |                 |
| BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX          | X 7             |
| GZT – 8 – GTZZ10 – – S – Y2 –                    | = GZT8GTZZ10SY2 |

| BOX 1            | BOX 2                  | BOX 3  | BOX 4         |
|------------------|------------------------|--|---------------|
| Filter<br>Series | Element<br>Length (in) | Element Size and Media   | Seal Material |
| CZT              | 8                      | GTZZ1 = Z size 1 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | Omit = Buna N |
| GZT              | ŏ                      | GTZZ3 = Z size 3 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   | H = EPR       |
|                  |                        | GTZZ5 = Z size 5 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)   |               |
|                  |                        | GTZZ10 = Z size 10 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |               |
|                  |                        | GTZZ25 = Z size 25 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) |               |

| BOX 5                   |            | BOX 6   |
|-------------------------|------------|---|
| Inlet Porting           |            | Dirt Alarm <sup>®</sup> Options                             |
| P = 1" NPTF             |            | Omit = None   |
| PP = Dual 1" NPTF       |            | Y2 = Back-mounted tri-color gauge                           |
| S = SAE-16              | Visual     | Y2C = Bottom-mounted gauge in cap                           |
| SS = Dual SAE-16        |            | Y5 = Back-mounted gauge in cap                              |
| B = ISO 228 G-1"        | _          | ES = Electric switch  |
| BB = Dual ISO 228 G-1 " | Electrical | ES1 = Heavy-duty electric switch with<br>conduit connection |

| BOX 7                        |
|------------------------------|
| Options                      |
| Omit = None                  |
| A = Dipstick                 |
| B = Breather                 |
| AB = Dipstick & Breather     |
| M = Mounting Gasket (Buna N) |
|                              |

#### NOTES:

All heads will be anodized.

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 8210H
- Box 3. E media elements are only available with Buna N seals.
- Box 4. For option H, all seals are Viton<sup>®</sup>.

### Filter Dirt Alarm<sup>®</sup> Selection Appendix A

Schroeder-designed dirt alarms provide a vital measure of protection to your system by indicating the appropriate time for element replacement. For your convenience, this Appendix has been organized to help you determine which Schroeder Dirt Alarm will be most suitable for your application.

Step 1: Review the charts on pages 347-349 which have been devised to show which alarms are available for a particular filter. Chart 1 addresses indicators for Schroeder high pressure filters found in Section 3 of this catalog. Chart 2 shows HydraSpin and medium pressure filters found in Sections 4 and 5. Charts 3 and 4 show the indicators available for tank-mounted, return line, and medium pressure filters of Sections 4, 5, 6 and 7. To facilitate the process of selecting an indicator, we have classified our indicators into the following six categories:

- Visual
- Visual with Thermal Lockout
- Electrical
- Electrical with Thermal Lockout
- Electrical Visual
- Electrical Visual with Thermal Lockout

These six classifications appear at the top of each of the charts to assist in the selection process.

<u>Step 2</u>: APPLIES ONLY TO ELECTRICAL INDICATORS. Narrow down the possibilities of electrical indicators by reviewing the contents of Charts 5 and 6, which identify voltages and current ranges for electrical indicators.

<u>Step 3:</u> Review the descriptions, photographs, part numbers and specifications (where applicable) on pages 350-355 to verify your dirt alarm selection.

<u>Step 4</u>: APPLIES ONLY TO ELECTRICAL INDICATORS. Review the cross reference of old electrical indicator part numbers to the new ones on pages 356-359.

|           |              |              | Vis          | ual          |              |              | Th           | /isua<br>with<br>nerm<br>ocko | n<br>nal     |              |               |              | Ele           | ectri         | cal          |              |               |               |                 |                 | wi<br>The       | trica<br>th<br>rmal<br>cout |                 |                 | 1            | Elect<br>Vis |              | I            | Electr<br>Visu<br>wit<br>Ther<br>Lock | ual<br>th<br>mal  |
|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------------------------|--------------|--------------|---------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|-----------------|-----------------|-----------------|-----------------------------|-----------------|-----------------|--------------|--------------|--------------|--------------|---------------------------------------|-------------------|
| Filter    | ٥            | D5           | D5C (in cap) | D5R          | D9           | D9C (in cap) | D8           | D8C (in cap)                  | D8R          | MS5 / MS5LC  | MS10 / MS10LC | MS11         | MS12 / MS12LC | MS16 / MS16LC | MS17         | MS17LC       | MS18 / MS18LC | MS19 / MS19LC | MS10T / MS10LCT | MS12T / MS12LCT | MS16T / MS16LCT | MS17LCT                     | MS18T / MS18LCT | MS19T / MS19LCT | MS           | MS2          | MS13         | MS14         | MS13DCT/MS13DCLCT                     | MS14DCT/MS14DCLCT |
| NF30      | $\checkmark$ | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| NFS30     | $\checkmark$ | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| YF30      |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| DF40      | $\checkmark$ | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| PF40      |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| CF40      | $\checkmark$ | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| RF60      |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| RFS50     |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  |              | $\checkmark$ |               |               | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                |                 |                 |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| CF60      |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| VF60      |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| KF30      | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$                  |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| TF50      | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$                  |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| KF50      | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$                  |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| КС50      | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$                  |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| KC65      |              |              |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  |              | $\checkmark$ |               |               | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                |                 |                 | $\checkmark$ |              |              |              |                                       |                   |
| KFH50     | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$                  |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| MKF50     | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              | $\checkmark$ | $\checkmark$                  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| FOF60-03  |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| NOF30-05  |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  |              | $\checkmark$ |               |               | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                |                 |                 |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |
| NOF50-760 |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                               |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$                | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                          | $\checkmark$      |

|        |              |              | Visual       |              |              |              | Elect        | rical        |              |  |
|--------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| Filter | L            | Я            | в            | VA           | MN           | Σ            | DTC          | DTO          | DW           |  |
| GH     | $\checkmark$ |  |
| RLD    |              |              |              |              | $\checkmark$ |              |              |              | $\checkmark$ |  |

# Appendix A Filter Dirt Alarm<sup>®</sup> Selection: Step 1

| CHART   | 3 Ta <u>n</u> | k-Mou        | inted, l     | Return       | Line a       | and Lo       | w Pres       | sure F       | ilters       |              |              |              |              |              |              |              |
|---------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|         |               |              |              | Visual       |              |              |              |              |              |              |              | Electrica    | ıl           |              |              |              |
| Filter  | D             | Y            | YR           | Υ2           | Y2R          | Y2C          | Υ5           | VS           | V5R          | V51          | ES           | ESR          | ES1          | ES1R         | ES6          | ESC          |
| ST      |               | $\checkmark$ | $\checkmark$ |              |              |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              |              |              |              |
| MTA     |               |              |              |              |              | $\checkmark$ | $\checkmark$ |              |              |              |              |              |              |              |              | $\checkmark$ |
| МТВ     |               |              |              |              |              | $\checkmark$ | $\checkmark$ |              |              |              |              |              |              |              |              | $\checkmark$ |
| ZT      |               |              |              | $\checkmark$ |              | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ |              | $\checkmark$ |              |              |              |
| GRTB    |               |              |              | $\checkmark$ |              |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |
| RT      |               |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |
| RTI     |               |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |
| LRT     |               |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |
| BFT     |               |              |              | $\checkmark$ | $\checkmark$ |              |              |              |              |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |
| PAF1    |               |              |              | $\checkmark$ |              |              |              |              |              |              |              | $\checkmark$ |              |              |              |              |
| MAF1    |               |              |              | $\checkmark$ |              |              |              |              |              |              | $\checkmark$ |              |              |              |              |              |
| IRF     |               |              |              | $\checkmark$ | $\checkmark$ |              |              |              |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |
| KF3     | $\checkmark$  |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| WKF3    | $\checkmark$  |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| TF1     | $\checkmark$  |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| LF1-2   | $\checkmark$  |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| MLF1    | $\checkmark$  |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| KF5     | $\checkmark$  |              |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| TF-SKB  |               | $\checkmark$ |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |              |              |              |              |              |
| KF3-SKB |               | $\checkmark$ |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |              |              |              |              |              |
| BFT-SKB |               | $\checkmark$ |              |              |              |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              |              |              |              |

| CHART 4 T | an           | k-N          | lou          | nte          | d, I         | Ret          | urn          | Lin                       | ie a         | nd           | Lo            | w/N          | /led          | liun          | n Pı         | ess          | sure          | e Fil         | lter          | s               |                 |                 |              |                 |                 |              |              |              |              |                                    |                     |
|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|--------------|--------------|---------------|--------------|---------------|---------------|--------------|--------------|---------------|---------------|---------------|-----------------|-----------------|-----------------|--------------|-----------------|-----------------|--------------|--------------|--------------|--------------|------------------------------------|---------------------|
|           |              |              | v            | /isua        | al           |              |              | Vis<br>wi<br>Theı<br>Lock | th<br>rmal   |              |               |              | Ele           | ectri         | cal          |              |               |               |               |                 |                 |                 | wit<br>ocko  |                 |                 | I            | Elect<br>Vis |              | I            | Elect<br>Vis<br>wi<br>Ther<br>Lock | ual<br>th<br>rmal   |
| Filter    | DPG          | D5           | D5C          | D5R          | D9           | D9C          | D8           | D8C                       | D8R          | MS5 / MS5LC  | MS10 / MS10LC | MS11         | MS12 / MS12LC | MS16 / MS16LC | MS17         | MS17LC       | MS18 / MS18LC | MS19 / MS19LC | MS5T / MS5LCT | MS10T / MS10LCT | MS12T / MS12LCT | MS16T / MS16LCT | MS17LCT      | MS18T / MS18LCT | MS19T / MS19LCT | MS           | MS2          | MS13         | MS14         | MS13DCT / MS13DCLCT                | MS14DCT / MS14DCLCT |
| MF2       |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                           |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| KF3       |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                           |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| KL3       |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                           |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| TF1       |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                           |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| LF1-2"    |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                           |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| MLF1      |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                           |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| SRLT      |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                           |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| RLT       |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                           |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| KF5       |              | $\checkmark$ |              |              |              |              | $\checkmark$ |                           |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    | $\checkmark$ |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| QT        |              |              | √c           |              |              |              |              | √c                        |              | √c           | √c            | √c           | √c            | √c            | √c           | √c           | √c            | √c            | √c            | √c              | √c              | √c              | √c           | √c              | √c              |              |              | √c           | √c           | √c                                 | √c                  |
| QF5       | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              | $\checkmark$ | $\checkmark$              | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| 3QF5      | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              | $\checkmark$ | $\checkmark$              | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| QF15      | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$              |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| QLF15     | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$              |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| SSQLF15   | $\checkmark$ | $\checkmark$ |              |              | $\checkmark$ | $\checkmark$ |              |                           |              |              |               |              |               |               |              |              |               |               |               |                 |                 |                 |              |                 |                 |              |              |              |              |                                    |                     |
| QFD5/QFD2 | $\checkmark$ | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$              |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| К9        |              | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$              |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| 2К9       |              | $\checkmark$ | $\checkmark$ |              |              |              | $\checkmark$ | $\checkmark$              |              | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |
| 3K9       |              | $\checkmark$ | $\checkmark$ |              |              | $\checkmark$ | $\checkmark$ |                           | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$ | $\checkmark$ | $\checkmark$  | $\checkmark$  | $\checkmark$  | $\checkmark$    | $\checkmark$    | $\checkmark$    | $\checkmark$ | $\checkmark$    | $\checkmark$    |              |              | $\checkmark$ | $\checkmark$ | $\checkmark$                       | $\checkmark$        |

### Filter Dirt Alarm<sup>®</sup> Selection: Step 2 Appendix A

| CHART 5 | <b>Electrical Rati</b> | ngs: Electrical         | Ca           | rtri         | dge          | e In         | dica         | ato          | rs V         | Vitł         | าอน             | It T         | her          | ma           | l Lc         | ocko         | out          |              |              |              |              |              |              |              |              |
|---------|------------------------|-------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Voltage | Voltage<br>Volts@ Amps | Current Range<br>(amps) | MS5          | MS5LC        | MS10         | MS10LC       | MS11         | MS12         | MS12LC       | MS13DC       | <b>MS13DCLC</b> | MS14DC       | MS14DCLC     | MS16         | MS16LC       | MS17         | MS17LC       | MS13AC       | MS13ACLC     | MS14AC       | MS14ACLC     | MS18         | MS18LC       | MS19         | MS19LC       |
| AC      | 240 @ 3                | 0.02 to 3               | $\checkmark$ |              | $\checkmark$ |              | $\checkmark$ | $\checkmark$ |              |              |                 |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |              |              |              |              |              |
| AC      | 220 @ 0.05             | 0.005 to 0.05           |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              |                 |              |              |              |              |              |              |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |
| AC      | 120 @ 5                | 0.02 to 5               | $\checkmark$ |              | $\checkmark$ |              | $\checkmark$ | $\checkmark$ |              |              |                 |              |              |              |              |              |              | $\checkmark$ |              |              |              |              |              |              |              |
| AC      | 120 @ 0.05             | 0.005 to 0.05           |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              |                 |              |              |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              | $\checkmark$ |              | $\checkmark$ |
| AC      | 24 @ 0.10              | 0.005 to 0.010          |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              |                 |              |              |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |              |              |              |
| AC      | 12 @ 0.25              | 0.005 to 0.025          |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              |                 |              |              |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |              |              |              |
| AC      | 120 @ 4                | 0.05 to 4               |              |              |              |              |              |              |              |              |                 |              |              |              |              |              |              |              |              | $\checkmark$ |              |              |              |              |              |
| AC      | 115 @ 0.05             | 0.01 to 0.05            |              |              |              |              |              |              |              |              |                 |              |              |              |              | $\checkmark$ |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |
| DC      | 110 @ 0.3              | 0.02 to 0.3             | $\checkmark$ |              | $\checkmark$ |              | $\checkmark$ | $\checkmark$ |              |              |                 |              |              | $\checkmark$ |              | $\checkmark$ |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |
| DC      | 110 @ 0.05             | 0.005 to 0.05           |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              |                 |              |              |              | $\checkmark$ |              | $\checkmark$ |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |
| DC      | 24 @ 3                 | 0.01 to 3               |              |              |              |              |              |              |              |              |                 |              |              |              |              |              |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |
| DC      | 24 @ 2                 | 0.02 to 2               | $\checkmark$ |              | $\checkmark$ |              | $\checkmark$ | $\checkmark$ |              | $\checkmark$ |                 | $\checkmark$ |              | $\checkmark$ |              |              |              |              |              |              |              |              |              |              |              |
| DC      | 24 @ 1                 | 0.01 to 1               |              |              |              |              |              |              |              |              |                 |              |              |              |              | $\checkmark$ |              |              |              |              |              |              |              |              |              |
| DC      | 24 @ 0.20              | 0.0 to 0.20             |              |              |              |              |              |              |              |              |                 |              |              |              |              |              |              |              |              |              |              |              |              |              |              |
| DC      | 24 @ 0.10              | 0.005 to 0.10           |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              | $\checkmark$    |              | $\checkmark$ |              | $\checkmark$ |              | $\checkmark$ |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |
| DC      | 12 @ 5                 | 0.01 to 5               |              |              |              |              |              |              |              |              |                 |              |              |              |              |              |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |              |
| DC      | 12 @ 2                 | 0.02 to 2               | $\checkmark$ |              | $\checkmark$ |              | $\checkmark$ | $\checkmark$ |              | $\checkmark$ |                 | $\checkmark$ |              | $\checkmark$ |              |              |              |              |              |              |              |              |              |              |              |
| DC      | 12 @ 1                 | 0.01 to 1               |              |              |              |              |              |              |              |              |                 |              |              |              |              | $\checkmark$ |              |              |              |              |              |              |              |              |              |
| DC      | 12 @ 0.25              | 0.005 to 0.25           |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              | $\checkmark$    |              | $\checkmark$ |              | $\checkmark$ |              | $\checkmark$ |              |              |              |              |              | $\checkmark$ |              | $\checkmark$ |

### CHART 6 Electrical Ratings: Electrical Cartridge Indicators With Thermal Lockout\*

| Voltage | Voltage<br>Volts<br>@ Amps | Current<br>Range<br>(amps) | MS5T         | MS5LCT       | MS10T        | <b>MS10LCT</b> | MS12T        | MS12LCT      | MS13DCT      | <b>MS13DCLCT</b> | MS14DCT      | MS14DCLCT    | MS16T        | MS16LCT      | MS17         | MS17T        | MS17LCT      | MS13ACT      | <b>MS13ACLCT</b> | MS14ACT      | MS14ACLCT    | MS18 | MS18T        | MS18LCT      | MS19 | MS19T        | MS19LCT      |
|---------|----------------------------|----------------------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------------|--------------|--------------|------|--------------|--------------|------|--------------|--------------|
| AC      | 120 @ 5                    | 0.02 to 5                  | $\checkmark$ |              | $\checkmark$ |                | $\checkmark$ |              |              |                  |              |              |              |              |              |              |              | $\checkmark$ |                  |              |              |      |              |              |      |              |              |
| AC      | 220 @ 0.05                 | 0.005 to 0.05              |              | $\checkmark$ |              | $\checkmark$   |              | $\checkmark$ |              |                  |              |              |              |              |              |              |              |              | $\checkmark$     |              | $\checkmark$ |      |              | $\checkmark$ |      |              | $\checkmark$ |
| AC      | 120 @ 5                    | 0.05 to 4                  |              |              |              |                |              |              |              |                  |              |              |              |              |              |              |              |              |                  | $\checkmark$ |              |      |              |              |      |              |              |
| AC      | 115 @ 0.05                 | 0.01 to 0.05               |              |              |              |                |              |              |              |                  |              |              |              |              | $\checkmark$ |              |              |              |                  |              |              |      | $\checkmark$ |              |      | $\checkmark$ |              |
| DC      | 24 @ 2                     | 0.02 to 2                  | $\checkmark$ |              | $\checkmark$ |                | $\checkmark$ |              | $\checkmark$ |                  | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              |              |                  |              |              |      | $\checkmark$ |              |      | $\checkmark$ |              |
| DC      | 24 @ 0.10                  | 0.005 to 0.10              |              | $\checkmark$ |              | $\checkmark$   |              | $\checkmark$ |              | $\checkmark$     |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              |                  |              |              |      |              | $\checkmark$ |      |              | $\checkmark$ |
| DC      | 12 @ 2                     | 0.02 to 2                  | $\checkmark$ |              | $\checkmark$ |                | $\checkmark$ |              | $\checkmark$ |                  | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              |              |                  |              |              |      | $\checkmark$ |              |      | $\checkmark$ |              |
| DC      | 12 @ 0.25                  | 0.005 to 0.25              |              | $\checkmark$ |              | $\checkmark$   |              | $\checkmark$ |              | $\checkmark$     |              | $\checkmark$ |              | $\checkmark$ |              |              | $\checkmark$ |              |                  |              |              |      |              | $\checkmark$ |      |              | $\checkmark$ |

\*Thermal lockout prevents activation below 80°

Note: All indicators in Charts 4 and 5 above, meet NEMA4X and IP65 specifications.

### Appendix A Filter Dirt Alarm<sup>®</sup> Selection: Step 3

### Visual

Visual indicators provide an economical way to know at a glance when a filter element needs to be replaced. A variety of styles are available, ranging from gauges to mechanical pointers and pop-up cartridges.

Schroeder pointers use a tri-color disk to indicate the element condition. The pointer will reach the red section just before bypassing occurs.

In the case of a mechanical magnetic cartridge, a highly visible orange disk springs, or "pops up", at the pre-defined setting. Once activated, the orange signal continues to indicate a bypass or clogged condition, even following equipment shutdown, until it is manually reset. The pop-up indicator is interchangeable with other cartridge style indicators (electrical and electrical visual) available from Schroeder. A high pressure (>6000 psi working pressure) of the pop-up indicator is available and is noted below.



D—Tri-color Pointer Dirt Alarm<sup>®</sup> P/N A-LF-283CP-1 for plastic pointer only. For internal linkage and name plate, contact factory.



D5—Orange Pop Up Visual Indicator

D5C—Same as D5 but mounted in cap

D5R—Same as D5 but mounted on opposite side of standard location

D9—Stainless Steel version of D5

D9C—Stainless Steel version of D5 mounted in cap



- Y—Vacuum Gauge mounted in porting head P/N LFT-363
- YR—Same as Y but mounted on opposite side of standard location P/N LFT-363



LF-4209 (G2213): 0 - 30 psid; LF-4109 (G2214): 0 - 50 psid; LF-4711 (G2215): 0 - 70 psid

Photo above for G2213. Other 2 gauges are identical in appearance except for scale.

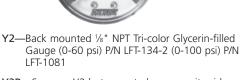
Visual with Thermal Lockout The thermal lockout feature prevents activation of the indicator below temperatures of 90°F (32°C). This is a welcome feature in mobile applications where fluid temperatures may be well below 90°F at equipment start-up, and will prevent the indicator from showing a premature need to change the element.



D8—Orange Pop Up Visual Indicator with Thermal Lock-out P/N A-LF-3870

D8C—Same as D8 but mounted in cap P/N A-LF-3870D8R—Same as D8 but mounted on opposite side of standard location P/N A-LF-3870

### 350 SCHROEDER INDUSTRIES



- Y2R—Same as Y2 but mounted on opposite side of standard location P/N LFT-134-2
- Y2C—Bottom mounted <sup>1</sup>/<sub>8</sub>" NPT Tri-color Gauge (0-60 psi) located in cap P/N LFT-134-3

Y5—Same as Y2 but located in cap P/N LFT-134-2



DPG—Standard Differential Pressure Gauge P/N LF-10454 or LF-10454V



### Filter Dirt Alarm<sup>®</sup> Selection: Step 3 Appendix A



**Electrical Visual** 

In addition to providing an electrical signal to provide a desired action, Schroeder electrical visual indicators also provide a visual indication of when an element needs to be changed. In the case of the MS and MS2 switches, the visual indicator is a color-coded disk, whereas the MS13 and MS14 dirt alarms provide a light.

MS—Cam operated electrical switch P/N LF-376 for switch only. For cam, color-coded disk, and mounting bracket, order P/N A-LF-831-1#. For internal linkage, contact factory. Code Type of Contact **Electrical Rating** Connection SPDT 15 Amps @ 125/250 vac, 0.5 Amp @ 125 VDC 1/2" conduit, female MS

The electrical indicators (MS Series) provide an electrical signal for activating various electric alarm systems or complete machine shutdown. These cartridge-style indicators are available on most Schroeder pressure, return line, and medium pressure filters and can be used for working pressures up to 5000 psi (345 bar) and cyclic conditions up to 4000 psi (276 bar).

- The design is modular; all electrical indicators consist of an MS10 indicator with the corresponding mating connector added to convert the MS10 to a MS5, MS11 etc.
- The standard micro switch for high current indicators is good for both AC and DC use. A separate micro switch with "gold" contacts is used for low current applications. This means that specification of AC or DC is no longer required (except for MS13 and MS14) in the indicator code or part number.
- Housings of all electrical indicators are made of aluminum.
- The indicator model tag includes the electrical wiring diagram.
- All of our indicators, with the exception of MS16, have a "ground" terminal.
- We are now able to offer the thermal lockout option to high current indicators.
- All indicators can be installed in a filter cap as the wiring harness can be disconnected at the "DIN" connector in order to remove the filter cap.
- All MS indicators have achieved the NEMA4X and IP65 ratings.

Information on these indicators, including drawing, circuit diagram, and photograph is provided on the following pages.

A different set of electrical pressure switches is available for Schroeder tank-mounted filters, along with heavy duty versions.

Schroeder suction filters (ST and models that house the SKB magnetic suction strainer) can be equipped with a vacuum switch.

VS—Vacuum Switch (1/8" NPT, normally open) P/N A-LFT-305

VSR—Same as VS but mounted on opposite side of standard location P/N A-LFT-305

ES—Standard electrical pressure switch (1/8" NPT, normally open) for tank-mounted filters (25psi bypass) P/N A-LF-927 (40 psi bypass) P/N A-LFT-436

ESC—Electrical pressure switch (MTA & MTB only) P/N A-LF-927

ESR—Same as ES but mounted on opposite side of standard location P/N A-LF-927

din C

ART— P/N A-LFT436

ES1—Heavy duty electrical pressure switch (1/8" NPT) with conduit connection (25psi bypass) P/N LFT-1010 (cracking over 25 psi) P/N LFT-1106 (43 psi bypass) P/N LFT-1106 (Black = common; Red = N.O.; Blue = N.C.)

ES1R—Same as ES1 but mounted on opposite side of standard location P/N LFT-1010

-Heavy Duty Vacuum Switch (1/8" NPT) P/N LFT-1107, LF Pressure Switch

ES2— Super duty electric switch (1/8"NPT, normally closed) with thermal lockout P/N LF-10908

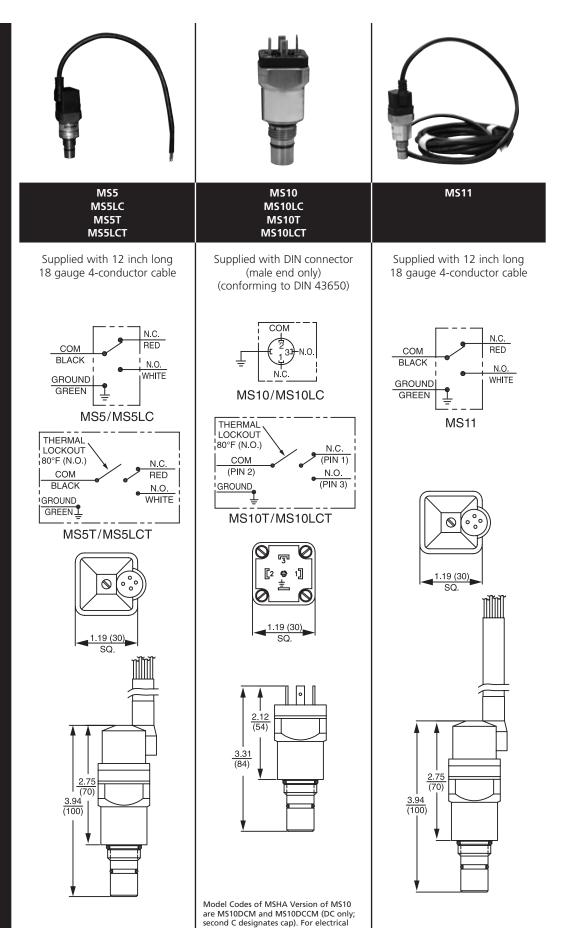
ES3—Electric pressure switch (1/8"NPT) with DIN connector P/N LF-4499 (Black = common; Red = N.O.; Blue = N.C.)

|      |                 |  | F                                  |
|------|-----------------|--|------------------------------------|
| Code | Type of Contact | Electrical Rating  | Connection                         |
| ES   | SPST            | 8 Amps @ 12 VDC, 1 Amp @ 120 VAC<br>4 Amps @ 24 VDC, 0.5 Amp @ 240 VAC | Screw Terminal with<br>Rubber Boot |
| ES1  | SPDT            | 10 Amps @ 115 VAC<br>50mA-5A @ 24 VDC                                  | 1/2" Conduit, Male                 |

### Electrical

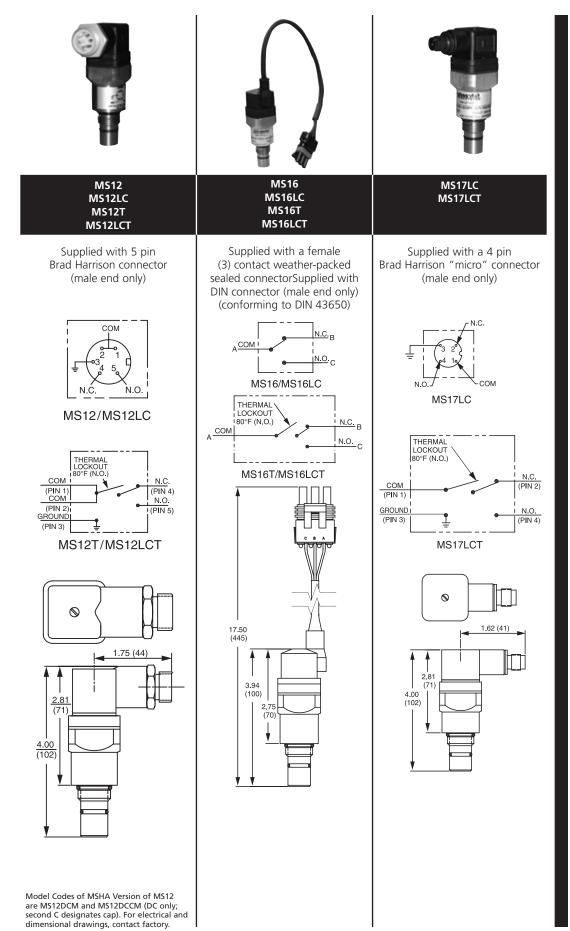
## Appendix A Filter Dirt Alarm<sup>®</sup> Selection: Step 3

**Electrical and Electrical with Thermal Lockout** 



and dimensional drawings, contact factory.

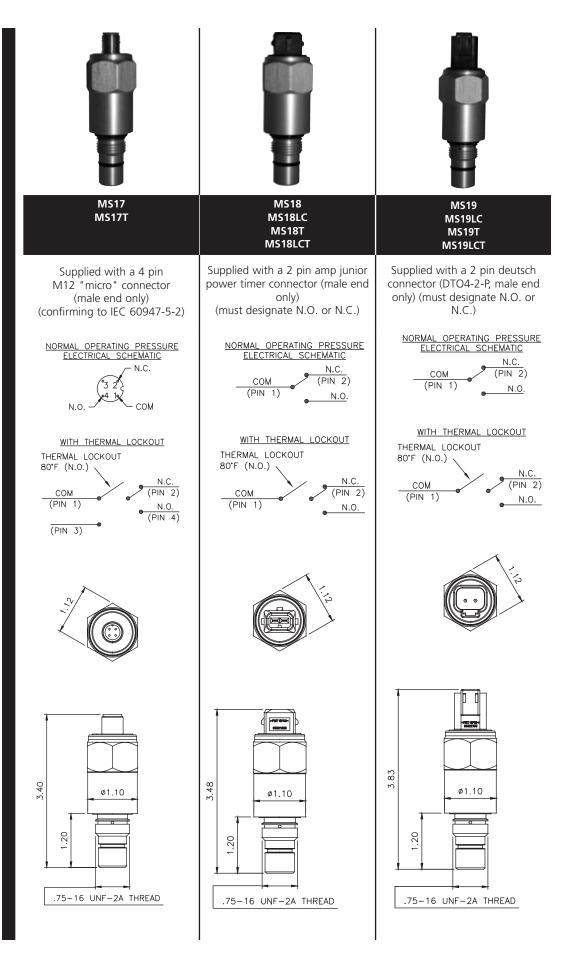
### Filter Dirt Alarm<sup>®</sup> Selection: Step 3 Appendix A



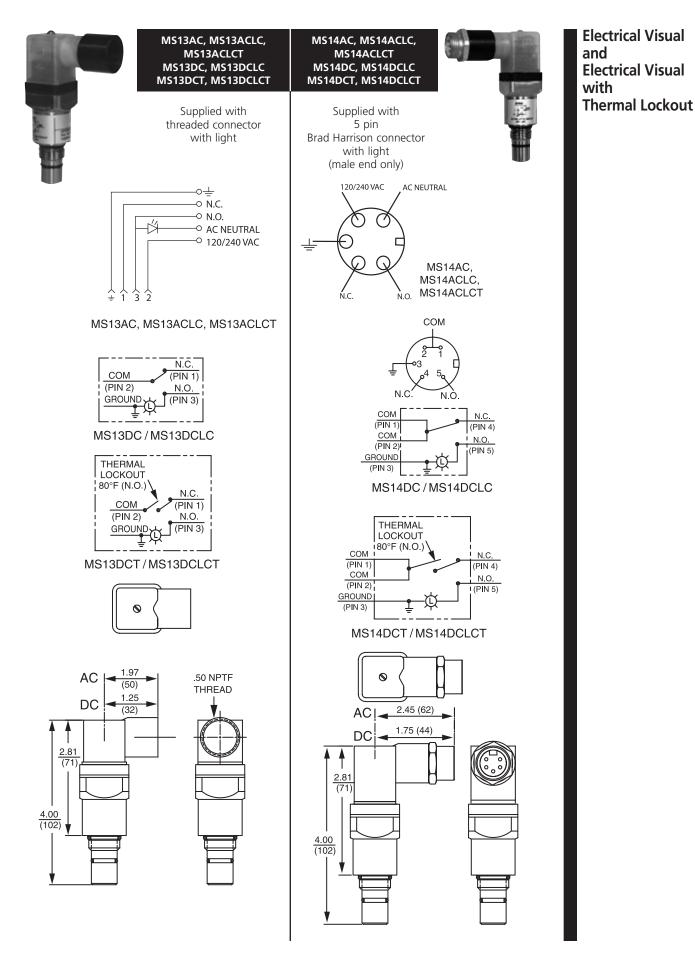
**Electrical and Electrical with Thermal Lockout** (cont'd.)

### **Appendix A** Filter Dirt Alarm<sup>®</sup> Selection: Step 3

Electrical and Electrical with Thermal Lockout (cont'd.)



### Filter Dirt Alarm<sup>®</sup> Selection: Step 3 Appendix A



### Appendix A Filter Dirt Alarm<sup>®</sup> Selection: Step 4

Cross Reference of Old to New Indicators: Part Numbers and Codes

#### Part Numbers for Indicators Purchased Separately

The part numbering system for indicators purchased individually has been greatly simplified and consists simply of the indicator code followed by the indicator's nominal setting.

Example: KF301KZ10PMS5

Indicator code in filter assembly is MS5; P/N for same indicator purchased separately is MS5-40 for a bypass setting of 40 psi.

A cross reference of old electrical indicator part numbers to the new ones follows.

| Old Part Number                    | Old Indicator Code | New Part Number        | New Indicator Code |
|------------------------------------|--------------------|------------------------|--------------------|
|                                    | MS5                |                        | N/CE               |
| A-LF-2548AC-15                     | MS5AC              | MS5-15                 | MS5                |
| A-LF-2548AC-20                     | MS5AC              | MS5-20                 | MS5                |
| A-LF-2548AC-25                     | MS5AC              | MS5-25                 | MS5                |
| A-LF-2548AC-30                     | MS5AC              | MS5-30                 | MS5                |
| A-LF-2548AC-40                     | MS5AC              | MS5-40                 | MS5                |
| A-LF-2548AC-50                     | MS5AC              | MS5-50                 | MS5                |
| A-LF-2548AC-60                     | MS5AC              | MS5-60                 | MS5                |
| A-LF-2548AC-75                     | MS5AC              | MS5-75                 | MS5                |
| A-LF-2548AC-90                     | MS5AC              | MS5-90                 | MS5                |
| A-LF-2548BAC-30                    | MS5AC              | MS5B-30                | MS5                |
| A-LF-2548BAC-40                    | MS5AC              | MS5B-40                | MS5                |
| A-LF-2548BAC-50                    | MS5AC              | MS5B-50                | MS5                |
| ALF2548BAC50H.5                    | MS5AC              | MS5H.5-50              | MS5                |
| A-LF-2548CAC-30                    | MS5AC              | MS5C-30                | MS5                |
| ALF-2548SSAC-30                    | MS5AC              | MS5SS-30               | MS5                |
| A-LF-2548VAC-30                    | MSSAC              | MS5V-30                | MS5                |
| A-LF-2548VAC-40                    | MS5AC              | MS5V-40                | MS5                |
| A-LF-2548VAC-40<br>A-LF-2548VAC-50 | MS5AC<br>MS5AC     |                        | MS5                |
|                                    |                    | MS5V-50                |                    |
| A-LF-2548VAC-75                    | MS5AC              | MS5V-75                | MS5                |
| A-LF-2548DC-15                     | MS5DC              | MS5-15                 | MS5                |
| A-LF-2548DC-20                     | MS5DC              | MS5-20                 | MS5                |
| A-LF-2548DC-25                     | MS5DC              | MS5-25                 | MS5                |
| A-LF-2548DC-30                     | MS5DC              | MS5-30                 | MS5                |
| A-LF-2548DC-40                     | MS5DC              | MS5-40                 | MS5                |
| A-LF-2548DC-50                     | MS5DC              | MS5-50                 | MS5                |
| A-LF-2548DC-60                     | MS5DC              | MS5-60                 | MS5                |
| A-LF-2548DC-75                     | MS5DC              | MS5-75                 | MS5                |
| A-LF-2548DC-90                     | MS5DC              | MS5-90                 | MS5                |
| A-LF-2548BDC-30                    | MS5DC              | MS5B-30                | MS5                |
| A-LF-2548BDC-40                    | MS5DC              | MS5B-40                | MS5                |
| A-LF-2548BDC-50                    | MS5DC              | MS5B-50                | MS5                |
| ALF2548BDC30H.5                    | MS5DC              | MS5H.5-30              | MS5                |
| ALF2548BDC40H.5                    | MS5DC              | MS5H.5-40              | MS5                |
| ALF-2548SSDC-25                    | MS5DC              | MS5SS-25               | MS5                |
| ALF-2548SSDC-30                    | MS5DC              | MS5SS-30               | MS5                |
| A-LF-2548VDC-30                    | MS5DC              | MS5V-30                | MS5                |
| A-LF-2548VDC-30<br>A-LF-2548VDC-40 | MS5DC              | MS5V-40                | MS5                |
|                                    |                    |                        |                    |
| A-LF-2548VDC-50                    | MS5DC              | MS5V-50                | MS5                |
| A-LF-2548VDC-60                    | MS5DC              | MS5V-60                | MS5                |
| A-LF-2548LC-15                     | MS5LC              | MS5LC-15               | MS5LC              |
| A-LF-2548LC-30                     | MS5LC              | MS5LC-30               | MS5LC              |
| A-LF-2548LC-40                     | MS5LC              | MS5LC-40               | MS5LC              |
| A-LF-2548LC-50                     | MS5LC              | MS5LC-50               | MS5LC              |
| A-LF-2548LC-60                     | MS5LC              | MS5LC-60               | MS5LC              |
| A-LF-2548LC-75                     | MS5LC              | MS5LC-75               | MS5LC              |
| A-LF-2548LC-90                     | MS5LC              | MS5LC-90               | MS5LC              |
| A-LF-2548BLC-30                    | MS5LC              | MS5BLC-30              | MS5LC              |
| ALF-2548SSLC-30                    | MS5LC              | MS5SSLC-30             | MS5LC              |
| ALF-2548SSLC-50                    | MS5LC              | MS5SSLC-50             | MS5LC              |
| A-LF-2548VLC-30                    | MS5LC              | MS5VLC-30              | MS5LC              |
| A-LF-2548VLC-40                    | MSSEC              | MS5VLC-40              | MS5LC              |
| A-LF-2548VLC-50                    | MSSLC              | MS5VLC-40<br>MS5VLC-50 | MS5LC<br>MS5LC     |
| A-LF-2548VLC-50<br>A-LF-2548LCT-25 | MS5LCT             | MS5LCT-25              | MS5LCT             |
|                                    |                    |                        |                    |
| A-LF-2548LCT-30                    | MS5LCT             | MS5LCT-30              | MS5LCT             |
| A-LF-2548LCT-40                    | MS5LCT             | MS5LCT-40              | MS5LCT             |
| A-LF-2548LCT-50                    | MS5LCT             | MS5LCT-50              | MS5LCT             |
| A-LF-2548LCT-75                    | MS5LCT             | MS5LCT-75              | MS5LCT             |

# Filter Dirt Alarm<sup>®</sup> Selection: Step 4 Appendix A

| Old Part Number                    | Old Indicator Code | New Part Number            | New Indicator Code |
|------------------------------------|--------------------|----------------------------|--------------------|
| A LE 2010AC 1E                     | MS1                |                            | MS10               |
| A-LF-2919AC-15<br>A-LF-2919AC-30   | MS10AC<br>MS10AC   | MS10-15<br>MS10-30         | MS10<br>MS10       |
| A-LF-2919AC-30                     | MSTOAC<br>MSTOAC   | MS10-30                    | MS10               |
| A-LF-2919AC-50                     | MSTOAC<br>MSTOAC   | MS10-40                    | MS10               |
| A-LF-2919AC-60                     | MSTOAC<br>MSTOAC   | MS10-50                    | MS10               |
| A-LF-2919AC-75                     | MSTOAC<br>MSTOAC   | MS10-00                    | MS10<br>MS10       |
| A-LF-2919AC-90                     | MS10AC<br>MS10AC   | MS10-90                    | MS10               |
| A-LF-2919BAC-40                    | MS10AC<br>MS10AC   | MS10B-40                   | MS10               |
| A-LF-2919VAC-30                    | MS10AC             | MS10V-30                   | MS10               |
| A-LF-2919VAC-40                    | MS10AC             | MS10V-40                   | MS10               |
| A-LF-2919VAC-50                    | MS10AC             | MS10V-50                   | MS10               |
| A-LF-2919DC-25                     | MS10DC             | MS10-25                    | MS10               |
| A-LF-2919DC-30                     | MS10DC             | MS10-30                    | MS10               |
| A-LF-2919DC-40                     | MS10DC             | MS10-40                    | MS10               |
| A-LF-2919DC-50                     | MS10DC             | MS10-50                    | MS10               |
| A-LF-2919DC-60                     | MS10DC             | MS10-60                    | MS10               |
| A-LF-2919DC-75                     | MS10DC             | MS10-75                    | MS10               |
| A-LF-2919DC-90                     | MS10DC             | MS10-90                    | MS10               |
| A-LF-2919BDC-30                    | MS10DC             | MS10B-30                   | MS10               |
| A-LF-2919BDC-40                    | MS10DC             | MS10B-40                   | MS10               |
| A-LF-2919BDC-50                    | MS10DC             | MS10B-50                   | MS10               |
| ALF2919BDC40H.5                    | MS10DC             | MS10H.5-40                 | MS10               |
| ALF2919BDC50H.5                    | MS10DC             | MS10H.5-50                 | MS10               |
| A-LF-2919VDC-30                    | MS10DC             | MS10V-30                   | MS10               |
| A-LF-2919VDC-40                    | MS10DC             | MS10V-40                   | MS10               |
| A-LF-2919VDC-50                    | MS10DC             | MS10V-50                   | MS10               |
| A-LF-2919LC-15                     | MS10LC             | MS10LC-15                  | MS10LC             |
| A-LF-2919LC-20                     | MS10LC             | MS10LC-20                  | MS10LC             |
| A-LF-2919LC-25                     | MS10LC             | MS10LC-25                  | MS10LC             |
| A-LF-2919LC-30                     | MS10LC             | MS10LC-30                  | MS10LC             |
| A-LF-2919LC-40                     | MS10LC             | MS10LC-40                  | MS10LC             |
| A-LF-2919LC-50                     | MS10LC             | MS10LC-50                  | MS10LC             |
| A-LF-2919LC-75                     | MS10LC             | MS10LC-75                  | MS10LC             |
| A-LF-2919LC-90                     | MS10LC             | MS10LC-90                  | MS10LC             |
| A-LF-2919BLC-40                    | MS10LC             | MS10BLC-40                 | MS10LC             |
| A-LF-2919BLC-50<br>ALF-2919LCSS-40 | MS10LC<br>MS10LC   | MS10BLC-50                 | MS10LC<br>MS10LC   |
| ALF-2919LC33-40<br>ALF-2919SSLC-30 | MSTOLC<br>MSTOLC   | MS10SSLC-40<br>MS10SSLC-30 | MS10LC<br>MS10LC   |
| ALF-291955LC-50                    | MSTOLC<br>MSTOLC   | MS10SSLC-50                | MS10LC             |
| A-LF-2919VLC-30                    | MSTOLC<br>MSTOLC   | MS10VLC-30                 | MS10LC             |
| A-LF-2919VLC-40                    | MSTOLC             | MS10VLC-40                 | MSTOLC             |
| A-LF-2919VLC-50                    | MS10LC<br>MS10LC   | MS10VLC-50                 | MS10LC             |
| A-LF-2919LCT-25                    | MS10LCT            | MS10LCT-25                 | MS10LCT            |
| A-LF-2919LCT-30                    | MS10LCT            | MS10LCT-30                 | MS10LCT            |
| A-LF-2919LCT-40                    | MS10LCT            | MS10LCT-40                 | MS10LCT            |
| A-LF-2919LCT-50                    | MS10LCT            | MS10LCT-50                 | MS10LCT            |
| A-LF-2919LCT-75                    | MS10LCT            | MS10LCT-75                 | MS10LCT            |
| ALF-2919LCT-100                    | MS10LCT            | MS10LCT-100                | MS10LCT            |
| ALF2919VLCT-30                     | MS10LCT            | MS10VLCT-30                | MS10LCT            |
|                                    | MS1                | 1                          |                    |
| A-LF-3011AC-15                     | MS11AC             | MS11-15                    | MS11               |
| A-LF-3011AC-30                     | MSTIAC<br>MS11AC   | MS11-13<br>MS11-30         | MS11               |
| A-LF-3011AC-40                     | MSTIAC<br>MS11AC   | MS11-40                    | MS11               |
| A-LF-3011AC-50                     | MSTIAC<br>MS11AC   | MS11-40<br>MS11-50         | MS11               |
| A-LF-3011AC-90                     | MS11AC<br>MS11AC   | MS11-90                    | MS11               |
| A-LF-3011VAC-30                    | MS11AC<br>MS11AC   | MS11V-30                   | MS11               |
| A-LF-3011VAC-40                    | MS11AC             | MS11V-40                   | MS11               |
| A-LF-3011DC-30                     | MS11DC             | MS11-30                    | MS11               |
| A-LF-3011DC-40                     | MS11DC             | MS11-40                    | MS11               |
| A-LF-3011DC-50                     | MS11DC             | MS11-50                    | MS11               |
| A-LF-3011DC-90                     | MS11DC             | MS11-90                    | MS11               |
| A-LF-3011VDC-30                    | MS11DC             | MS11V-30                   | MS11               |
| A-LF-3011VDC-40                    | MS11DC             | MS11V-40                   | MS11               |
|                                    |                    |                            |                    |

**Cross Reference** of Old to New Indicators: **Part Numbers** and Codes (cont.)

## Appendix A Filter Dirt Alarm<sup>®</sup> Selection: Step 4

Cross Reference of Old to New Indicators: Part Numbers and Codes (cont.)

| Old Part Number                    | Old Indicator Code | New Part Number          | New Indicator Code |
|------------------------------------|--------------------|--------------------------|--------------------|
| A-LF-4498AC-25                     | MS12<br>MS12AC     | MS12-25                  | MS12               |
| A-LF-4498AC-30                     | MS12AC<br>MS12AC   | MS12-20                  | MS12<br>MS12       |
| A-LF-4498AC-40                     | MS12AC<br>MS12AC   | MS12-30                  | MS12<br>MS12       |
| A-LF-4498AC-50                     | MS12AC<br>MS12AC   | MS12-40<br>MS12-50       | MS12<br>MS12       |
| A-LF-4498AC-50<br>A-LF-4498AC-75   | MS12AC<br>MS12AC   | MS12-50<br>MS12-75       | MS12               |
| A-LF-4498VAC-30                    | MS12AC<br>MS12AC   | MS12V-30                 | MS12               |
| A-LF-4498VAC-40                    | MS12AC<br>MS12AC   | MS12V-40                 | MS12<br>MS12       |
| A-LF-4498VAC-50                    | MS12AC<br>MS12AC   | MS12V-40                 | MS12<br>MS12       |
| A-LF-4498DC-30                     | MS12AC<br>MS12DC   | MS12-30                  | MS12<br>MS12       |
| A-LF-4498DC-40                     | MS12DC<br>MS12DC   | MS12-40                  | MS12<br>MS12       |
| A-LF-4498DC-50                     | MS12DC MS12DC      | MS12-40                  | MS12               |
| A-LF-4498DC-75                     | MS12DC<br>MS12DC   | MS12-75                  | MS12<br>MS12       |
| A-LF-4498VDC-30                    | MS12DC<br>MS12DC   | MS12730                  | MS12<br>MS12       |
| A-LF-4498VDC-40                    | MS12DC<br>MS12DC   | MS12V-40                 | MS12<br>MS12       |
| A-LF-4498LC-30                     | MS12LC             | MS12LC-30                | MS12LC             |
| A-LF-4498LC-40                     | MS12LC<br>MS12LC   | MS12LC-40                | MS12LC<br>MS12LC   |
| A-LF-4498LC-50                     | MS12LC<br>MS12LC   | MS12LC-50                | MS12LC             |
| A-LF-4498LC-75                     | MS12LC<br>MS12LC   | MS12LC-75                | MS12LC             |
| ALF-4498SSLC-30                    | MS12LC<br>MS12LC   | MS12SSLC-30              | MS12LC             |
| A-LF-449855LC-30                   | MS12LC<br>MS12LC   | MS12VLC-30               | MS12LC<br>MS12LC   |
| A-LF-4498VLC-40                    | MS12LC<br>MS12LC   | MS12VLC-40               | MS12LC<br>MS12LC   |
| A-LF-4498VLC-50                    | MS12LC<br>MS12LC   | MS12VLC-50               | MS12LC             |
| A-LF-4498VLC-50<br>A-LF-4498LCT-40 | MS12LCT            | MS12VEC-50<br>MS12LCT-40 | MS12LCT            |
| A-LF-4498LCT-75                    | MS12LCT<br>MS12LCT | MS12LCT-75               | MS12LCT<br>MS12LCT |
| A-LI -4496LC I-79                  | MS12LC1 MS13       |                          | IVIJIZLUI          |
| A-LF-5099AC1                       | MS13AC1            | ,<br>MS13AC-30           | MS13AC             |
| A-LF-5099AC1-15                    | MS13AC1<br>MS13AC1 | MS13AC-15                | MS13AC             |
| A-LF-5099AC1-30                    | MS13AC1<br>MS13AC1 | MS13AC-30                | MS13AC             |
| A-LF-5099AC1-40                    | MS13AC1<br>MS13AC1 | MS13AC-40                | MS13AC             |
| A-LF-5099AC1-50                    | MS13AC1            | MS13AC-50                | MS13AC             |
| A-LF-5099AC1-60                    | MS13AC1            | MS13AC-60                | MS13AC             |
| A-LF-5099AC1-90                    | MS13AC1            | MS13AC-90                | MS13AC             |
| A-LF-5099AC1LC                     | MS13AC1LC          | MS13ACLC-30              | MS13ACLC           |
| ALF-5099AC1LC40                    | MS13AC1LC          | MS13ACLC-40              | MS13ACLC           |
| ALF-5099AC1LC-50                   | MS13AC1LC          | MS13ACLC-50              | MS13ACLC           |
| ALF-5099AC1LC75                    | MS13AC1LC          | MS13ACLC-75              | MS13ACLC           |
| ALF-5099VAC1-30                    | MS13AC1            | MS13VAC-30               | MS13AC             |
| ALF-5099VAC1-40                    | MS13AC1            | MS13VAC-40               | MS13AC             |
| ALF5099AC1LC-30                    | MS13AC1LC          | MS13ACLC-30              | MS13ACLC           |
| ALF5099AC1LC-50                    | MS13AC1LC          | MS13ACLC-50              | MS13ACLC           |
| ALF5099AC1LC15                     | MS13AC1LC          | MS13ACLC-15              | MS13ACLC           |
| ALF5099AC1LCT30                    | MS13AC1LC          | MS13ACLCT-30             | MS13ACLCT          |
| ALF5099AC1LCT40                    | MS13AC1LC          | MS13ACLCT-40             | MS13ACLCT          |
| ALF5099AC1LCT50                    | MS13AC1LC          | MS13ACLCT-50             | MS13ACLCT          |
| ALF5099VAC1-50                     | MS13AC1            | MS13VAC-50               | MS13AC             |
| ALF5099VAC1LC50                    | MS13AC1LC          | MS13VACLC-50             | MS13ACLC           |
| ALF5099VAC1LCT3                    | MS13AC1LC          | MS13VACLCT-30            | MS13ACLCT          |
| A-LF-5099AC2                       | MS13AC2            | MS13AC-30                | MS13AC             |
| A-LF-5099AC2-30                    | MS13AC2            | MS13AC-30                | MS13AC             |
| A-LF-5099AC2-40                    | MS13AC2            | MS13AC-40                | MS13AC             |
| A-LF-5099AC2-50                    | MS13AC2            | MS13AC-50                | MS13AC             |
| A-LF-5099DC1-30                    | MS13DC1            | MS13DC-30                | MS13DC             |
| A-LF-5099DC1-40                    | MS13DC1            | MS13DC-40                | MS13DC             |
| A-LF-5099DC1-50                    | MS13DC1            | MS13DC-50                | MS13DC<br>MS13DC   |
| A-LF-5099DC2-30                    | MS13DC2            | MS13DC-30                | MS13DC             |
| A-LF-5099DC2-40                    | MS13DC2            | MS13DC-40                | MS13DC             |
|                                    |                    |                          |                    |

# Filter Dirt Alarm<sup>®</sup> Selection: Step 4 Appendix A

**Cross Reference** of Old to New Indicators: **Part Numbers** and Codes (cont.)

| Old Part Number                         | Old Indicator Code | New Part Number | New Indicator Code |
|---|--------------------|-----------------|--------------------|
|   | MS13 (             | cont.)          |                    |
| A-LF-5099DC2-50                         | MS13DC2            | MS13DC-50       | MS13DC             |
| A-LF-5099DC2-60                         | MS13DC2            | MS13DC-60       | MS13DC             |
| A-LF-5099DC2-90                         | MS13DC2            | MS13DC-90       | MS13DC             |
| ALF-5099VDC2-30                         | MS13DC2            | MS13VDC-30      | MS13DC             |
| ALF-5099VDC2-50                         | MS13DC2            | MS13VDC-50      | MS13DC             |
| ALF5099DC1LC-40                         | MS13DC1LC          | MS13DCLC-40     | MS13DCLC           |
| ALF5099DC2LC-20                         | MS13DC2LC          | MS13DCLC-20     | MS13DCLC           |
| ALF5099DC2LC-30                         | MS13DC2LC          | MS13DCLC-30     | MS13DCLC           |
| ALF5099DC2LC-40                         | MS13DC2LC          | MS13DCLC-40     | MS13DCLC           |
| ALF5099DC2LC-50                         | MS13DC2LC          | MS13DCLC-50     | MS13DCLC           |
| AF5099DC2LCSS30                         | MS13DC2LC          | MS13SSDCLC-30   | MS13DCLC           |
| AF5099DC2LCSS50                         | MS13DC2LC          | MS13SSDCLC-50   | MS13DCLC           |
| ALF5099DC2LCT40                         | MS13DC2LCT         | MS13DCLCT-40    | MS13DCLCT          |
| ALF5099DC2LCT50                         | MS13DC2LCT         | MS13DCLCT-50    | MS13DCLCT          |
| ALF5099DC2LCT75                         | MS13DC2LCT         | MS13DCLCT-75    | MS13DCLCT          |
|   |                    |                 |                    |
|   | MS                 | 14              |                    |
| A-LF-5100AC1-30                         | MS14AC1            | MS14AC-30       | MS14AC             |
| A-LF-5100AC1-40                         | MS14AC1            | MS14AC-40       | MS14AC             |
| A-LF-5100AC1-50                         | MS14AC1            | MS14AC-50       | MS14AC             |
| AF5100SSAC1LC40                         | MS14AC1LC          | MS14SSACLC-40   | MS14ACLC           |
| ALF-5100AC1LC30                         | MS14AC1LC          | MS14ACLC-30     | MS14ACLC           |
| ALF-5100AC1LC50                         | MS14AC1LC          | MS14ACLC-50     | MS14ACLC           |
| ALF-5100VAC1-30                         | MS14AC1            | MS14VAC-30      | MS14AC             |
| ALF5100AC1LCT40                         | MS14AC1LC          | MS14ACLCT-40    | MS14ACLCT          |
| A-LF-5100AC2-30                         | MS14AC2            | MS14AC-50       | MS14AC             |
| A-LF-5100AC2-30                         | MS14AC2<br>MS14DC1 | MS14AC-30       | MS14AC<br>MS14DC   |
| A-LF-5100DC1-40                         | MS14DC1            | MS14DC-40       | MS14DC<br>MS14DC   |
| ALF-5100VDC1-40                         | MS14DC1<br>MS14DC1 | MS14VDC-40      | MS14DC<br>MS14DC   |
| A-LF-5100DC2-30                         | MS14DC2            | MS140C-30       | MS14DC<br>MS14DC   |
|   |                    |                 |                    |
| A-LF-5100DC2-40<br>A-LF-5100DC2-50      | MS14DC2            | MS14DC-40       | MS14DC             |
|   | MS14DC2            | MS14DC-50       | MS14DC             |
| ALF-5100VDC2-30                         | MS14DC2            | MS14VDC-30      | MS14DC             |
| ALF-5100VDC2-40                         | MS14DC2            | MS14VDC-40      | MS14DC             |
| ALF-5100DC2LC40                         | MS14DC2LC          | MS14DCLC-40     | MS14DCLC           |
| ALF-5100DC2LC50                         | MS14DC2LC          | MS14DCLC-50     | MS14DCLC           |
| ALF5100VDC2LC40                         | MS14DC2LC          | MS14VDCLC-40    | MS14DCLC           |
| ALF5100DC2LCT50                         | MS14DC2LCT         | MS14DCLCT-50    | MS14DCLCT          |
|   |                    |                 |                    |
| A LE EZOODE 40                          | MS                 |                 |                    |
| A-LF-5799DC-40                          | MS16DC             | MS16-40         | MS16               |
| A-LF-5799LC-30                          | MS16LC             | MS16LC-30       | MS16LC             |
| A-LF-5799LC-40                          | MS16LC             | MS16LC-40       | MS16LC             |
| A-LF-5799LC-50                          | MS16LC             | MS16LC-50       | MS16LC             |
| A-LF-5799LCT-40                         | MS16LCT            | MS16LCT-40      | MS16LCT            |
|   |                    |                 |                    |
|   | MS                 |                 |                    |
| A-LF-6288LC-30                          | MS17LC             | MS17LC-30       | MS17LC             |
| A-LF-6288LC-40                          | MS17LC             | MS17LC-40       | MS17LC             |
| A-LF-6288LC-50                          | MS17LC             | MS17LC-50       | MS17LC             |
| A-LF-6288LC-90                          | MS17LC             | MS17LC-90       | MS17LC             |
| A-LF-6288VLC-30                         | MS17LC             | MS17VLC-30      | MS17LC             |
| A = C = C = C = C = C = C = C = C = C = | MS17LC             | MS17VLC-40      | MS17LC             |
| A-LF-6288VLC-40                         |                    |                 |                    |

### **Appendix B** Unique Non-Bypassing Filtration

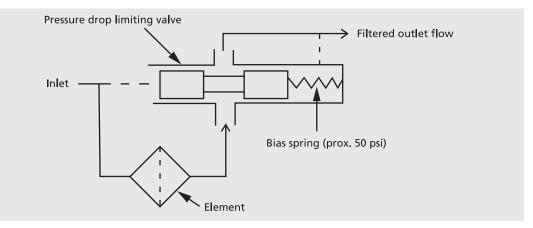
### Unique Non-Bypassing Filtration: A Better Way That Does Not Require High Crush Elements

In circuits where subjecting critical components to unfiltered oil is unacceptable, non-bypassing filters are used. The traditional non-bypassing filter does not include a bypass valve, providing assurance that the circulating oil is subjected to constant filtration. However, the continuous buildup of dirt particles on the filter element causes a steady increase in pressure drop. An extreme differential pressure across the element can crush it, sending dirt as well as fragments of the element downstream. High crush elements are used to solve this problem, but at a premium cost, since a high crush element costs significantly more than its standard counterpart. Even more importantly, this system is not foolproof, because the possibility remains that someone may inadvertently replace a high-crush element with a standard element, which provides no protection against element collapse.

There is a better way!

Schroeder's CFX30 series non-bypassing filters incorporate the use of a unique pressure drop limiting valve that maintains the differential pressure across the element below the element's collapse pressure rating. As the element accumulates dirt, the pressure drop increases across the element and, therefore, across the spool of the valve. At about 45 to 50 psi, the spool begins to move, restricting flow as needed to prevent the pressure drop from increasing further and compromising element integrity. As with a high crush element, the flow is eventually restricted to the point that the system will not function properly. However, the filter's Dirt Alarm<sup>®</sup> (change-element indicator) will be activated at an element pressure drop of about 30 psi, providing plenty of advance warning that the element is in need of replacement. As with any non-bypassing filter, a system relief valve should be located upstream of the filter to provide protection in the event the element is not serviced.

This design allows the CFX30 filters to safely use the lower cost standard elements, eliminating the need for expensive high-crush replacement elements. In addition, the initial cost of this filter and standard elements is less than a comparable blocked bypass filter with a high crush element.



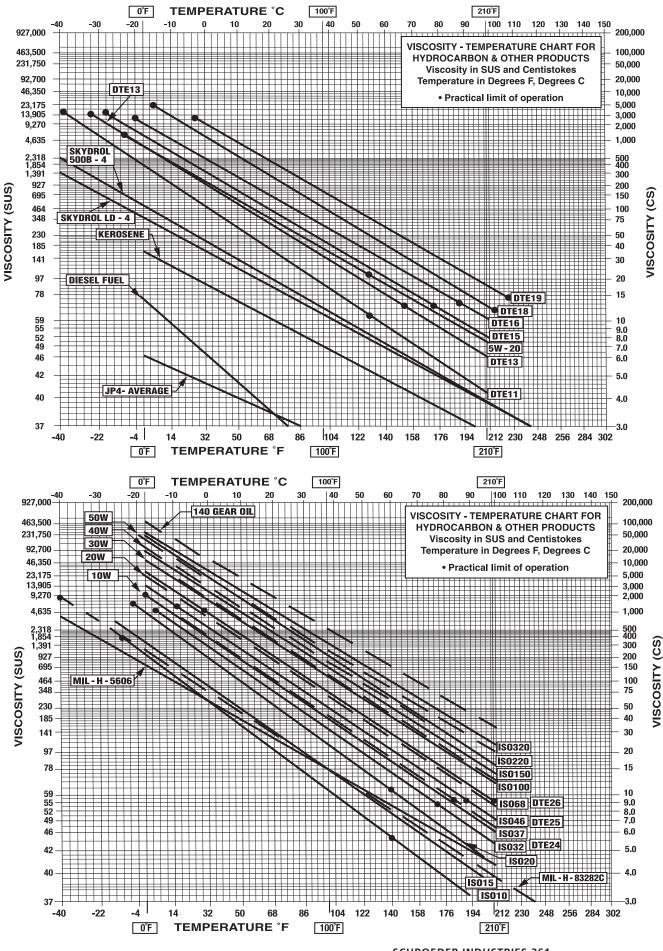
### **Appendix C** Element Case Weights

In proportion to the high volume of filter elements we make and ship, one of the most frequently asked questions our order desk receives involves the weights of various cases of elements. In an effort to include this information in this edition of the catalog, we made the assumption that the various micron ratings within a media type weigh the same; i.e., a KZ1 weighs approximately the same as a KZ25.

The following table represents our findings given the above assumption.

|       |               | Case<br>Lot | Weight<br>(lb.) |     |               | Case<br>Lot | Weight<br>(lb.) |        |               | Case<br>Lot | Weight<br>(lb.) |
|-------|---------------|-------------|-----------------|-----|---------------|-------------|-----------------|--------|---------------|-------------|-----------------|
| А     | paper         | 12          | 7               | К   | paper         | 12          | 17              | 8Z     | paper         | 12          | 12              |
| AZ    | synthetic (Z) | 12          | 8               | ΚZ  | synthetic (Z) | 12          | 22              | 8ZZ    | synthetic (Z) | 12          | 13              |
| BB    | paper         | 6           | 29              | KW  | Water Removal | 12          | 18              | 9V     | synthetic (Z) | 12          | 14              |
| BBZ   | synthetic (Z) | 6           | 29              | КК  | paper         | 6           | 18              | 14V    | synthetic (Z) | 6           | 10              |
| С     | paper         | 12          | 7               | KKZ | synthetic (Z) | 6           | 20              | 14C    | synthetic (Z) | 6           | 11              |
| CZ    | synthetic (Z) | 12          | 8               | 27K | paper         | 6           | 20              | 18L    | synthetic (Z) | 6           | 20              |
| СС    | paper         | 12          | 11              | м   | paper         | 12          | 33              | 39Q    | paper         | 1           | 17              |
| CCZ   | synthetic (Z) | 12          | 15              | N   | paper         | 12          | 4               | 39QPML | synthetic (Z) | 1           | 18              |
| FZX3  | synthetic (Z) | 12          | 3               | NZ  | synthetic (Z) | 12          | 7               | 39QCL  | synthetic (Z) | 1           | 11              |
| FZX10 | synthetic (Z) | 12          | 3               | NN  | paper         | 12          | 6               | 16Q    | paper         | 1           | 8               |
| 6G    | synthetic (Z) | 12          | 8               | NNZ | synthetic (Z) | 12          | 9               | 16QPML | synthetic (Z) | 1           | 15              |
| 9G    | synthetic (Z) | 12          | 13              | 6R  | synthetic (Z) | 12          | 10              | 16QCL  | synthetic (Z) | 1           | 3               |

Viscosity Charts Appendix D



## **Glossary of Standard Terms**

ABSOLUTE FILTRATION RATING: The diameter of the largest hard spherical particle that will pass through a filter under specified test condition. This is an indication of the largest opening in the filter element. It does not indicate the largest particle that will pass through the element, since particles of greater length than diameter may pass.

**CAVITATION:** A localized condition within a liquid stream causing the rapid implosion of a gaseous bubble.

**CELSIUS:** A temperature scale. 0 Celsius (or 0 Centigrade) is the freezing point of water  $(32^{\circ} F)$ .

CENTIPOISE: A unit of absolute (dynamic) viscosity.

**CENTISTOKE:** A unit of kinematic viscosity.

CLEANLINESS LEVEL: The analog of contamination level.

**COLLAPSE PRESSURE:** The outside-in differential pressure that causes structural failure.

**CONTAMINATION LEVEL:** A quantitative term specifying the degree of contamination.

**CONTAMINANT:** Any material or substance which is unwanted or adversely affects the fluid power system or components, or both.

**CONTAMINANT, BUILT-IN:** Initial residual contamination in a component, fluid, or system. Typical built-in contaminants are burrs, chips, flash, dirt, dust, fiber, sand, moisture, pipe dope, weld spatter, paints and solvents, flushing solutions, incompatible fluids, and operating fluid impurities.

**DEPTH (FILTER):** A filter medium which primarily retains contaminant within tortuous passages.

#### DIRT CAPACITY (DUST CAPACITY)

(CONTAMINANT CAPACITY): The weight of a specified artificial contaminant which must be added to the fluid to produce a given differential pressure across a filter at specified conditions. Used as an indication of relative service life.

**EFFICIENCY (FILTER):** The ability, expressed as a percent, of a filter to remove specified artificial contaminant at a given contaminant concentration under specified test conditions.

#### Filter CONFIGURATIONS

**Top-Ported Filter:** Also known as a T-Ported or In-Line filter. All porting, the bypass valve, and indicators are located in the head. The head is permanently attached to the plumbing and the element is accessed by removing the bowl.

**Base-Ported Filter:** All porting, the bypass valve, and indicators are located in the base. The base is permanently attached to the plumbing and the element is removed through a cap, instead of removing the entire bowl.

Manifold Mounted Filter: Also known as a Sub-Plate filter. Most Base-Ported filters come with a manifold mount option. In some cases, a Top-Ported filter can also have a manifold mounting option. This allows the filter to be mounted directly onto a manifold, eliminating the need for hoses and fittings.

**Cartridge Filter:** Can be inserted directly into the manifold, eliminating the need for a separate housing or plumbing. Element is removed through a plug on the manifold.

**Sandwich Filter:** Is designed to be placed in between and directly interface with a manifold and stacked valves. Eliminates the need for hoses and fittings.

**Duplex Filter:** Made up of two or more filter assemblies. A valve allows the user to switch from one chamber to another. When one element is fully loaded, fluid is redirected though the second element. The loaded element can be changed without an interruption in flow. In the center position, the valve allows the oil to flow through both filters.

**ELEMENT (CARTRIDGE):** The porous device which performs the actual process of filtration.

FLOW, LAMINAR (STREAMLINE): A flow situation in which fluid moves in parallel lamina or layers. (See Reynold's number.)

FLOW, TURBULENT: A flow situation in which the fluid particles move in a random manner. (See Reynold's number.)

FLUID: A liquid, gas, or combination thereof.

FLUID POWER SYSTEM: A system that transmits and controls power through use of a pressurized fluid within an enclosed circuit.

**INDICATOR:** A device which provides external visual evidence of sensed phenomena.

**INDICATOR, BY-PASS:** An indicator which signals that an alternate flow path is being used.

**INDICATOR, DIFFERENTIAL PRESSURE:** An indicator which signals the difference in pressure between two points.

**MICROMETER (MICRON)\*:** A unit of measurement one millionth of a meter long, or approximately 0.00003937 inch expressed in English Units. \*Deprecated.

MIGRATION: Contaminant released downstream.

**PRESSURE, CRACKING:** The pressure at which a pressure-operated valve begins to pass fluid.

**PRESSURE, DIFFERENTIAL (PRESSURE DROP):** The difference in pressure between any two points of a system or a component.

PRESSURE, OPERATING: The pressure at which a system is operated.

**PRESSURE, RATED FATIGUE:** A pressure that a pressure-containing component is represented to sustain 10 million times without failure.

**RATED FLOW:** The maximum flow that the power supply system is capable of maintaining at a specific operating pressure.

**REYNOLD'S NUMBER:** A numerical ratio of the dynamic forces of mass flow to the shear stress due to viscosity. Flow usually changes from laminar to turbulent between Reynold's numbers 2,000 and 4,000.

#### Filter CLASSIFICATIONS Types

Low Pressure Filter\*: Filter pressure range from 0 to 500 psi. Mostly applied in return line filtration where system pressure is at a low point.

**Medium Pressure Filter\*:** Filter pressure range from 500 to 1500 psi. Often used in hydrostatic charge pressure applications.

**High Pressure Filter\*:** Filter pressure range is 1500 psi and above. Mostly applied on the pressure side of the system where pressure is highest.

**High Pressure Hydrostatic Filter:** Used in high pressure hydrostatic closed loop systems. Allows for reverse flow through the system.

**Bypass vs. Non-Bypass:** The pressure rises as an element becomes loaded with contaminants. Standard filters are equipped with a bypass valve that redirects hydraulic fluid when the pressure drop reaches a predetermined level, so the element does not lose its structural integrity. The filter element is bypassed and fluid continues on through the system.

In non-bypass filters bypass is not optional. They are used to protect expensive components that are more sensitive to contaminants, and cannot be exposed to unfiltered fluid. The element is exposed to higher pressures, as there is no bypass. For that reason this type of filter requires a high crush element to guarantee its structural integrity.

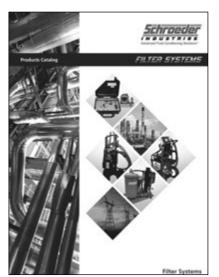
Air Breather: Filters air that is drawn into a reservoir when the fluid level changes.

**Desiccant Air Breather:** In addition to filtering out particle contaminants, this breather also removes water vapor.

Schroeder Industries LLC wishes to thank both the National Fluid Power Association and Penton Publishing for the use of certain generic terms shown in this glossary. Excerpts taken from ANSI B93.2-1986/NFPA T3.10.3. 1967(R1980) and Penton Publishing's Fluid Power Handbook & Directory (2006-2007).

\*These ranges have been determined to provide a quick reference for the purpose of creating our catalog. This is currently no industry standard terminology. These ranges are subject to change.

### **Other Product Line Catalogs**



Filter Systems

The Filter Systems Catalog is designed to take the reader from the basic foundations of the principles of hydraulics found in the H&L catalog, to the tools required for troubleshooting and addressing the cleanliness or performance demands of any fluid system. We produce portable and permanent-mount pressure, flow and temperature evaluation instruments, oil cleanliness analysis devices, particle monitors and water-in-oil identification tools. We also produce a wide array of fluid conditioning tools — from standard in-line hydraulic filters, to sophisticated microprocessor-based instruments incorporating SMART<sup>®</sup> technology.



The products contained in the Fuels Catalog, address issues relating to mobile and stationary equipment working in some of the toughest conditions all over the world. Schroeder's Fuel Filtration line ensures the smooth running of equipment and protects both the engine and the whole drive system from damage, which addresses both onboard and bulk tank requirements.

**Fuel Filtration** 

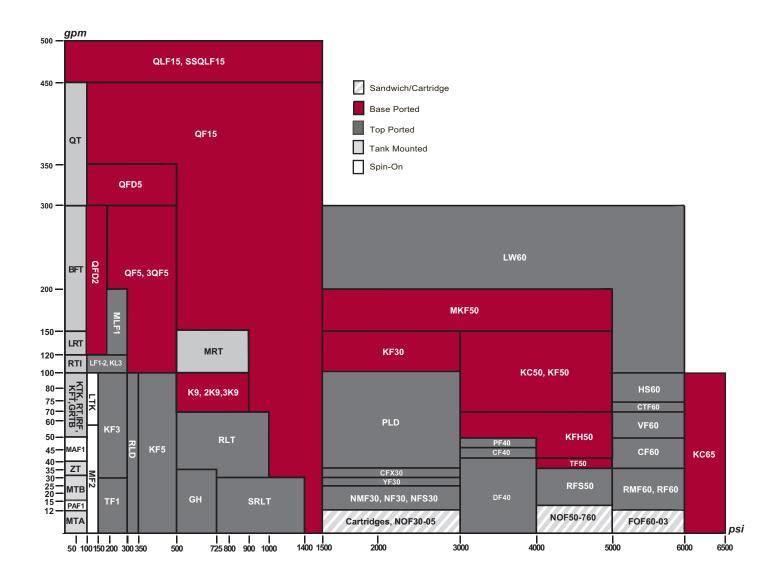


The keystone product of Schroeder Process Filtration is the RF3 automatic self-cleaning backflush filter. This filter along with bag filters, cartridge filters and custom designed systems allows Schroeder to offer you complete solutions to your process filtration needs. Our process filters are used to remove solid contamination from fluids and protect the integrity of high grade components that depend on low viscosity water or water-based fluids and emulsions. Schroeder offers high performance filters for all industrial sectors. Improvements in operational efficiency, reduced downtime, lower maintenance costs and reduce environmental impact can all be expected.

Process Filtration

To view the full version of our catalogs visit our website: www.schroederindustries.com

### Filter Housings: Flow vs. Operating Pressure



| Notes Section: |  |  |  |  |
|----------------|--|--|--|--|
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| Notes Section Continued: |  |  |  |
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### **Best Filter Delivery Program**

Schroeder Industries is pleased to announce the establishment of the Best Filter Delivery Program. We recognize that emergencies arise despite the best planning and forecasting efforts. To be able to offer support and service in these situations, we performed an analysis to determine our top selling filter model numbers. The result is a list of thirteen specific filter assemblies, comprising high pressure, medium pressure, return line, tank-mounted and spin-on models.

For all the models listed, guaranteed shipment is same day, provided we receive the purchase order by 1:00 pm EST. An option to specify element media other than that called for on the web page is available with a 5-day guaranteed ship date after receipt of order. No other substitutions are permitted.

At the onset of this program, a distributor/customer may be limited to a maximum quantity. This may be necessary to enable Schroeder to fulfill its guarantee of adequate inventory to all distributors alike.

The intent of this program is to provide our customers with access to the products they use most often. Therefore, as we witness shifts in filter usage, we will make changes to this list and update the corresponding web page accordingly.

We hope you and your customers find this new program useful in working through unforeseen crisis situations.

| Family                         | Product | Specifications   | Standard Part Number             | Alternate Elements                    |  |
|--------------------------------|---------|--|----------------------------------|---------------------------------------|--|
| High Pressure,<br>Top-Ported   | NF30    | 20 gpm, 3000 psi, SAE 1-1/16"-12<br>straight porting, cartridge dirt alarm                     |                                  | N/A                                   |  |
| High Pressure,<br>Top-Ported   | DF40    | 30 gpm, 4000 psi, SAE 1-5/16"-12 straight porting, cartridge dirt alarm                        | DF401CCZ3SD5                     | CC10, CCZ5                            |  |
| High Pressure,<br>Base-Ported  | GKF30   | 100 gpm, 3000 psi, 1 element, SAE 1-7/8"-<br>12 straight porting, cartridge dirt alarm         | GKF301KGZ10SD5                   | KG3, KG10, KG25,<br>KGZ1, KGZ3, KGZ25 |  |
| Low Pressure,<br>Tank-Mounted  | ZT      | 40 gpm, 100 psi, SAE 1-5/16"-12 straight inlet port, rear mounted tri-color visible dirt alarm | ZT8Z10SY2                        | N/A                                   |  |
| Low Pressure,<br>Tank-Mounted  | GRT     | 100 gpm, 100 psi, 2 SAE 1.5" inlet ports, tri-color visible dirt alarm                         |                                  |                                       |  |
| Low Pressure,<br>Tank-Mounted  | GRT     | 100 gpm, 100 psi, 1 SAE 1.25" straight inlet port, tri-color visible dirt alarm                |                                  |                                       |  |
| Low Pressure,<br>Tank-Mounted  | LRT     | 150 gpm, 100 psi, 2 SAE 1.5" straight inlet ports, tri-color visible dirt alarm                | LRT18LZ10S24S24NY2<br>(LRT-1820) | N/A                                   |  |
| Low Pressure,<br>Spin-On       | PAF1    | 20 gpm, 100 psi, 3/4" NPTF porting,<br>tri-color visible dirt alarm                            | PAF16PZ10PY2                     | N/A                                   |  |
| Low Pressure,<br>Top-Ported    | GKF3    | 100 gpm, 300 psi, 1 element, SAE 1-7/8"-<br>12 straight porting, cartridge dirt alarm          | GKF31KGZ25SD5                    | KG3, KG10, KG25,<br>KGZ1, KGZ3, KGZ25 |  |
| Medium Pressure,<br>Top-Ported | SRLT    | 25 gpm, 1400 psi, SAE 1-1/16"-12<br>straight porting, cartridge dirt alarm                     | SRLT6RZ10S12D5                   | 6RZ3, 6RZ25                           |  |
| Medium Pressure,<br>Top-Ported | RLT     | 70 gpm, 1000 psi, 9" element, SAE 1-5/8"-<br>12 straight porting, cartridge dirt alarm         | RLT9VZ10S20D5                    | 9V25, 9VZ25                           |  |



**Hydraulic & Lube Filtration** 

Accessories Filter Systems

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