



**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 officient timely sustained
- Using an efficient, timely customized process to fill specific customer needs
- Increasing capacity and streamlining operations.
   Preserving our reputation for reliability
- 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.





# **Contents at a Glance**

Detailed Contents: Hydraulic & Lube Filters	_				
Classification of filters sorted by pressure	. 4				
Note to the Reader					
Corporate Overview					
Capabilities					
Products					
Section 1: Principles of Filtration					
Contamination Control Fundamentals					
Element Technical Data Fundamentals					
Element Media Selection Considerations.					
Filter Selection Considerations					
Ordering Information					
Section 2: Filter Elements					
Excellement® Z-Media® Elements (Synthetic)	. 30 . 34				
Anti-Stat Pleat Elements (Synthetic)	. 35				
DirtCatcher <sup>®</sup> Elements	. 35				
CoreCentric <sup>®</sup> Coreless Element					
Series ZX High Collapse Elements (Synthetic)					
BestFit <sup>®</sup> High Performance Replacement Elements					
E Media Elements (Cellulose)					
M Media Elements (Reusable Metal)	. 39				
F-Pack Media Elements	. 39				
W Media Elements (Water Removal)					
Aqua-Excellement™ High Efficiency Media (Water Removal)					
Section 3: High Pressure Filters (1500 - 6500 psi)					
Selection Guide					
Top-Ported High Pressure Filters					
Servo Protection (Sandwich) Filters					
Manifold Mount Filter Kit					
Cartridge Elements for use in Manifold Applications					
Hydrostatic (Bi-Directional) Flow Filters					
Section 4: Medium Pressure Filters (up to 1500 psi)					
Selection Guide					
Top-Ported Medium Pressure Filters					
Section 5: Low Pressure Filters (up to 500 psi)					
Top-Ported Low Pressure Filters					
Tank-Mounted Low Pressure Filters					
Special Feature Tank-Mounted Low Pressure Filters					
Severe Duty Tank-Mounted Filters					
Accessories for Tank-Mounted Filters					
Spin-On Low Pressure Filters					
Section 6: Suction Filters Selection Guide					
Section 7: Water Service Filters					
Selection 7: Water Service Filters					
Section 8: GeoSeal <sup>®</sup> Filters					
Appendices					
Appendices Appendices Appendix A: Filter Dirt Alarm <sup>®</sup> Selection					
	. 54/				
Appendix B: Patented Non-Bypassing Filtration: A Better Way That Does Not Require High Crush Elements	. 360				
Appendix C: Element Case Weights					
Appendix D: Viscosity Charts					
Glossary.	. 362				

# **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) 5000 (345)	9 (35)	77
	RFS50 RF60	6000 (345)	30 (115) 30 (115)	81 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
- 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) 100/150 (380/570)	117
Pre	GKC50 GeoSeal® MKF50	5000 (345) 5000 (345)	200 (760)	340 121
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 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 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 20-CRZX10	3000 (210) 3000 (210)	6 (23) 12 (45)	145 146
	14-CR2X10 20-CRZX10 Hydrostatic (Bi-Directional) Flow F	3000 (210)	6 (23) 12 (45)	-
	20-CRZX10	3000 (210)		-
	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415)	12 (45) 100 (380) 100 (380)	146
	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Port	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345)	12 (45) 100 (380)	146 147
	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Port High Pressure Water Service Filter	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s	12 (45) 100 (380) 100 (380) 70 (265)	146 147 151 155
	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Port High Pressure Water Service Filter WKC50	3000 (210) ligh Pressure Filters 6000 (415) ed) 5000 (345) s 5000 (345)	12 (45) 100 (380) 100 (380)	146 147 151
	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters	12 (45) 100 (380) 100 (380) 70 (265) 100 (380)	146 147 151 155 333
	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130)	146 147 151 155 333 161
	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retur GH GH GHHF	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380)	146 147 151 155 333 161 165
	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 1000 (69)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265)	146 147 151 155 333 161 165 169
si)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5	3000 (210) ligh Pressure Filters 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 1000 (69) 500 (35)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380)	146 147 151 155 333 161 165 169 173
10 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retur GH GHHF RLT KF5 GKF5 GeoSeal®	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 100 (380)	146 147 151 155 333 161 165 169 173 342
1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 1400 (100)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380)	146 147 151 155 333 161 165 169 173
to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5 7000 (345) rn Line Filters 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 1400 (100) ers 900 (60)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 25 (100) 100 (380)	146 147 151 155 333 161 165 169 173 342 177 181
(up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GK9 GeoSeal®	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5 5 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 1400 (100) ers 900 (60) 900 (60)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 25 (100) 100 (380) 100 (380) 100 (380)	146 147 151 155 333 161 165 169 173 342 177 8181 342
sis (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GK9 GeoSeal® 2K9	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5 5 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 1400 (100) ers 900 (60) 900 (60)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 25 (100) 100 (380) 100 (380) 100 (380) 100 (380)	146 147 151 155 333 161 165 169 173 342 177 181 342 185
ilters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GK9 GeoSeal® 2K9 G2K9 GeoSeal®	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 1400 (100) ers 900 (60) 900 (60) 900 (60)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380)	146 147 151 155 333 161 165 169 173 342 177 842 177 181 342 185 343
re Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GK9 GeoSeal® 2K9 G2K9 GeoSeal® 3K9	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5 7000 (345) rn Line Filters 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (60) 900 (60) 900 (60)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380)	146 147 151 155 333 161 165 169 173 342 177 8 181 342 185 343 189
ssure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Portu High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GK9 GeoSeal® 2K9 G2K9 GeoSeal® 3K9 G3K9 GeoSeal®	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (60) 900 (60) 900 (60)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 25 (100) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380)	146 147 151 155 333 161 165 169 173 342 177 181 342 185 343 189 343
Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Portel High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retur GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GK9 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GX9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (60)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380)	146 147 151 155 333 161 165 169 173 342 177 181 342 185 343 189 343 189 343
m Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Portel High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retur GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GK9 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GX9 GeoSeal® 3K9 G3K9 GeoSeal® G3K9 GeoSeal® 3K9 G3K9 GeoSeal® G3K9 GeoSeal® 3K9 G3K9 GeoSeal® G3K9 GeoSeal® G5 G5 G5 G5 G5 G5 G5 G5 G5 G5	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (50) 900 (50) 9	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (	146 147 151 155 333 161 165 169 173 342 177 181 342 185 343 189 343 193 197
dium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 MHS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filto K9 GK9 GeoSeal® SRLT Base-Ported Medium Pressure Filto K9 G2K9 GeoSeal® 3K9 G2K9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9 QF5 3QF5 QFD2	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (60) 9	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 300 (1135) 300 (1135)	146 147 151 155 333 161 165 169 173 342 177 181 342 177 181 342 185 343 189 343 193 197 201
Medium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retur GH RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GK9 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GZK9 GeoSeal® 3K9 GZK9 GeoSeal® 3C9 GZK9 GeoSeal® 3C9 3C9 3C9 3C9 3C9 3C9 3C9 3C9	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (50) 900 (50) 9	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (	146 147 151 155 333 161 165 169 173 342 177 181 342 185 343 189 343 189 343 193 197 201 205
4: Medium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GK9 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GX9 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GX9 GeoSeal® SRLT DESE SERVE GX9 GeoSeal® SRLT DESE SERVE CF5 GX9 GeoSeal® GX9 GeoSeal GeoSeal® GX9 GeoSe	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5 5 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (50) 900	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (	146 147 151 155 333 161 165 169 173 342 173 342 177 181 342 185 343 189 343 193 197 201 205 209
ON 4: Medium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retur GH RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GK9 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GZK9 GeoSeal® 3K9 GZK9 GeoSeal® 3C9 GZK9 GeoSeal® 3C9 3C9 3C9 3C9 3C9 3C9 3C9 3C9	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (50) 900 (50) 9	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (	146 147 151 155 333 161 165 169 173 342 177 181 342 177 181 342 185 343 189 343 189 343 193 197 201 205
CTION 4: Medium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Porte High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filte K9 GK9 GeoSeal® 2K9 G2K9 GeoSeal® 2K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 2K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 2K5 3QF5	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 1000 (69) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (10) 1500 (100) 1500 (100)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (30) (30) 100 (30) (30) 100 (30) (30) 100 (30) (30) 100 (30) (30) (30) 100 (30) (30) (30) (30) (30) (30) (30) (3	146 147 151 155 333 161 165 169 173 342 177 181 342 185 343 189 343 189 343 193 197 201 205 209 213 217
SECTION 4: Medium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H H560 MHS60 KFH50 (Base-Portel High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retur GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GK9 GeoSeal® SRLT Base-Ported Medium Pressure Filter K9 GX9 GeoSeal® 2K9 G2K9 GeoSeal® 3K9 G3K9 GeoSeal® 4K9 G3K9 GeoSeal® 4K9 G4F5 5SQLF15 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) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 300 (1135) 300 (1325) 450 (1900) 500 (	146 147 151 155 333 161 165 169 173 342 177 181 342 185 343 189 343 189 343 193 197 201 205 209 213 217 207 333
SECTION 4: Medium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Portel High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retur GH GHHF RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GK9 GeoSeal® SRLT Base-Ported Medium Pressure Filton K9 GX9 GeoSeal® 2K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® QF5 3QF5 QFD5 QFD5 QF15 QLF15 SSQLF15 Medium Pressure Water Service Filton Top-Ported WKF5 Top-Ported WKF5	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s T Line Filters 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 1400 (100) 275 900 (60) 900 (50) (35) 500 (35)	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 100 (380) 300 (1135) 300 (1325) 450 (1900) 500 (1900) 500 (1900) 100 (380) 100 (380)	146 147 151 155 333 161 165 169 173 342 177 181 342 185 343 189 343 189 343 193 197 201 205 209 213 209 213 217 333 333
SECTION 4: Medium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Portel High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filto K9 GX9 GeoSeal® SRLT Base-Ported Medium Pressure Filto K9 G2K9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® QF5 QF5 QF5 QF5 QF5 QF5 QF15 QLF15 SSQLF15 Medium Pressure Water Service Fi Top-Ported WKF5 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) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (1135) 300 (1325) 450 (1900) 500 (1900) 500 (1900) 100 (380) 100 (380) 1	146 147 151 155 333 161 165 169 173 342 177 181 342 185 343 189 343 193 197 201 205 209 213 209 213 209 213 333 334
SECTION 4: Medium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Portel High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filto K9 GZK9 GeoSeal® SRLT Base-Ported Medium Pressure Filto K9 GZK9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® QF5 QFD5 QFD5 QFD5 QF15 SSQLF15 Medium Pressure Water Service Fi Top-Ported WKF5 Top-Ported WKF5 Top-Ported WKF5	3000 (210) ligh Pressure Filters 6000 (415) 6000 (415) ed) 5000 (345) s 5000 (345) rn Line Filters 725 (50) 725 (50) 725 (50) 1000 (69) 500 (35) 500 (35) 500 (35) 1400 (100) ers 900 (60) 900 (5) 500 (35) 500 (35) 5	12 (45) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (1135) 300 (1135) 350 (1325) 450 (1700) 500 (1900) 500 (1	146 147 151 155 333 161 165 169 173 342 177 181 342 177 181 342 185 343 189 343 193 197 201 205 209 213 207 201 205 209 213 217 333 334 334 334
SECTION 4: Medium Pressure Filters (up to 1500 psi)	20-CRZX10 Hydrostatic (Bi-Directional) Flow H HS60 KFH50 (Base-Portel High Pressure Water Service Filter WKC50 Top-Ported Medium Pressure Retu GH RLT KF5 GKF5 GeoSeal® SRLT Base-Ported Medium Pressure Filto K9 GX9 GeoSeal® SRLT Base-Ported Medium Pressure Filto K9 G2K9 GeoSeal® 3K9 G3K9 GeoSeal® 3K9 G3K9 GeoSeal® QF5 QF5 QF5 QF5 QF5 QF5 QF15 QLF15 SSQLF15 Medium Pressure Water Service Fi Top-Ported WKF5 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) 100 (380) 100 (380) 70 (265) 100 (380) 35 (130) 100 (380) 70 (265) 100 (380) 100 (1135) 300 (1325) 450 (1900) 500 (1900) 500 (1900) 100 (380) 100 (380) 1	146 147 151 155 333 161 165 169 173 342 177 181 342 185 343 189 343 193 197 201 205 209 213 209 213 209 213 333 334

# **Detailed Contents (cont.)**

		Pressure psi (bar)	Flow gpm (L/min)	Page
<b>Top-Ported Low Press</b>	ure Filters			
	IRF	100 (7)	100 (380)	223
	TF1	300 (120)	30 (120)	227
	KF3	300 (20)	100 (380)	231
	GKF3 GeoSeal®	300 (20)	100 (380)	344
	KL3	300 (20)	120 (455)	235
	GKL3 GeoSeal <sup>®</sup>	300 (20)	120 (455)	344
	LF1-2"	300 (20)	120 (455)	239
	MLF1	300 (20)	200 (760)	243
	GMLF1 GeoSeal <sup>®</sup>	300 (20)	200 (760)	345
	RLD	350 (24)	100 (380)	247
Tank-Mounted (In-Tan	k/Tank Top) Low Pressure F	ilters		
	GRTB	100 (7)	100 (380)	251
	MTA	100 (7)	15 (55)	255
	MTB	100 (7)	35 (135)	259
	ZT	100 (7)	40 (150)	263
	GZT GeoSeal <sup>®</sup>	100 (7)	40 (150)	346
	KFT	100 (7)	100 (380)	267
	RT	100 (7)	100 (380)	271
	GRT GeoSeal <sup>®</sup>	100 (7)	100 (380)	345
	RTI	100 (7)	120 (455)	275
	LRT	100 (7)	150 (570)	279
	ART	145 (10)	225 (850)	283
	BFT	100 (7)	300 (1135)	287
	OT	100 (7)	450 (1700)	291
Special Feature Tank-N	<b>Nounted Low Pressure Filter</b>			
Internal	КТК	100 (7)	100 (380)	295
Internal	LTK	100 (7)	150 (570)	299
Severe Duty Tank-Mo	unted Filters		, , , , , , , , , , , , , , , , , , ,	
	MRT	900 (62)	150 (570)	303
Spin-On Low Pressure	Filters		· ·	
	PAF1	100 (7)	20 (75)	309
	MAF1	100 (7)	50 (190)	313
	MF2	150 (10)	60 (230)	317
Low Pressure Water Se	ervice Filters			
	WLF1	300 (20)	120 (455)	333
	WKF3	300 (20)	100 (380)	337
	WKL3	300 (20)	120 (455)	338

Tank-Mounted Suc	tion Filter			
2	ST		20 (75)	323
In-Line Magnetic Su	iction Separators			
	TF-SKB	Suction	12.5 (47)	327
	KF3-SKB	Suction	30 (130)	328
	gnetic Suction Separator			
	BFT-SKB	Suction	75 (285)	329

# Note to the Reader

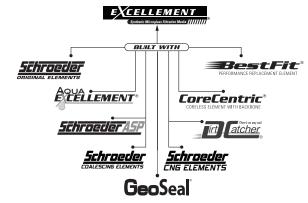
The aim of our catalog is to provide the information and guidance you'll need to make informed and appropriate choices for your filtration needs.

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® Z-Media®, 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®



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







TOOL

OFFSHORE

STEEL

MAKING





CHEMICAL

PROCESSING



POWER GENERATION



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 of Schroeder Filter Housings		Design and Testing Standards of Schroeder High Efficiency Elements		
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	111771 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

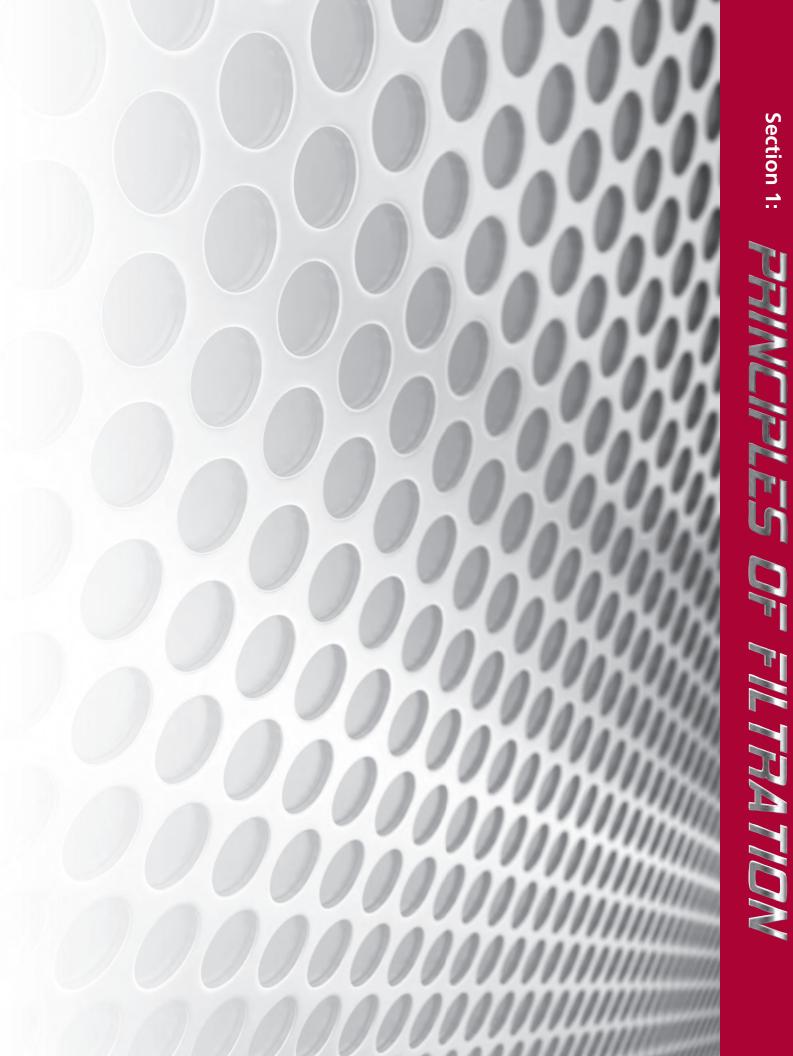
We invite you to present us with any specific filtration challenge you may experience. Schroeder will design and make filters to meet your specific requirements. To find out more, and/or obtain a quote, call us to speak with a sales representative or technical specialist. They can help determine the 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

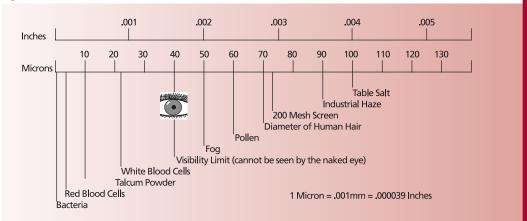
The size of solid particle contaminants is commonly measured in micrometers,  $\mu$ m, (usually referred to as microns,  $\mu$ ). A micron is a unit of length equal to one millionth of a meter or about .00004 inch. Particles that are less than 40  $\mu$  cannot be detected by the human eye.

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.

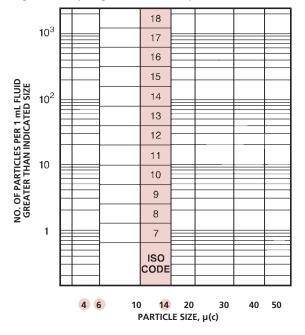


Figure 3. Graphing Particle Counts per ISO 4406:1999

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

Solid Containination Code						
Number of Particles per 1 mL of Fluid		Scale	Scale Number of Particles per 1 mL of Fluid		Scale 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 Falls Between	Scale Number is*
Particle	Number	2500-5000	19
Size	of Particles	160-320	15
≥ 4 µ(c)	3,000	100-320	15
≥ 5 µ(c)	700	10-20	11
≥ 6 µ(c)	200		+6 160 1406 100
≥10 µ(c)			*Source: ISO 4406:199
≥14 µ(c)	15	The Sample Fluid is ISO 19/1 *Note: When the raw data i	
≥15 µ(c)		ranges results in a particle	
≥20 µ(c)	10	20 particles the range code	
≥30 µ(c)	3	that 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 contamination range from that of low pressure gear pumps, which normally will give satisfactory performance with cleanliness levels typically found in new fluid (ISO 19/17/14), to the more stringent requirements for servo-control valves, which need oil that is eight times cleaner (ISO 16/14/11).

Today, many fluid power component manufacturers are providing cleanliness level (ISO code) recommendations for their components. They are often listed in the manufacturer's component product catalog or can be obtained by contacting the manufacturer directly. Their recommendations may be expressed in desired filter element ratings or in system cleanliness levels (ISO codes or other codes). Some typically recommended cleanliness levels for components are provided in Table 3.

# Table 2. Cleanliness Level Guidelines Based

UITTESSUIE		
System Type	Recommended Cleanliness Levels (ISO Code)	
Low pressure – manual control (0 - 500 psi)	20/18/15 or better	
Low to medium pressure – electro-hydraulic controls	19/17/14 or better	
High pressure – servo controlled	16/14/11 or better	

### Table 3. Recommended Cleanliness Levels (ISO Codes) for Fluid Power Components

Components	Cleanliness Levels (ISO Code) 4 μ(c)/6 μ(c)/14 μ(c)
Gear Pump	19/17/14
Piston Pump/Motor	18/16/13
Vane Pump	19/17/14
Directional Control Valve	19/17/14
Proportional Control Valve	18/16/13
Servo Valve	16/14/11

The above is based on data shown in various hydraulic component manufacturers' 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.

Table 4. Cleanliness Class Comparisons				
ISO 4409:1999	SAE AS 4059:E	NAS 1638-01/196	MIL-STD 1246A 1967	ACFTD Gravimetric Level-mg/L
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	
2/0/0			5	

# Table 4. Cleanliness Class Comparisons

# Required Cleanliness Levels

# **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.

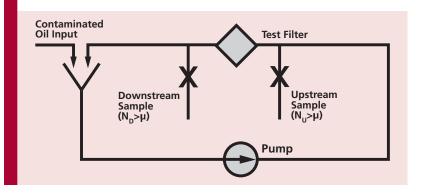
# The Multi-pass Test

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

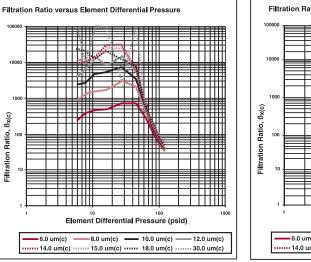
Efficiency / Filtration Ratio (Beta)

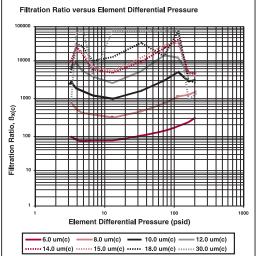
# **Beta Stability**

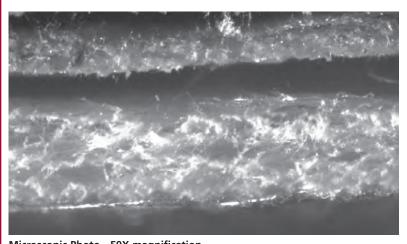
(continued)

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 <sup>®</sup> 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 (ISO Code)	Schroeder 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 Cleanliness Levels (ISO Code)	Ingression Rate	Schroeder Element 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**

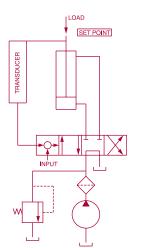


Figure 6(a). Pressure Filtration Circuit

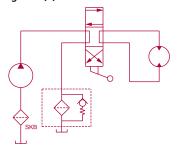


Figure 6(b). Return Line Filtration Circuit

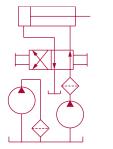


Figure 6(c). Re-circulating Filtration Circuit

**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).

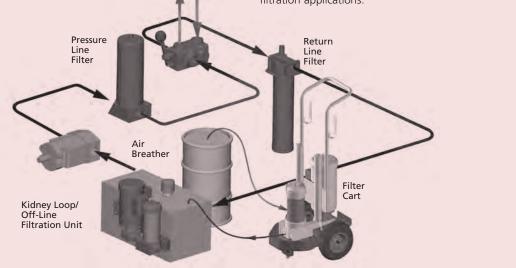
**Return line filtration:** Return line filters are often considered when initial cost is a major concern. A special concern in applying return line filters is sizing for flow. Large rod cylinders and other components can cause return line flows to be much greater than pump output. Return lines can have 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 convenience for your particular application. Use the selection charts shown on the catalog page to determine the specific filter model number for 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 procedures. Effective contamination control is achieved through the conscientious use of sound manufacturing and maintenance practices. Some examples are: filtering make-up oil; controlling contamination ingestion during manufacturing, assembly, maintenance, and repair processes; 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 Pressure psi (bar)	Model	Rated Fatigue 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 cSt)					2 cSt)				
Pressure	Series	Part No.	petroleum based fluid and a 40 psi (2.8 bar) bypass valve.									
		К3	1K3 2K3 3K3 See MFK50			1K3 2K3 3K3						
	E Media	K10	1K10		2K	10	3K10	<b>3K</b> 1	0	Se	e MFK5	D
	Media	K25		1K25				2K25		25		
To 3000 psi (210 bar)	KZ1 KZ3 KZ5	KZ1	1KZ1 2KZ			2KZ1			3	KZ1		
		KZ3	1KZ3			2KZ3		:	3KZ3			
(,		KZ5	1KZ5			2	KZ5		3KZ5			
	meana	KZ10		1KZ10					2KZ	10	3K10	
		KZ25	2KZ25								2KZ25	
	Flow	gpm o	) 25	50	)	75	<mark>ا</mark> 100	)	12	5	150	
	FIOW	(L/min) d	0 100	2	00	300		400		500	600	

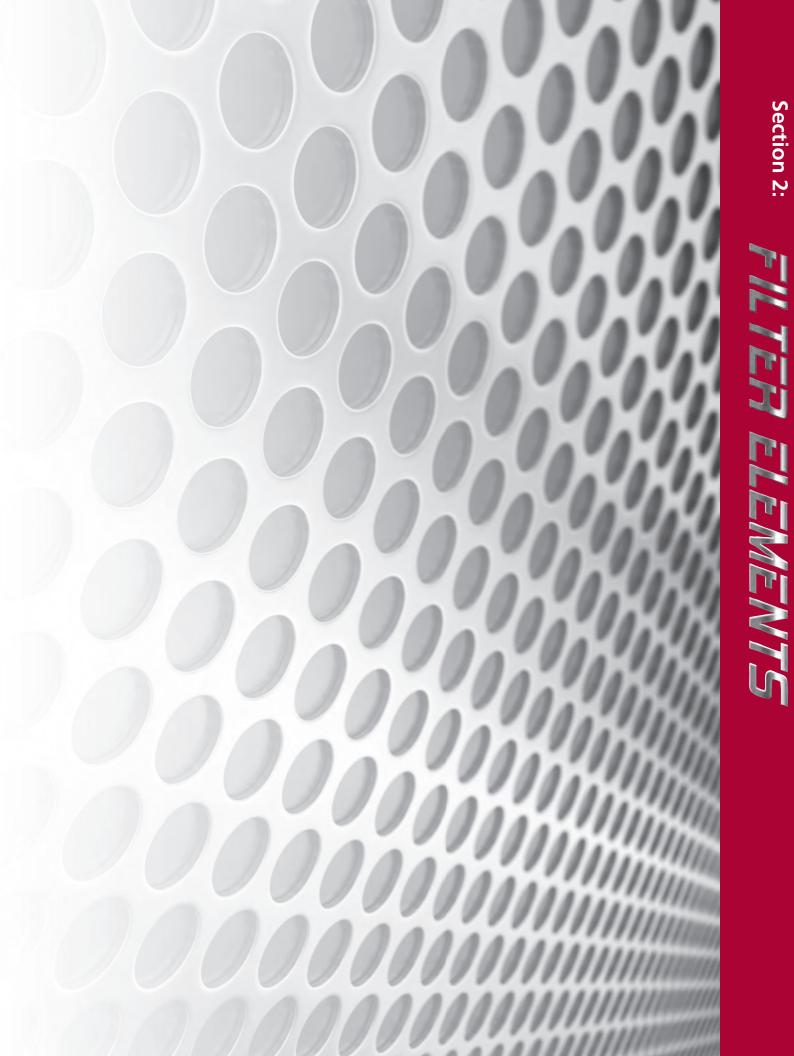
Shown above are the elements most commonly used in this housing. requires 2" porting (P32)

# 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 150	— x	specific gravity 0.86
		OR			
Corrected element ∆P =	= ΔP from curve	x —	cST viscosity 32	— x	specific gravity 0.86



# **Schroeder Element Media**

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



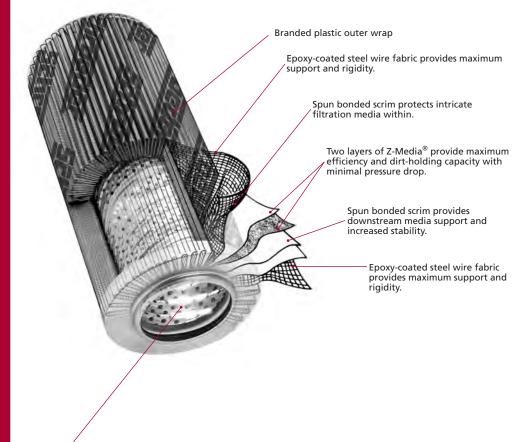
ORIGINAL ELEMENTS BUILT WITH EXCELLEMENT

EXCELLEMENT® Synthetic Microglass Filtration Media

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.

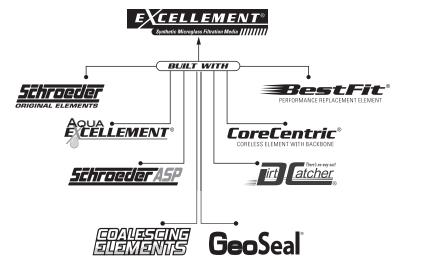
Schroeder's complete line of quality filtration elements—including Schroeder's original element designs, BestFit<sup>®</sup> replacement elements, CoreCentric<sup>®</sup> coreless repair elements and DirtCatcher<sup>®</sup> —are manufactured with Excellement<sup>®</sup> Z-Media<sup>®</sup>.

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.

Schroeder

- 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* Level	
Railroad Maintenance-of-Way Equipment	ISO 19/17/14	
Power Generation Turbine Skid	ISO 17/15/13	
Timber Harvesting Equipment	ISO 17/15/12	
Plastic Injection 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 Media	βx(c) ≥ 75 (98.7%)	βx(c) ≥ 100 (99%)	βx(c) ≥ 200 (99.5%)	βx(c) ≥ 1000 (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	

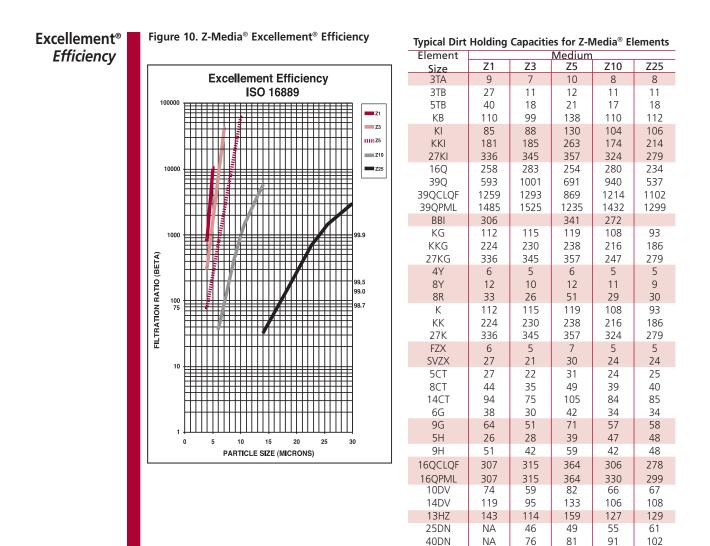
# Table 11. Z-Media<sup>®</sup> Filtration Ratios

# Excellement® Elements Have Improved Filtration Ratios

Features and

**Benefits** 

# SCHROEDER INDUSTRIES 31



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

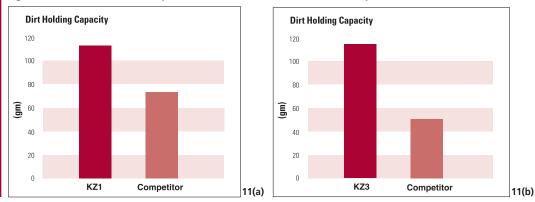
131

183

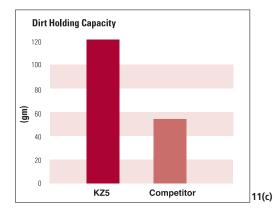
146

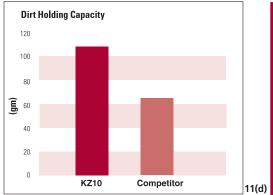
149



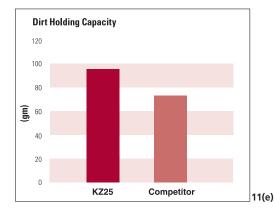


# 32 SCHROEDER INDUSTRIES





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

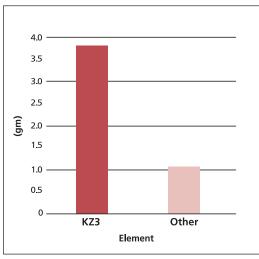


Tuno	Element Size (Diameter x Length)			ngth)	
Type Medium	2" x 6" 6R	3" x 8" 8T	4" x 9" K	5" x 18" BB	6" x 39" Q
Z1	15	51	112	268	1485
Z3	15	52	115	275	1525
Z5	16	59	119	301	1536
Z10	14	55	108	272	1432
Z25	15	56	93	246	1299

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.

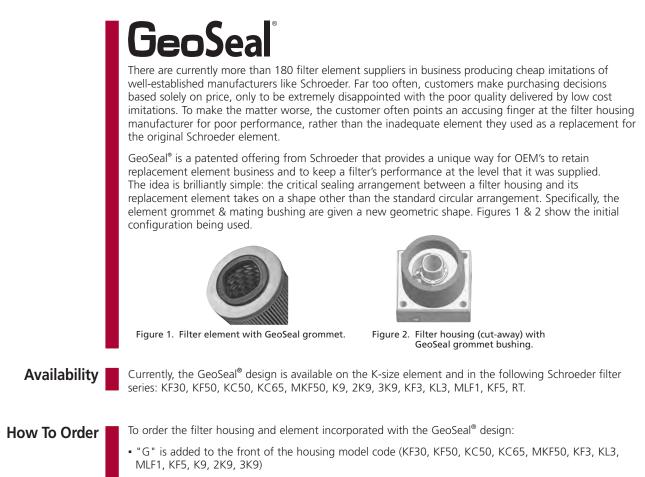
A monetary value can be calculated for a filter element by considering its dirt holding capacity and efficiency in combination with its cost. To make this determination, first find out how much you're spending to clean your fluid to a desirable cleanliness level. Then figure out how much contamination (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 psi (bar)	Flow gpm (L/min)	Element 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®	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
Geo	G2K9 GeoSeal®	900 (60)	100 (380)	KG, KKG, 27KG	343
	G3K9 GeoSeal®	900 (60)	100 (380)	KG, KKG, 27KG	343
	Low Pressure GeoSeal <sup>®</sup> 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

# 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





# Series ZX High Collapse Elements (Synthetic)







# 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 Number	Filtration Ratio (ßx≥200) Efficiency	Filtration Ratio (ßx(c)≥1000) Efficiency	Dirt Holding 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

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

**36 SCHROEDER INDUSTRIES** 



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 oilsFuels
- 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 Media	β <sub>X</sub> ≥ 75 (98.7%)	β <sub>X</sub> ≥ 100 (99%)	β <sub>X</sub> ≥ 200 (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

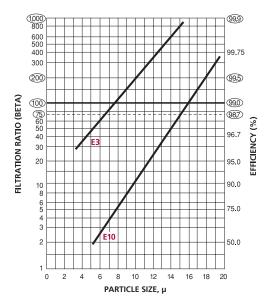
The cost effectiveness of E media becomes even more apparent when dirt holding capacity is considered (see Table 15). The dollars spent per gram of dirt retained with an E media element makes it an excellent choice for many contamination control programs.

#### 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			
Κ	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



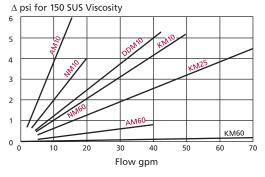
The data shown represents the cumulative results of E media multi-pass tests. Tests are conducted on a regular basis at Schroeder's own laboratory and at approved independent facilities. Tests are conducted without antistatic additive. Schroeder offers a line of metal reusable elements to meet specific 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 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 Model No.	Flow gpm (L/min)	∆P 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 Recom	mended Flow Rate
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	Water Removal Capacity		Filtration Ratios (Beta)								
Part Number	(g)	2.5 gpm	10 gpm	$\beta x \ge 200$	ßx ≥ 1000	∆P Factor						
KZW1	61	197 ml⁄ 6.66 oz		<4.0	<4.0	0.43						
KZW3/KKZW3	64/128							107		4.0	4.8	0.32
KZW5/KKZW5	63/126								5.1	6.4	0.28	
KZW10/KKZW10	57/114							1.55 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	val Capacity	Filtration R	atios (Beta)
Part Number	(g)	2.5 gpm	10 gpm	$\beta x \ge 200$	βx ≥ 1000
10MZW10	53	185 ml/ 6.3 oz	126ml/ 4.3 oz	6.9	8.6

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

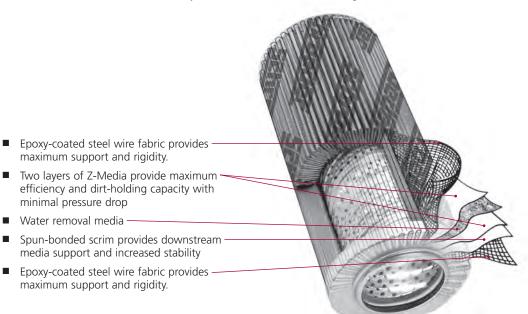
Schroeder Kidney Loop Systems and Mobile Filtration Carts can utilize the KZW cartridge elements



### 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.



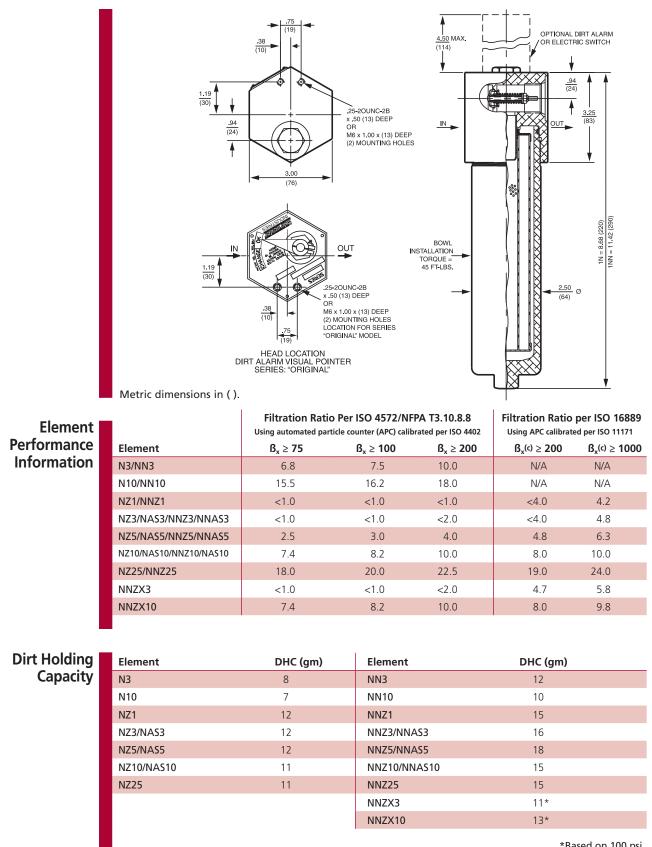
# **Section 3** High Pressure Filters Selection Guide

		Pressure psi (bar)	Flow gpm (L/min)	Element 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

	<ul> <li>Factures and Benefits</li> <li>Top-ported pressure filter</li> <li>All aluminum assembly</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>Same day shipment model available</li> </ul>	20 gpm <u>75 L/min</u> 3000 psi 210 bar	NF30 NFS30 YF30 CFX30 PLD DF40 CF40 LC50 RF50 RF50 CF60
Model No. of filter in photograph	is NF301NZ10SD5.		
		Applications	CTF60 VF60 LW60
INDUSTRIAL AUTOMOTIVE MANUFACTURING	MACHINE TOOL		KF30
			TF50 KF50
STEEL PULP & PAPER MAKING	AGRICULTURE MOBILE VEHICLES		KC50
			MKF50
			KC65
			NOF30-05
			NOF50
Flow Rating: Max. Operating Pressure:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids	Filter Housing	FOF60-03
	10,000 psi (690 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
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 85 psi (5.9 bar) Non-bypassing model has a blocked bypass.		Elements
Porting Head: Element Case:			HS60
Weight of NF30-1N: Weight of NF30-1NN:	3.4 lbs. (1.5 kg) 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: **Element Nominal Dimensions:**  \*Based on 100 psi terminal pressure

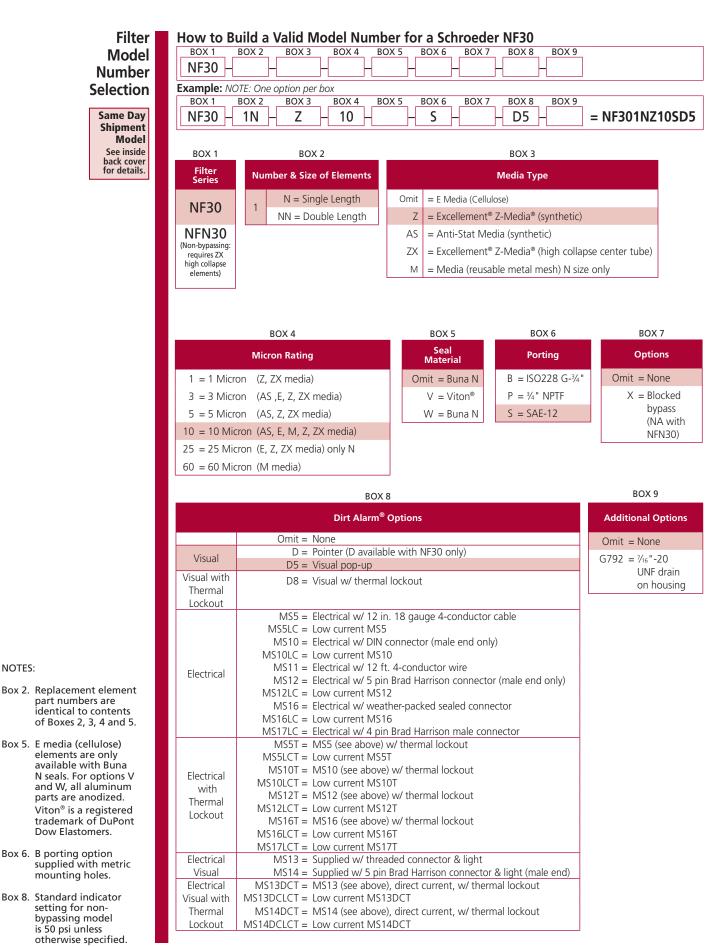
150 psid (10 bar) for standard elements 3000 psid (210 bar) for high collapse (ZX) versions Outside In

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	element 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		1	NN3		See	DF40	Based on Flow Rate	DF40
	E Media	N10 & NN10		1N10				1NN10		now nate	<b>CF40</b>
τ.		N25			1N2	5					5540
To 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
 Shown abo	ve are the	elements most corr					50		15		<b>CF60</b>
		regarding use of E e information, refe							ol		CTF60
, ipprication						e i rara	., pages <u>-</u>			-	VECO
$\Delta \mathbf{P}_{housing}$				$\Delta \mathbf{P}_{element}$						Pressure	<b>VF60</b>
	<sub>sing</sub> for flui	ds with sp gr = 0.86	5:					x viscosity f	actor	Drop Information	LW60
	EI.	ow (L/min)		El. ∆P facto		1N	32 (St):		1NN	Based on	KF30
12	(25)	(50)	(75)	N3		1.10	NN3		.77	Flow Rate and Viscosity	
10			(0.75)	N10 N25		.17 .10	NN10 NN25		.13 .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 NZ10/NA		.71 .57	NNZ5/N NNZ10/		.46 .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 Sizing of el		/ 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}} = $ Exercise:		-					NMF30
				Determine NF301NZ2				) for I4 cSt) fluid			RMF60
				Solution:							
				$\Delta P_{housing}$ $\Delta P_{element}$	= 15 :	psi [.5 x .36 x	0 bar] : (200÷150	) = 7.2 psi			Cartridge Elements
				٨D	-			4÷32) = .51	bar]		HS60
				$\Delta P_{total}$	or		= 14.2 psi = 1.01 ba	rl			MHS60
					= [.50	וכ. די	– 1.01 Dd	1			
											KFH50

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

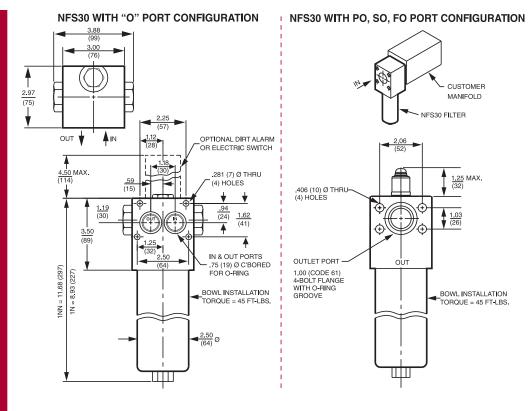


#### 48 SCHROEDER INDUSTRIES

# 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 <u>75 L/min</u> 3000 psi 210 bar	NF30 NFS30 YF30 CFX30 PLD DF40 CF40 LC50 RF550 RF60 CF60
Model No. of filter in photograp	h is NFS301NZ3OD5.	•	CTF60
	stre.	Applications	VF60
			LW60
INDUSTRIAL AUTOMOTIVE	MACHINE		KF30
MANUFACTURING	5 TOOL		
	ut it.		<b>TF50</b>
			KF50
STEEL PULP & PAPER	AGRICULTURE MOBILE		KC50
MAKING	VEHICLES		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: Temp. Range:	2400 psi (165 bar), per NFPA T2.6.1 -20°F to 225°F (-29°C to 107°C)		
Bypass Setting:	Cracking: 40 psi (2.8 bar)		Cartridge Elements
Porting Head:	Full Flow: 85 psi (5.9 bar) Aluminum		HS60
Element Case:	Aluminum		MHS60
Weight of NFS30-1N: Weight of NFS30-1NN:	3.6 lbs. (1.6 kg) 4.3 lbs. (2.0 kg)		
Element Change Clearance:	4.50" (115 mm)		KFH50

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



Metric dimensions in ( ).

Element Performance Information		4	tration Ratio Per 572/NFPA T3.10.8 article counter (APC) cal	Filtration Ratio per ISO 16889 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 3000 psid (210 bar) for hi	
		Flow Direction:	Outside In	
		Element Nominal Dimensions:	N:N 1.75" (45 mm) O.D 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 Part No.		element selections are predicated on the use of 150 SUS (32 cSt) Detroleum based fluid and a 40 psi (2.8 bar) bypass valve.					Element 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 (210 bar)	_	NZ3 & NNZ3		1NZ3			1NNZ3			LC50
	Z- 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 75		<b>RF60</b>
Shown abo	ve are the	(L/min) ( elements most com	) Imonly used in th	2 <sup>5</sup> nis housing.		50		/5		<b>CF60</b>
		regarding use of E 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) (50)	(75)	El. $\Delta P$ factors	s @ 150 SUS ( <b>1N</b>	′32 cSt).	:	1NN	Information Based on	KF30
16 14		(30)	(1.00)	N3 N10	1.10	NN3		.77 .13	Flow Rate and Viscosity	<b>TF50</b>
12 10		AND CROR	(0.75)	N25 NZ1	.10 1.43	NN2 NN2		.07 1.23		KF50
P psi		PO: 2 FO PORTING	(Dar)	NZ3/NAS3 NZ5/NAS5	.92 .71		Z3/NNAS3 Z5/NNAS5	.56 .46		KC50
4		FOR	(0.25)	NZ10/NAS <sup>2</sup> NZ25	<b>10</b> .57 .36	NN2 NN2	Z10/NNAS10 Z25	.35 .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: $\Delta P_{housing}$ $\Delta P_{element}$	= 3.0 psi [.: = 10 x .35 > or	-	150) = 4.7 psi			Cartridge Elements
$= [38 \times (.35 \div 54.9) \times (44 \div 32) = .33 \text{ bar}]$ $\Delta P_{\text{total}} = 3.0 + 4.7 = 7.7 \text{ psi}$								HS60		
					or = [.25 + .33	8 = .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 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 Series	Number & Size of 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: requires ZX			-Media <sup>®</sup> (high collapse center	tube)	
	nigh collapse elements)		M = Media (reusab	le metal mesh) N size only		
					BOX 7	
		BOX 4	BOX 5 Seal	BOX 6		
		Micron Rating	Material	Porting	Options	
		on (Z, ZX media) on (AS,E, Z, ZX media)	Omit = Buna N V = Viton <sup>®</sup>	SO = SAE-12 PO = $\frac{3}{4}$ " NPTF	Omit = None X = Blocke	
		on (AS,E, Z, ZX media) on (AS, Z, ZX media)	V = Viton <sup>®</sup> W = Buna N	$PO = \frac{3}{4}$ " NPTF FO = 1" SAE 4-bolt	bypass	
1		ron (AS,E,M, Z, ZX media)		flange Code 61	(N/A 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 D = Pointer					
	Visual	D5 = Visual pop-up				
	'isual with Thermal Lockout	D8 = Visual w/ thermal lockout				
			in. 18 gauge 4-conducto	r cable		
		MS5LC = Low current M: MS10 = Electrical w/ DI	55 N connector (male end or	llv)		
		MS10LC = Low current MS	S10			
	Electrical	MS11 = Electrical w/ 12 MS12 = Electrical w/ 5 p	tt. 4-conductor wire oin Brad Harrison connecto	or (male end only)		
		MS12LC = Low current M				
		MS16 = Electrical W/We MS16LC = Low current M:	eather-packed sealed conr S16	lector		
eplacement element		MS17LC = Electrical w/ 4 µ MS5T = MS5 (see above		nnector		
entical to contents f Boxes 2, 3, 4 and 5.		MS5LCT = Low current M				
media (cellulose)	Electrical	MS10T = MS10 (see abo MS10LCT = Low current M:				
ements are only vailable with Buna	with Thermal	MS10LCT = LOW current MMS12T = MS12 (see abo				
seals For options V	Lockout	MS12LCT = Low current M2				
arts are anodized.		MS16T = MS16 (see abo MS16LCT = Low current M				
iton <sup>®</sup> is a registered ademark of DuPont		MS17LCT = Low current M	S17T			
	Electrical Visual		readed connector & light in Brad Harrison connector	& light (male end)		
ciudeu, lastering	Electrical	MS13DCT = MS13 (see abo	ve), direct current, w/ the			
ardware not included.	'isual with Thermal	MS13DCLCT = Low current M MS14DCT = MS14 (see abo		rmal lockout		
	Lockout	MS14DCLCT = Low current M				
D only						

Box 5.

Box 6.

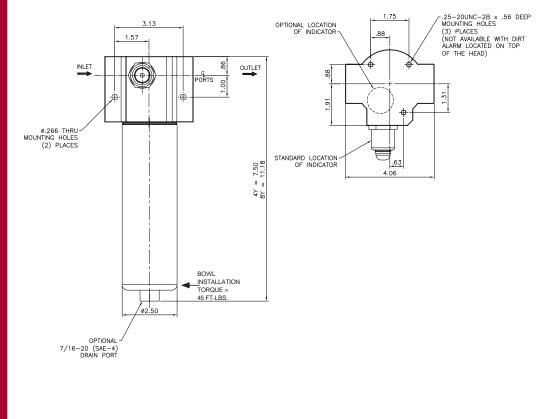
Box 8.

52 SCHROEDER INDUSTRIES

# Top-Ported Pressure Filter **YF30**

	<ul> <li>Features and Benefits</li> <li>Top-ported pressure filter</li> <li>All aluminum assembly</li> <li>Meets HF2 automotive standard</li> <li>Offered in straight thread porting</li> <li>Optional drain plug in bowl for easy servicing</li> <li>Available with non-bypass option</li> </ul>	25 gpm <u>100 L/min</u> 3000 psi 210 bar	NF30 NF530 YF30 CFX30 PLD DF40 CF40 RF40 RF50 RF60 CF60
Model No. of filter in photograph is Y	7F308YZ10SD5.	•	CTF60
		Applications	
			VF60
	MACHINE POWER CONSTRUCTION		LW60
INDUSTRIAL AUTOMOTIVE MANUFACTURING	TOOL GENERATION		KF30
			<b>TF50</b>
			KF50
STEEL PULP & PAPER	AGRICULTURE MOBILE WASTE WATER		KC50
MAKING	VEHICLES TREATMENT		MKF50
			KC65
		NC	)F30-05
		inc.	
			NOF50
Flow Rating:	Up to 25 gpm (100 L/min) for 150 SUS (32 cSt) fluids	FC Filter	<b>)F60-03</b>
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: Temp. Range:	1800 psi (124 bar), per NFPA T2.6.1-2005 -20°F to 225°F (-29°C to 107°C)		which
Bypass Setting:	Cracking: 50 psi (3.4 bar)		artridge ements
Porting Head:	Non-bypassing model has a blocked bypass. Aluminum		HS60
Element Case:	Aluminum		
Weight of YF30-4Y: Weight of YF30-8Y:	3.75 lbs. (1.70 kg) 4.25 lbs. (1.93 kg)		MHS60
Element Change Clearance:	4.50" (115 mm)		KFH50
	SCHROEDER INDUSTRIES	53	

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



Metric dimensions in ( ).

Element Performance			io Per ISO 4572/N rticle counter (APC) cal	Filtration Ratio per ISO 16889 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

ling 🛛	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

#### 54 SCHROEDER INDUSTRIES

# Top-Ported Pressure Filter **YF30**

Р	2				Schroeder Media					NF3
			All E media (cellulose)		l <sup>®</sup> (synthetic)				Compatibility	NFS3
	-		All Z-Media <sup>®</sup> (syntheti 10 and 25 μ Z-Media <sup>®</sup>							YF3
			3, 5, 10 and 25 μ Z-Media							
	v		5, 5, 10 απα 25 μ 2 π	25 μ Z-Media* (synthetic)						CFX3
										PLI
Pressure	E Series	lement 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 Selection	DF4		
Tressure	Jenes	4YZ1/8YZ1	4YZ1		8YZ1		ee DF40 or	CF40	Based on	CF4
То		4YZ3/8YZ3	4YZ3		8YZ3		See DF40	or CF40	Flow Rate	DE4
3000 psi	Z- Media®	4YZ5/8YZ5		4YZ5		8YZ5				PF4
(210 bar)	Wiedła	4YZ10/8YZ10		4YZ10			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 fer to Fluid Compati	ater Content	, Invert Emulsi esistant Fluids	on and N	Nater Glyco 21 and 22	I		CF6
						pages				CTF6
Phousing				$\Delta P_{element}$					Pressure Drop	VF6
F30 ∆P <sub>hous</sub>	<sub>sing</sub> for fluid	s with sp gr = 0.86			low x element s @ 150 SUS (3		x viscosity fa	actor	Information Based on	LW6
10	Fl (25)	ow (L/min) (50) (75)		4YZ1	2.68		8YZ1	1.38	Flow Rate and Viscosity	KF3
16			(1.0)	4YZ3	2.13				and viscosity	
					2.15		8YZ3	1.10		
12				4YZ5	1.44		8YZ3 8YZ5	0.74		TF5
				4YZ10	1.44 0.74		8YZ5 8YZ10	0.74 0.38		
.isd 8 d			(0.75) () (0.75) () (0.50) (-)	4YZ10 4YZ25	1.44 0.74 0.43		8YZ5 8YZ10 8YZ25	0.74 0.38 0.22		
			(0.75) (Leg (0.50) d	4YZ10 4YZ25 4YZX5	1.44 0.74 0.43 1.65		8YZ5 8YZ10 8YZ25 8YZX5	0.74 0.38 0.22 0.92		KF5
10 10 8 4 7 6			(0.75) (Lag) (0.50) d	4YZ10 4YZ25	1.44 0.74 0.43		8YZ5 8YZ10 8YZ25	0.74 0.38 0.22		TF5 KF5 KC5 MKF5
10 8 6 6	5 10		(0.75) (prod (0.50) d√ (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in	1.44 0.74 0.43 1.65	& L/min,	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10	0.74 0.38 0.22 0.92 0.63		KF5 KC5 MKF5
isd a a a b c a b c c c c c c c c c c		0 15 20 Flow gpm	(0.75) (req) (0.50) d⊲ (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in by 54.9.	1.44 0.74 0.43 1.65 1.15		8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abov	0.74 0.38 0.22 0.92 0.63 re factor		KF5 KC5 MKF5 KC6
$rac{10}{a}$ $rac$	cific gravity	0 15 20 Flow gpm	(0.75) (reg) (0.50) d√ (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in by 54.9. Viscosity fac	1.44 0.74 0.43 1.65 1.15 n units of bars	scosity b	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abov y 150 SUS (3	0.74 0.38 0.22 0.92 0.63 re factor 22 cSt).		KF5 KC5 MKF5
$rac{10}{d}$ $rac$	cific gravity	0 15 20 Flow gpm	(0.75) (req) (0.50) d⊲ (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in by 54.9. Viscosity fac	1.44 0.74 0.43 1.65 1.15 n units of bars	scosity b	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abov y 150 SUS (3	0.74 0.38 0.22 0.92 0.63 re factor 22 cSt).		KF5 KC5 MKF5 KC6
rightarrow 10 rightarrow 10 righ	cific gravity	0 15 20 Flow gpm	(0.75) (reg) (0.50) A (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in by 54.9. Viscosity fac	1.44 0.74 0.43 1.65 1.15 n units of bars	scosity b ement Se	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abov y 150 SUS (3	0.74 0.38 0.22 0.92 0.63 re factor 22 cSt).		KF5 KC5 MKF5 KC6 NOF30-0
$rac{10}{4}$ $rac$	cific gravity	0 15 20 Flow gpm	(0.75) (0.50) a (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in by 54.9. Viscosity factor mation prov $\Delta P_{filter} = \Delta$ Exercise:	1.44 0.74 0.43 1.65 1.15 n units of bars <i>ctor:</i> Divide vi ided in the Ele Phousing + ΔP	scosity b ement Se element	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abox y 150 SUS (3 election cha	0.74 0.38 0.22 0.92 0.63 re factor 22 cSt).		KF5 KC5 MKF5 KC6 NOF30-0 NOF5 F0F60-0
$rac{10}{a}$ $rac{8}{6}$ $rac{4}{2}$ $rac{10}{0}$ $rac{10}{a}$ $rac{1$	cific gravity	0 15 20 Flow gpm	(0.75) (0.50) a (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in by 54.9. Viscosity factor mation prov $\Delta P_{filter} = \Delta$ Exercise: Determine $\Delta$	1.44 0.74 0.43 1.65 1.15 n units of bars ctor: Divide vi	ement Se element 57 L/min	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abox y 150 SUS (3 election cha	0.74 0.38 0.22 0.92 0.63 re factor 22 cSt).		KF5 KC5 MKF5 KC6 NOF30-0 NOF5
$rac{10}{4}$	cific gravity	0 15 20 Flow gpm	(0.75) (reg) (0.50) A (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in by 54.9. Viscosity factor mation prov $\Delta P_{filter} = \Delta$ Exercise: Determine $\Delta$ YF308YZ103 Solution:	1.44 0.74 0.43 1.65 1.15 n units of bars <i>ctor:</i> Divide vi ided in the Ele Phousing + ΔΡ ΔP at 15 gpm ( 5D5 using 200	ement Se element 57 L/min SUS (44	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abox y 150 SUS (3 election cha	0.74 0.38 0.22 0.92 0.63 re factor 22 cSt).		KF5 KC5 MKF5 KC6 NOF30-0 NOF5 FOF60-0 NMF3 RMF6
rightarrow 10 rightarrow 10 righ	cific gravity	0 15 20 Flow gpm	(0.75) (reg (0.50) Q (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in by 54.9. Viscosity factor mation prov $\Delta P_{filter} = \Delta$ Exercise: Determine $\Delta$ YF308YZ105	1.44 0.74 0.43 1.65 1.15 n units of bars <i>itor:</i> Divide vi ided in the Ele Phousing + ΔP ΔP at 15 gpm ( 5D5 using 200 = 7.0 psi [.48 = 15 x .38 x (	ement Se element 57 L/min SUS (44 bar]	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abox y 150 SUS (3 election cha	0.74 0.38 0.22 0.92 0.63 re factor 22 cSt).		KF5 KC5 MKF5 KC6 NOF30-0 NOF30-0 NOF5 FOF60-0 NMF3 RMF6 Cartridg
$rac{10}{4}$	cific gravity	0 15 20 Flow gpm	(0.75) (reg) (0.50) A (0.25) 25	4YZ10 4YZ25 4YZ25 4YZX5 4YZX10 If working in by 54.9. Viscosity factor mation prov $\Delta P_{filter} = \Delta$ Exercise: Determine $\Delta$ YF308YZ109 Solution: $\Delta P_{housing}$ $\Delta P_{element}$	1.44 0.74 0.43 1.65 1.15 n units of bars ided in the Ele Phousing + $\Delta P$ AP at 15 gpm ( 5D5 using 200 = 7.0 psi [.48 = 15 x .38 x ( or = [57 x (.38÷	ement Se element 57 L/min SUS (44 bar] 200÷150 54.9) x (4	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abov y 150 SUS (3 election cha ) for cSt) fluid. )) = 7.6 psi 4÷32) = .54	0.74 0.38 0.22 0.92 0.63 re factor 2 cSt).		KF5 KC5 MKF5 KC6 NOF30-0 NOF5 FOF60-0 NMF3 RMF6 Cartridg Element
rist add = 10	cific gravity	0 15 20 Flow gpm	(0.75) (reg) (0.50) A (0.25) 25	4YZ10 4YZ25 4YZX5 4YZX10 If working in by 54.9. Viscosity factor mation prov $\Delta P_{filter} = \Delta$ Exercise: Determine Δ YF308YZ105 Solution: $\Delta P_{housing}$	1.44 0.74 0.43 1.65 1.15 in units of bars ided in the Ele Phousing + $\Delta P$ AP at 15 gpm ( 5D5 using 200 = 7.0 psi [.48 = 15 x .38 x ( or	ement Se element 57 L/min SUS (44 bar] 200÷150 54.9) x (4 14.6 psi	8YZ5 8YZ10 8YZ25 8YZX5 8YZX10 divide abox y 150 SUS (3 election cha ) for cSt) fluid. ) = 7.6 psi 4÷32) = .54	0.74 0.38 0.22 0.92 0.63 re factor 2 cSt).		KF5 KC5 MKF5 KC6 NOF30-0 NOF5 FOF60-0 NMF3

# YF30 Top-Ported Pressure Filter

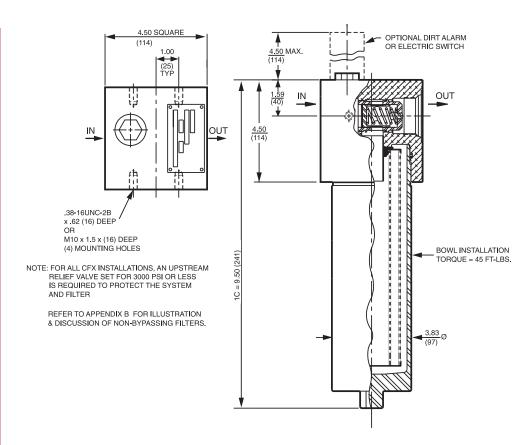
Filter			for a Schroeder YF30:			
Model	BOX 1 BOX 2 BOX YF30	3 BOX 4 BOX 5	BOX 6 BOX 7 BOX 8			
Number	Example: NOTE: One option p					
Selection	BOX 1 BOX 2 BOX		BOX 6 BOX 7 BOX 8			
	YF30 - 4 - YZ1	0 – W – S	– – DR – D5	=YF304YZ10V	VSDRD5	
	BOX 1 BOX 2		BOX 3	BOX 4	BOX 5	
	Filter Element Series (in)	Element	Size and Media	Seal 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 factory)	
	(Non-Y		ellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)			
	requires ZX	ZZS = Y size ZS µ Exc 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 Location Bowl D		Dirt Alarm <sup>®</sup> O	ptions		
	Omit = Side of Omit = N	L	Omit = None			
	filter d head DR = D	drain Visual Drain Visual	D5 = Visual pop-up			
	T = Top of	with	D8 = Visual w/ thern			
	filter head	Thermal Lockout				
	nead	LOCKOUT	MS5 = Electrical w/ 12 MS5LC = Low current M		ductor cable	
			MS10 = Electrical w/ DI (male end only)			
			MS10LC = Low current M			
		Electrical		<ul> <li>Electrical w/ 12 ft. 4-conductor wire</li> <li>Electrical w/ 5 pin Brad Harrison connector</li> <li>(male end only)</li> </ul>		
			MS12 = (male end only	)	Intector	
			MS12LC = Low current M			
			MS16 = Electrical w/ we 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 MS10LCT = Low current M		ut	
NOTES:		with	MS12T = MS12 (see abo		out	
		Thermal Lockout	MS12LCT = Low current M	S12T		
Box 2. Replacement element 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 MS13 = Supplied w/ th		light	
Box 4. For options V and W, all aluminum parts are		Electrical Visual	$MS14 = \frac{\text{Supplied W/ 11}}{(\text{male end})}$			
anodized. Viton <sup>®</sup> is a registered trademark of DuPont Dow Elastomers.		Electrical	MS13DCT – MS13 (see above), direct current,			
Box 8. Standard indicator		Visual with	MS13DCLCT = Low current M	S13DCT		
setting for non- bypassing model		Thermal	MS14DCT = MS14 (see abo w/ thermal lock	ve), direct current, cout		
is 50 psi unless otherwise specified.		Lockout	MS14DCLCT = Low current M	S14DCT		

# Non-Bypassing Pressure Filter **CFX30**

	<ul> <li><b>Features and Benefits</b></li> <li>1 op-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 30 gpm 115 L/min 3000 psi 210 bar CFX30 PLD DF40 CF40 PF40 LC50 RF550 RF60 CF60
	WACHINE       ADBILE         BORNE       ADBILE	CTF60 Applications VF60 LW60 KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03
Flow Rating: Max. Operating Pressure: Min. Yield Pressure: Rated Fatigue Pressure: Temp. Range: Bypass Setting: Porting Head: Element Case: Weight of CFX30-1CC: Element Change Clearance:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids 3000 psi (210 bar) 12,000 psi (828 bar), per NFPA T2.6.1 1800 psi (125 bar), per NFPA T2.6.1-2005 -20°F to 225°F (-29°C to 107°C) Non-Bypassing Aluminum Steel 19.5 lbs. (8.9 kg) 4.00" (100 mm)	NMF30 Filter Housing Specifications Cartridge Elements HS60 MHS60 KFH50



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



Metric dimensions in ( ).

Element Performance Information	e 4572/NFPA T3.10.8.8					on Ratio D 16889 ated 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 Dutside In 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	tic)	Compatibility N	FS30
ŀ	High Wate	r Content	All Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic)			
	Invert l	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 Media	CC10	1CC10			PF40
	Wiedła	CC25	1CC25			LC50
To 3000 psi		CCZ1	1CCZ1	See CFN or KF		
(210 bar)	-	CCZ3	1CCZ3		R	FS50
	Z- Media®	CCZ5	1CCZ5			
	Wiedla	CCZ10	1CCZ10			RF60
		CCZ25	1CCZ25			CF60
	Flow	gpm	0 5 10 15 20	25 30		Cruv
	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) (25) (50) (75) (100)	1CC	Based on	IFSU
	CC3 .22	Flow Rate 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 2 	CCZ5/CAS5/CCAS5 .19		
	CCZ10/CAS10/CCAS10 .10 CCZ25 .05		KC65
0 5 10 15 20 25 30 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. Viscosity factor: Divide viscosity by 150		
			NOF50
Sizing of elements should be based on element flow in		n chart above.	NOF50 DF60-03
Sizing of elements should be based on element flow in	nformation provided in the Element Selection $\Delta P_{filter} = \Delta P_{housing} + \Delta P_{element}$ The ΔP housing curve labeled "Eleme	n chart above. Fent Sizing"	
Sizing of elements should be based on element flow in	nformation provided in the Element Selection ΔP <sub>filter</sub> = ΔP <sub>housing</sub> + ΔP <sub>element</sub>	n chart above. Fent Sizing" et and e and	DF60-03
Sizing of elements should be based on element flow in	hformation provided in the Element Selection $\Delta P_{filter} = \Delta P_{housing} + \Delta P_{element}$ The ΔP housing curve labeled "Element is the pressure drop between the inle outlet areas of the filter's bypass value	n chart above. Fent Sizing" et and e and ugh lement overall	DF60-03 NMF30
Sizing of elements should be based on element flow in	hformation provided in the Element Selection $\Delta P_{filter} = \Delta P_{housing} + \Delta P_{element}$ The ΔP housing curve labeled "Element is the pressure drop between the inle outlet areas of the filter's bypass valve should be used for filter sizing. Altho "Port to Port" ΔP is not a factor in El Selection, it should be considered for	n chart above. Fent Sizing" et and e and ugh lement overall	DF60-03 NMF30 RMF60 artridge
Sizing of elements should be based on element flow in	hformation provided in the Element Selection $\Delta P_{filter} = \Delta P_{housing} + \Delta P_{element}$ The ΔP housing curve labeled "Element is the pressure drop between the inle outlet areas of the filter's bypass valve should be used for filter sizing. Altho "Port to Port" ΔP is not a factor in El Selection, it should be considered for	n chart above. Fent Sizing" et and e and ugh lement overall	DF60-03 NMF30 RMF60 artridge ements

# **CFX30** Non-Bypassing Pressure Filter

Filter	How to Build a Valid I BOX 1 BOX 2 BOX 3		mber for a Schroeder CFX30: BOX 5 BOX 6 BOX 7 BOX 8
Model 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 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 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 Thermal	D8 = Visual w/ thermal lockout
	female test ports U = Schroeder Check	Lockout	
	7/16"-20 UNF Test		MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable 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 (male end only)
			MS12LC = Low current MS12
ement element			MS16 = Electrical w/ weather-packed sealed connector
umbers are cal to contents			MS16LC = Low current MS16 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) nts are only			MS5LCT = Low current MS5T
ole with N seals.		Electrical	MS10T = MS10 (see above) w/ thermal lockout
v sedis.		with	MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout
tions H, V, W, and I aluminum parts		Thermal Lockout	MS12LCT = Low current MS12T
odized. H.5 seal		LOCKOUL	MS16T = MS16 (see above) w/ thermal lockout
ation includes llowing: EPR seals,			MS16LCT = Low current MS16T MS17LCT = Low current MS17T
ss steel wire mesh 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 ered trademark of		Electrical	MS13DCT = MS13 (see above), direct current, w/ thermal lockout
nt Dow Elastomers.		Visual with Thermal	MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout
ol® is a registered 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>Factures and Benefits</li> <li>I urable carbon steel construction</li> <li>Filter housings are designed to withstand pressure loads</li> <li>Screw-in bowd allows the filter element to be easily removed for replacement or cleaning</li> <li>Standard model supplied with drain plugs</li> <li>Handard Viton® seal on filter housing</li> <li>Filter contains an integrated equalization value</li> <li>Pressure is equalized between filters by raising the change-over lever prior to switching it to the relevant filter side</li> </ul>	380 L/min 3000 psi 205 bar	NFS30 YF30 CFX30 DF40 DF40 CF40 PF40 LC50 RF50 CF60 CF60 CF60 CF60 KF30 KF30 KF30 KF30 KF50 KC50 KC50 NKF50 NCF50
m (380 L/min) for 150 SUS (32 cSt) fluids 7 bar) 30 bar) 7 bar) 7 F (-30°C to 121°C) r) kg)	Housing Specifications	DF60-03 NMF30 RMF60 artridge lements HS60

Model No. of filter in photograph is PLD10DVZ3VF24VM.



STEEL

MAKING















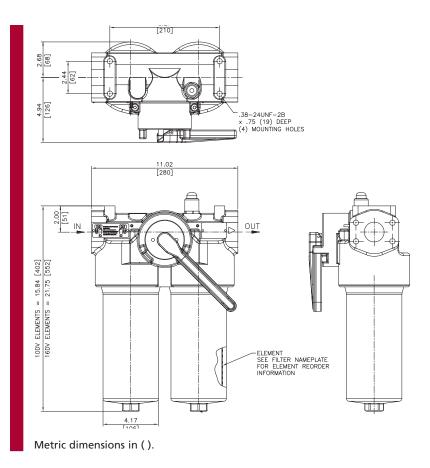
MARINE

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
Min. Yield Pressure:	10,600 psi (730 bar)	Specifications NMF30
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: Element Case:	Ductile Iron Steel	Elements
Weight of PLD-10DV: Weight of PLD-16DV:	97 lbs. (43.9 kg) 100 lbs. (45.3 kg)	HS60
Element Change Clearance:	10DV: 3.5" (89 mm) 16DV: 3.5" (89 mm)	MHS60
		KFH50

# PLD High Pressure Filter



Element Performance						per ISO 16889 ted per ISO 11171
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$
	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

Iding	Element	DHC (gm)	Element	DHC (gm)
acity	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	4.5" (370 mm) long

# High Pressure Filter **PLD**

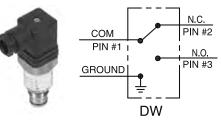
		Type Fluid	Арр	ropriate Schro	eder Media						Fluid	NF30
	Petro	leum Based Fluids		Media <sup>®</sup> (synthet							Compatibility	NFS30
		Invert Emulsions		nd 25 µ Z-Media						_		VED
		Water Glycols	3, 6,	10 and 25 µ Z-N	/ledia <sup>®</sup> (synthetio	c)						YF30
												CFX30
												PLD
		Element	Гіана	ant coloctions		d an tha	of 150 CI	16 (22 -64)			Element	<b>DF4</b> 0
ressure	Series				are predicated uid and a 102				)		Selection	CF40
		10DVZ1 & 16DVZ1		1	0DVZ1		16DVZ1	Contact F	actor	/	Based on Flow Rate	DE40
То		10DVZ3 & 16DVZ3			10DVZ3 or 16D\	VZ3		Contac				PF40
350 psi	Z- Media <sup>®</sup>	10DVZ5 & 16DVZ5			10DVZ5			16DVZ5		tact 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) e are the elements m	-	50 10 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 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 Flow Rate	TF50
	35		284) (.	2.75	10DVZ1 10DVZ3	.35 .22	16	DVZ1 DVZ3	.23 .18		Based on Flow Rate and Viscosity	TF50 KF50
	35 30 25 20			2.06 1.375	10DVZ3 10DVZ5 10DVZ10	.35 .22 .13 .11	16 16 16 16	DVZ3 DVZ5 DVZ10	.18 .10 .09		Flow Rate	
0	35       30       25       20       15       10			2 2.06	10DVZ3 10DVZ5 10DVZ10 10DVZ125	.35 .22 .13 .11 .06	16 16 16 16	DVZ3 DVZ5 DVZ10 DVZ25	.18 .10 .09 .05	or	Flow Rate	KF50 KC50
0	35       30       25       20       15       10       5       0			2.06 (Leg 1.375 €) a 0.6875	10DVZ3 10DVZ5 10DVZ10 10DVZ125 If working by 54.9.	.35 .22 .13 .11	16 16 16 16 s & L/min, c	DVZ3 DVZ5 DVZ10 DVZ25 livide above	.18 .10 .09 .05 e facto	or	Flow Rate	KF50 KC50 MKF50
0	35       30       25       20       15       10			2.06 (July 1.375 dy dy	10DVZ3 10DVZ5 10DVZ10 10DVZ125 If working by 54.9.	.35 .22 .13 .11 .06 in units of bar	16 16 16 16 s & L/min, c	DVZ3 DVZ5 DVZ10 DVZ25 livide above	.18 .10 .09 .05 e facto	pr	Flow Rate	KF50 KC50
ΔP p	35 30 25 20 15 10 5 0 0	20 40 60 Flow gpm		2.06 (Leg 1.375 €) a 0.6875	10DVZ3 10DVZ5 10DVZ10 10DVZ125 If working by 54.9.	.35 .22 .13 .11 .06 in units of bar	16 16 16 16 s & L/min, c	DVZ3 DVZ5 DVZ10 DVZ25 livide above	.18 .10 .09 .05 e facto	Dr	Flow Rate	KF50 KC50 MKF50
p gr =	35 30 25 20 15 10 5 0 0 0 0 0 0 0 0 0 0 0 0 0	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 200	10DVZ3 10DVZ5 10DVZ10 10DVZ125 If working by 54.9. <i>Viscosity fa</i>	.35 .22 .13 .11 .06 in units of bar	16 16 16 16 s & L/min, c	DVZ3 DVZ5 DVZ10 DVZ25 livide above	.18 .10 .09 .05 e facto	Dr	Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05
p gr = izing hart a	35 30 25 20 15 10 5 0 0 0 5 0 0 0 15 0 0 0 15 10 0 0 15 0 0 0 15 10 0 15 10 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 200	10DVZ3 10DVZ5 10DVZ10 10DVZ125 If working by 54.9. Viscosity fa	.35 .22 .13 .11 in units of bar actor: Divide vis	16 16 16 16 s & L/min, c scosity by 150 the Elem	DVZ3 DVZ5 DVZ10 DVZ25 livide above	.18 .10 .09 .05 e facto	pr	Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05 NOF50
p gr =	35 30 25 20 15 10 5 0 0 0 5 0 0 0 15 0 0 0 15 10 0 0 15 0 0 0 15 10 0 15 10 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 200	$\frac{10DVZ3}{10DVZ5}$ $\frac{10DVZ10}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$ $\frac{10DVZ125}{10DVZ125}$	.35 .22 .13 .11 in units of bar actor: Divide vis provided in Phousing + Δ	16 16 16 s & L/min, c scosity by 15 the Elem Pelement	DVZ3 DVZ5 DVZ10 DVZ25 livide above	.18 .10 .09 .05 e facto	br	Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05
p gr = izing hart a	35 30 25 20 15 10 5 0 0 0 5 0 0 0 15 0 0 0 15 10 0 0 15 0 0 0 15 10 0 15 10 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 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 .22 .13 .11 5 .06 in units of bar actor: Divide vis provided in <b>P</b> housing + ΔI <b>LD16DVZ3F</b> AP at 75 gpm (	16 16 16 5 & L/min, c accosity by 150 the Elem Pelement 24VM	DVZ3 DVZ5 DVZ10 DVZ25 iivide above 0 SUS (32 cSt) ent Select	.18 .10 .09 .05 e facto		Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05 NOF50
p gr = izing hart a	35 30 25 20 15 10 5 0 0 0 5 0 0 0 15 0 0 0 15 10 0 0 15 0 0 0 15 10 0 15 10 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 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 .22 .13 .11 5 .06 in units of bar actor: Divide vis provided in <b>P</b> housing + ΔI <b>LD16DVZ3F</b> AP at 75 gpm (	16 16 16 5 & L/min, c accosity by 150 the Elem Pelement 24VM	DVZ3 DVZ5 DVZ10 DVZ25 iivide above 0 SUS (32 cSt) ent Select	.18 .10 .09 .05 e facto		Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03
p gr = izing hart a	35 30 25 20 15 10 5 0 0 0 5 0 0 0 15 0 0 0 15 10 0 0 15 0 0 0 15 10 0 15 10 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 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 .22 .13 .11 5 .06 in units of bar actor: Divide vis provided in <b>P</b> housing + ΔI <b>LD16DVZ3F</b> P at 75 gpm ( . cSt) fluid.	16 16 16 5 & L/min, c 5 cosity by 15 the Elem Pelement 24 VM (284 L/min)	DVZ3 DVZ5 DVZ10 DVZ25 iivide above 0 SUS (32 cSt) ent Select	.18 .10 .09 .05 e facto		Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03 NMF30 RMF60
p gr = izing hart a	35 30 25 20 15 10 5 0 0 0 5 0 0 0 15 0 0 0 15 10 0 0 15 0 0 0 15 10 0 15 10 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 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 .22 .13 .11 5 .06 in units of bar actor: Divide vis provided in <b>P</b> housing + Δi <b>LD16DVZ3F</b> P at 75 gpm ( . cSt) fluid. = 20 psi [1. = 75 x .18 >	16 16 16 16 s & L/min, c scosity by 150 the Elem Pelement 24VM (284 L/min) 38 bar]	DVZ3 DVZ5 DVZ10 DVZ25 iivide above 0 SUS (32 cSt) ent Select	.18 .10 .09 .05 e facto		Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03 NMF30 RMF60 Cartridge
p gr = izing hart a	35 30 25 20 15 10 5 0 0 0 5 0 0 0 15 0 0 0 15 10 0 0 15 0 0 0 15 10 0 15 10 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 200	$\frac{10\text{DVZ3}}{10\text{DVZ5}}$ $\frac{10\text{DVZ10}}{10\text{DVZ125}}$ If working by 54.9. <i>Viscosity fa</i> <i>v</i> information $\frac{\Delta P_{\text{filter}} = \Delta}{\text{Exercise: PI}}$ Determine $\Delta$ 200 SUS (44 <u>Solution:</u> $\Delta P_{\text{housing}}$	.35 .22 .13 .11 5 .06 in units of bar actor: Divide vis provided in <b>P</b> housing + ΔI <b>LD16DVZ3F</b> .P at 75 gpm ( . cSt) fluid.	16 16 16 16 s & L/min, c cosity by 15 the Elem Pelement 24VM (284 L/min) (284 L/min) (284 L/min) (200÷150 8÷54.9) x (	DVZ3 DVZ5 DVZ10 DVZ25 livide above 0 SUS (32 cSt) ent Select	.18 .10 .09 .05 e facto ).	ıg	Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03 NMF30 RMF60
p gr =	35 30 25 20 15 10 5 0 0 0 5 0 0 0 15 0 0 0 15 10 0 0 15 0 0 0 15 10 0 15 10 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 200	$\frac{10\text{DVZ3}}{10\text{DVZ5}}$ $\frac{10\text{DVZ10}}{10\text{DVZ125}}$ If working by 54.9. <i>Viscosity fa</i> <i>v</i> information $\frac{\Delta P_{\text{filter}} = \Delta}{\text{Exercise: PI}}$ Determine $\Delta$ 200 SUS (44 <b>Solution:</b> $\Delta P_{\text{housing}}$ $\Delta P_{\text{element}}$	.35 .22 .13 .11 5 .06 in units of bar actor: Divide vis provided in <b>Phousing +</b> $\Delta I$ <b>LD16DVZ3F</b> P at 75 gpm ( c cSt) fluid. = 20 psi [1. = 75 x .18 > or = [284 x (.1] = 20 + 18 = or	16 16 16 16 s & L/min, c cosity by 150 the Elem Pelement 24VM (284 L/min) (284	DVZ3 DVZ5 DVZ10 DVZ25 iivide above 0 SUS (32 cSt) ent Select for 16DVZ ) = 18 psi 44÷32) = 1	.18 .10 .09 .05 e facto ).	ıg	Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03 NMF30 RMF60 Cartridge Elements
p gr =	35 30 25 20 15 10 5 0 0 0 5 0 0 0 15 0 0 0 15 10 0 0 15 0 0 15 10 0 15 10 0 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	20 40 60 Flow gpm fic gravity ments should be ba	80	2.06 1.375 9 4 0.6875 200	$\frac{10\text{DVZ3}}{10\text{DVZ5}}$ $\frac{10\text{DVZ10}}{10\text{DVZ125}}$ If working by 54.9. <i>Viscosity fa</i> <i>v</i> information $\frac{\Delta P_{\text{filter}} = \Delta}{\text{Exercise: PI}}$ Determine $\Delta$ 200 SUS (44 <b>Solution:</b> $\Delta P_{\text{housing}}$ $\Delta P_{\text{element}}$	.35 .22 .13 .11 5 .06 in units of bar actor: Divide vis provided in <b>Phousing +</b> $\Delta I$ <b>LD16DVZ3F</b> P at 75 gpm ( . cSt) fluid. = 20 psi [1. = 75 x .18 > or = [284 x (.1 = 20 + 18 =	16 16 16 16 s & L/min, c cosity by 150 the Elem Pelement 24VM (284 L/min) (284	DVZ3 DVZ5 DVZ10 DVZ25 iivide above 0 SUS (32 cSt) ent Select for 16DVZ ) = 18 psi 44÷32) = 1	.18 .10 .09 .05 e facto ).	ıg	Flow Rate	KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03 NMF30 RMF60 Cartridge Elements

### PLD High Pressure Filter

Number election BOX PLD	le: NOTE: One 1 BOX 2		DX 4 BOX 5 V - F24 -	BOX 6 VM = PLD10DVZ1VF24V	/M
BO	X 1	BOX 2		BOX 3	BOX 4
Filter	Series E	Length of lements (in)	E	ement Size and Media	Seal Materia
DI		10	DVZ1 =	DV size 1 $\mu$ synthetic media	Omit = Buna N
PL	D	16	DVZ3 =	DV size 3 µ 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			BOX 6	
	Porti	ıg		Dirt Alarm <sup>®</sup> Options	
	Portii 1½" SAE 4-bol		Vicual	Dirt Alarm <sup>®</sup> Options Omit = None	
	Porti	ıg	Visual	Dirt Alarm <sup>®</sup> Options	



VM = Manual Reset



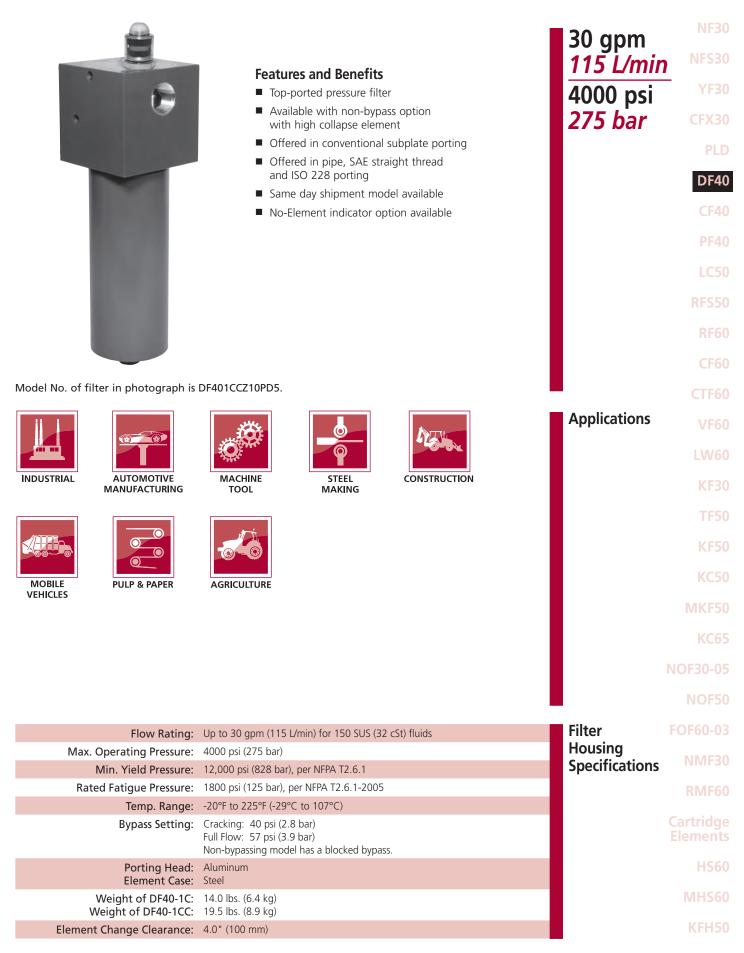
DW = AC/DC 3-wire (NO or NC)

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.

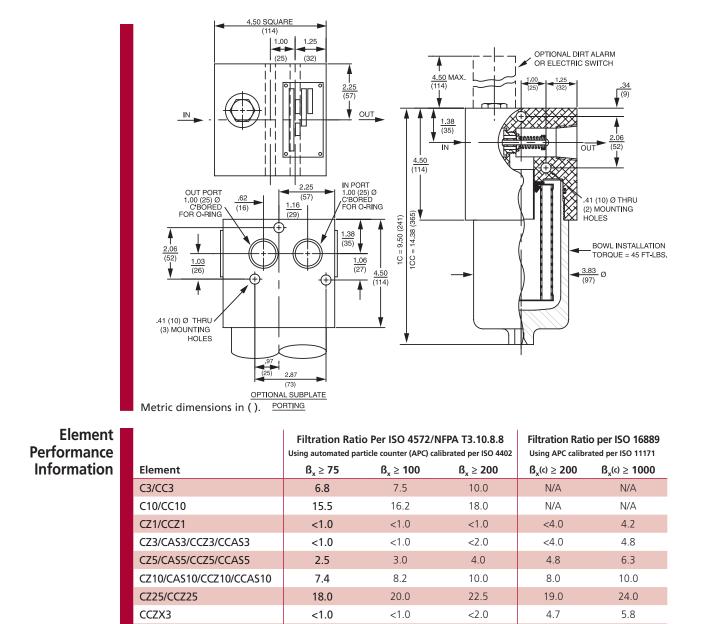
### SAME DAY SHIPMENT MODEL AVAILABLE!

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





**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

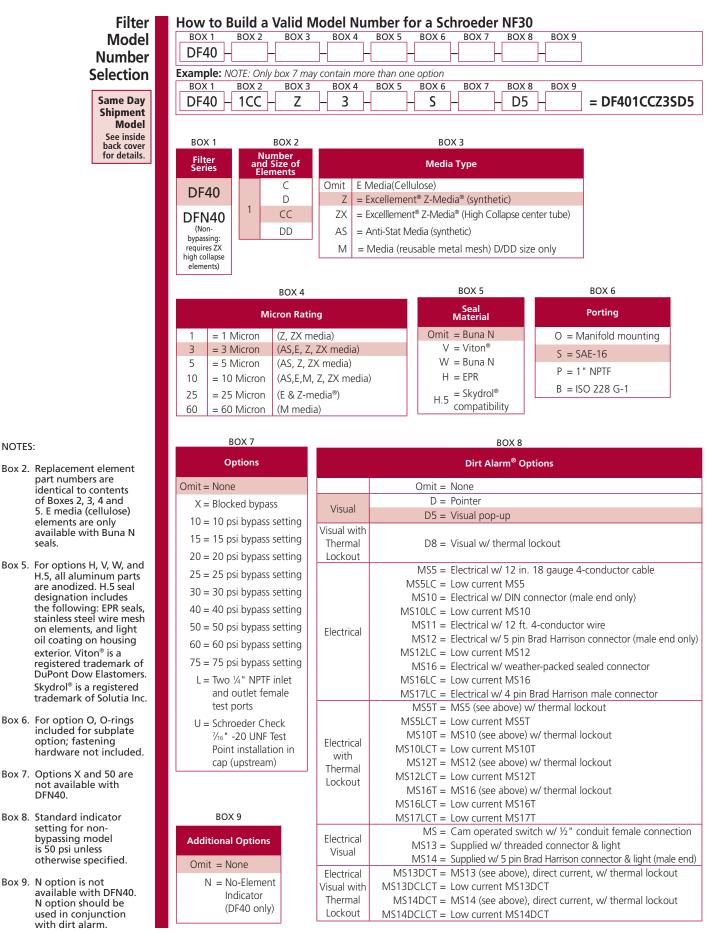
Outside In

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 Appr	opriate Schroe	der Media					Fluid	NF30
Petrole	eum Based	Fluids All E	Aedia (cellulose),	Z-Media <sup>®</sup> and ASP <sup>®</sup>	Media (syn	thetic)			Compatibility	NFS30
Hig	h Water C	ontent All Z-I	Media <sup>®</sup> and ASP <sup>®</sup>	Media (synthetic)						
	Invert Em			(synthetic), 10 μ ASP						YF30
	Water	,	·	dia <sup>®</sup> (synthetic) and						CFX30
	Phosphate			Media (synthetic) wi						
	2k	desigr		dia <sup>®</sup> (synthetic) and and stainless steel wi					Skydrol <sup>®</sup> is a registered trademark of Solutia In	
		lement	1.						Element	DF40
Pressure	Series	Part No.		ections are predic based fluid and a				cSt)	Selection	<b>CF40</b>
		C3 & CC3	periorean	1C3		1CC			Based on Flow Rate	DE 40
	E Media	C10 & CC10		1C10		10	CC10		now nate	PF40
	IVIEUIA	C25 & CC25			1C25	_				LC50
To 4000 psi		CZ1 & CCZ1	10	Z1		1CCZ1				
(275 bar)	7	CZ3 & CCZ3		1CZ3		1CC	Z3			RFS50
	Z- Media®	CZ5 & CCZ5			5 & 1CCZ5					<b>RF60</b>
		CZ10 & CCZ10			0 & 1CCZ1					
		CZ25 & CCZ25			5 & 1CCZ2	-				<b>CF60</b>
	Flow	gpm (L/min)	0 25	10 1 50	5	20 . 75	25	30 115		CTF60
shown abov	ve are the e	lements most co					100			VF60
				Water Content, In patibility: Fire Resis						LW60
∆P <sub>housing</sub>				$\Delta P_{element}$					Pressure	LVVOO
 DF40 ∆P <sub>hous</sub>	<sub>sing</sub> for fluid	s with sp gr = 0.	86:	$\Delta P_{element} = flow$	w x elemei	nt $\Delta P$ factor x	viscosity f	actor	Drop	KF30
	5			El. $\Delta P$ factors @	🖻 150 SUS	(32 cSt):			Information Based on	TF50
42	Flow (25) (50	r (L/min) ) (75) (100)		C3	<u>1C</u> .50	CC3	_	.22	Flow Rate	IFJU
12 10			- (0.75)	C10	.19	CC10		.13	and Viscosity	KF50
8				C25 CZ1	.09 .70	CC25 CCZ1		.03 .35		KCE0
o P psi	******		- (0.50) (par) D (par)	CZ3/CAS3	.50	CCZ3/CC	CAS3	.20		KC50
لم 4			= (0.25)	CZ5/CAS5	.32	CCZ5/CC		.19		MKF50
2			- (0.25)	CZ10/CAS10	.25	CCZ10/C	CAS10	.10		
0		20	30	CZ25	.14	CCZ25 CCZX3		.05 .29		KC65
Ū		w gpm	50			CCZX10		.26	N	IOF30-05
				If working in u by 54.9.	nits of bars	& L/min, divi	de above f	actor		
sp gr = speci				Viscosity facto						NOF50
	ements sho	uld be based on	element flow ir	formation provide $\Delta P_{cut} = \Delta P_{u}$	o in the E ousing + Δ		tion chart	above.	F	OF60-03
Notes				- tilter $ -$ n						
				Exercise:						NMF30
					at 20 gpm					
				Exercise: Determine △P a DF401CZ10PM Solution:	at 20 gpm					RMF60
				Exercise: Determine ΔP a DF401CZ10PM Solution: ΔP <sub>housing</sub> =	at 20 gpm IS using 20 5.0 psi [.3 20 x .25 x	0 SUS (44 cSi	t) fluid.			RMF60 Cartridge
				Exercise:Determine $\Delta P$ aDF401CZ10PMSolution: $\Delta P_{housing} =$ $\Delta P_{element} =$	at 20 gpm IS using 20 5.0 psi [.3 20 x .25 x or	0 SUS (44 cSi 5 bar] (200÷150) = ( ÷54.9) x (44÷3	t) fluid. 6.6 psi	ar]		RMF60 Cartridge Elements
				Exercise:Determine $\Delta P$ aDF401CZ10PMSolution: $\Delta P_{housing}$ $\Delta P_{element}$ = $\Delta P_{total}$	at 20 gpm IS using 20 5.0 psi [.3 20 x .25 x or [75 x (.25- 5.0 + 6.6 or	0 SUS (44 cSi 5 bar] (200÷150) = ( ÷54.9) x (44÷3	t) fluid. 6.6 psi	ar]		NMF30 RMF60 Cartridge Elements HS60 MHS60
				Exercise:Determine $\Delta P$ aDF401CZ10PMSolution: $\Delta P_{housing}$ $\Delta P_{element}$ = $\Delta P_{total}$	at 20 gpm IS using 20 5.0 psi [.3 20 x .25 x or [75 x (.25- 5.0 + 6.6 or	00 SUS (44 cSi 5 bar] (200÷150) = ( ÷54.9) x (44÷3 = 11.6 psi	t) fluid. 6.6 psi	ar]		RMF60 Cartridge Elements HS60

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



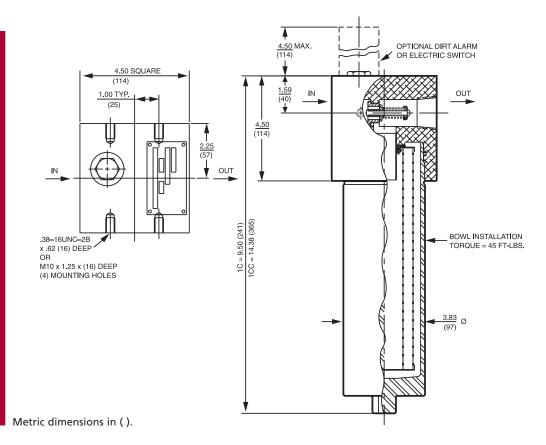
### NOTES:

- 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**

Model 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>	45 gpm 170 L/min 4000 psi 275 bar       NF30         4000 psi 275 bar       YF30         CFX30       PLD         DF40       CF40         PF40       LC50         RF550       RF60         CF60       CF60
Model No. of fliter in photograph is	CF401CC105D5.	CTF60
INDUSTRIAL		Applications
		LW60
	MACHINE STEEL TOOL MAKING	KF30
		TF50
		KF50
		КС50
MOBILE PULP & PAPER VEHICLES	AGRICULTURE	MKF50
		КС65
		NOF30-05
		NOF50
Flow Rating: Max. Operating Pressure:	Up to 45 gpm (170 L/min) for 150 SUS (32 cSt) fluids 4000 psi (275 bar)	Filter Housing FOF60-03
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1	Specifications NMF30
Rated Fatigue Pressure:	1800 psi (125 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) Full Flow: 72 psi (5.0 bar) Non-bypassing model has a blocked bypass.	Cartridge Elements
Porting Head: Element Case:	Aluminum Steel	HS60
Weight of CF40-1C: Weight of CF40-1CC:	14.0 lbs. (6.4 kg) 19.5 lbs. (8.9 kg)	MHS60
Element Change Clearance:	4.00" (100 mm) for C elements 8.75" (219 mm) for CC elements	КЕН50

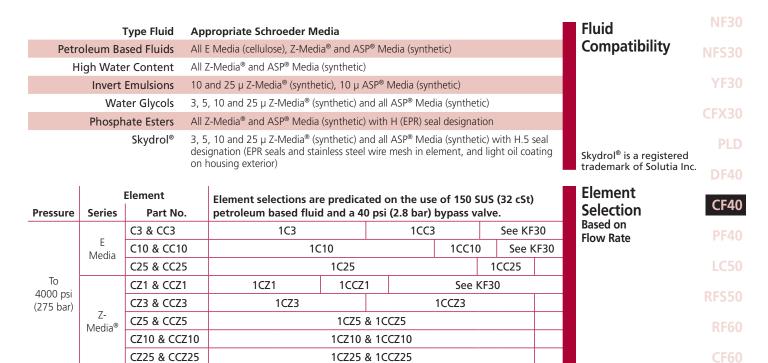




Element Performance		Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$
	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 CCZX3	18.0 <1.0	20.0 <1.0	22.5 <2.0	19.0 4.7	24.0 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*	
		150 psid (10 bar) for s 3000 psid (210 bar) fo	tandard elements r high collapse (ZX) versions	*Based on 100 psi terminal pressure	
		Flow Direction:	Outside In		
	Element Nomir	nal Dimensions:		D. x 4.75" (120 mm) long 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

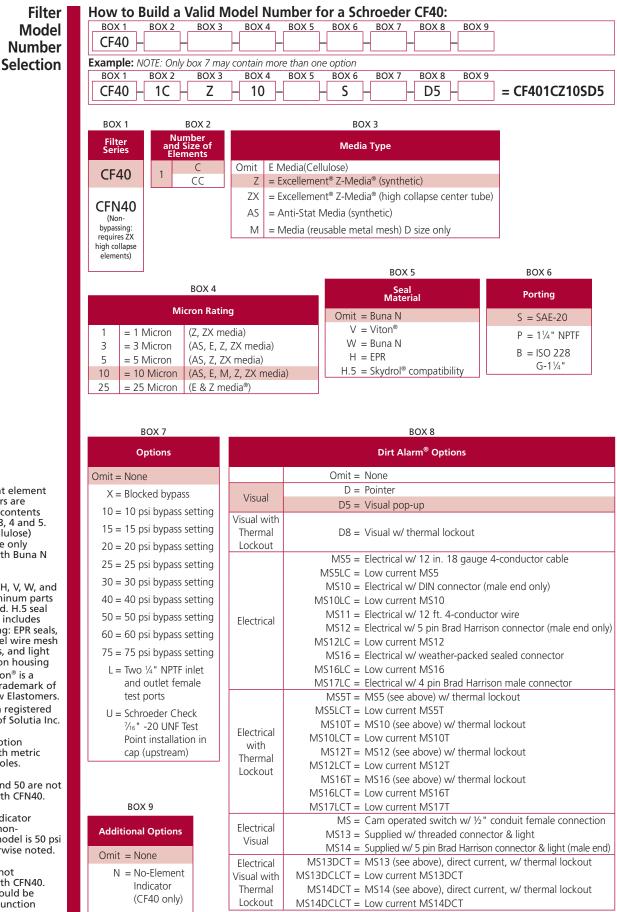
Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.

10

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:

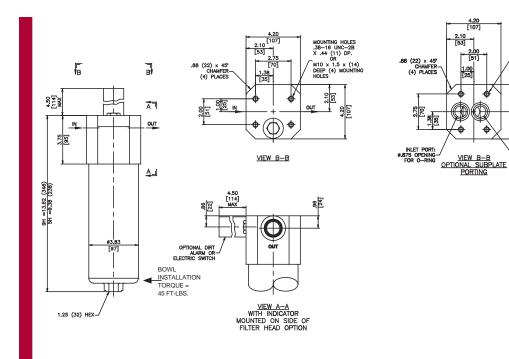
- Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. E media (cellulose) elements are only available with Buna N seals.
- Box 5. For options H, V, W, and H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel 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 <u>190 L/min</u> 4000 psi 275 bar	NF30 NFS30 YF30 CFX30 PLD DF40 CF40 PF40 LC50 RFS50
Model No. of filter in photograph is PF409H	IZ10.		RF60 CF60
		_	
		Applications	CTF60
		Applications	VF60
			LW60
	ACHINE MOBILE TOOL VEHICLES		KF30
			<b>TF50</b>
			KF50
			KC50
			MKF50
			KC65
		NO	F30-05
		-	NOF50
		FO Filter	F60-03
Flow Rating: Max. Operating Pressure:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids 4000 psi (275 bar)		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)		rtridge
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 75 psi (5.2 bar)	Ele	ements
Porting Head: Element Case:	Steel Steel		HS60
Weight of PF40-5H: Weight of PF40-9H:	21.8 lbs. (9.9 kg) 25.5 lbs. (11.6 kg)		MHS60
Element Change Clearance:	3.25" (83 mm)		KFH50
	SCHROEDER INDUSTR	IES 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 Performance		-	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402				Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
Information	Element	ß <sub>x</sub>	≥ 75 ß <sub>x</sub> ≧	≥ <b>100</b>	$\beta_x \ge 200$	ß	$_{x}(c) \ge 200$	$\beta_x(c) \ge 1000$	
	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	8.2 10.0			8.0	10.0	
	5HZX25/9HZX25	18	3.0 20	0.0	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 sid (210 bar) for high				
			Flow Direction:	Outside	e In				
	Elem	ent Non	ninal Dimensions:		5" (100 mm) O.D. x 5 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. Z1	-	I fluid and a 40 ps	i (2.8 bar)	bypass valve.		Selection Based on	<b>CF40</b>
-		Z1 Z3	5HZ1	9HZ1 5HZ3		9HZ3		Flow Rate	
To 4000 psi	Z- 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 Based on	100
					5H	9H		Flow Rate	LW60
		w (L/min) (100)  (1	50) (190)	Z1	2.01	1.07		and Viscosity	KF30
14				Z3 Z5	0.77 0.65	0.41 0.35			KI JU
12			(0.75)	Z3 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 of bars & L/min, di	vide elecue		MKF50
0	10 20 F	30 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 izing of eld			ed on element flow	information provid	led in the	Flement Selectio	n chart above.		
							in churc above.		NOF50
									FOF60-03
Notes				ΔP <sub>filter</sub> = 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 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 BOX 4 BOX 5 BOX		
	PF40 -	5 – HZ3 -	- <u> </u>	– D5 – S –	= PF405HZ3SD5S
					]
	BOX 1 Filter	BOX 2 Element		BOX 3	
	Series	Length (in)		Element Part Number	
	PF40	5		ment® Z-Media® (synthetic) ment® Z-Media® (synthetic)	
	PFN40			ment <sup>®</sup> Z-Media <sup>®</sup> (synthetic)	
	bypassing: requires ZX			lement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)	
	high collapse elements)			lement® Z-Media® (synthetic) •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 Mounting	Omit = None	
	H = EP	R	(Contact	L = Two <sup>1</sup> / <sub>4</sub> " NPTF inlet	& outlet female
		. @	factory)	test ports 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 D5 = V	one isual pop-up		Omit = Top mounted
	Visual with		isual w/ thermal lockout		S = Side mounted
	Thermal Lockout				BOX 9
	LOCKOUT		lectrical w/ 12 in. 18 gauge	4-conductor cable	Bowl Drain Options
			ow current MS5 lectrical w/ DIN connector (r	male end only)	
		MS10LC = Lo	ow current MS10		Omit = None DR = Drain 7/16"-20
	Electrical		lectrical w/ 12 ft. 4-conduct lectrical w/ 5 pin Brad Harrise	or wire on connector (male end only)	
ant alamant		MS12LC = Lo	ow current MS12		
ent element pers are a			lectrical w/ weather-packed 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 zed. H.5 seal	Electrical with		ow current MS10T		
on includes /ing: EPR seals,	Thermal		1S12 (see above) w/ therma ow current MS12T	l lockout	
teel wire mesh	Lockout		1S16 (see above) w/ therma	l lockout	
nts, and light g on housing			ow current MS16T		
/iton <sup>®</sup> is a	Cleaterian!		ow current MS17T	tor 9 light	
l trademark of ow Elastomers.	Electrical Visual		upplied w/ threaded connec 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 vith metric	Thermal 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

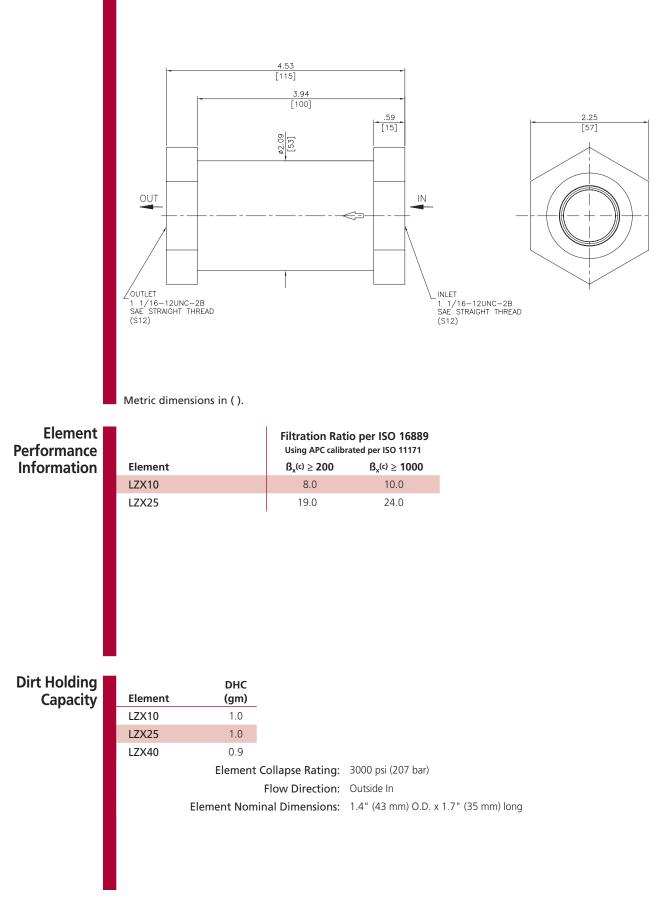
In-Line Filter LC50



With the second secon	<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 <u>35 L/min</u> 5000 psi 350 bar	NF30 NF530 YF30 CFX30 PLD DF40 CF40 PF40 LC50 RF550 RF550
DEFENSE FORESTRY CHI	RUCTION $iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii$	Applications	CF60 CTF60 VF60 LW60 KF30 KF50 KC50 MKF50 KC65
Flow Rating: Max. Operating Pressure: Min. Yield Pressure: Rated Fatigue Pressure: Temp. Range: Body and Cap: Element Case: Weight of LC50: Element Change Clearance:	Up to 9 gpm (35 L/min) for 150 SUS (32 cSt) fluids 5000 psi (350 bar) 15,000 psi (1050 bar) 5000 psi (1050 bar), per NFPA T2.6.1-R1-2005 -20°F to 225°F (-29°C to 107°C) Steel Steel 3.63 lbs. (1.65 kg) 3.25" (83 mm)	Filter Housing Specifications	NOF30-05 NOF50 FOF60-03 NMF30 RMF60 Cartridge Elements HS60 MHS60 KFH50



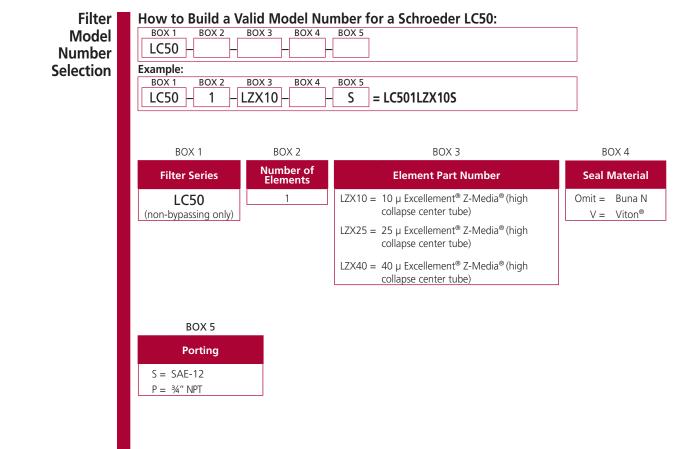
#### LC50 In-Line Filter



# In-Line Filter LC50

		Type Fluid	Appropriate Schroe	der Media		Fluid	NF30
		ased Fluids	All Z-Media <sup>®</sup> (synthetic			Compatibility	NFS30
	-	er Content Emulsions	All Z-Media <sup>®</sup> (synthetic				YF30
		ater Glycols	10 and 25 μ Z-Media <sup>®</sup> 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 Flow Rate	<b>CF40</b>
5000 psi (350 bar)	Media®	Z25		LZ>		_	<b>PF40</b>
()		Z40 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
	<b>Phousing</b> C50 ΔP <sub>housing</sub> for fluids with sp gr = 0.86:		$\Delta P_{element} = 1$	Drop	<b>VF60</b>		
	5	Flow (L/min		El. ∆P facto	rs @ 150 SUS (32 cSt):	Information Based on	
8			(30) (35) (40)	(.50) <b>LZX10</b> 5.0 (.45) <b>LZX25</b> 3.0			LW60
7	<u>-+-++</u>		(.45)				KF30
- is 5	- h - h d - <del>h</del> - h d		(.35) L (.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 	4 6 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: Determine	∆P at 5 gpm (19 L/min) for		NMF30
					0S using 200 SUS (44 cSt) fluid.		RMF60
				Solution:	_		
				∆P <sub>housing</sub> ∆P <sub>element</sub>	= 3.5 psi [.24 bar] = 5 x 5.0 x (200÷150) = 33.3 psi		Cartridge Elements
					or = [19 x (5÷54.9) x (44÷32) = 2.38 bar]		
				$\Delta P_{total}$	= 3.5 + 33.3 = 36.8 psi		HS60
					or = [.24 + 2.38 = 2.62 bar]		MHS60
							KFH50





NOTES:

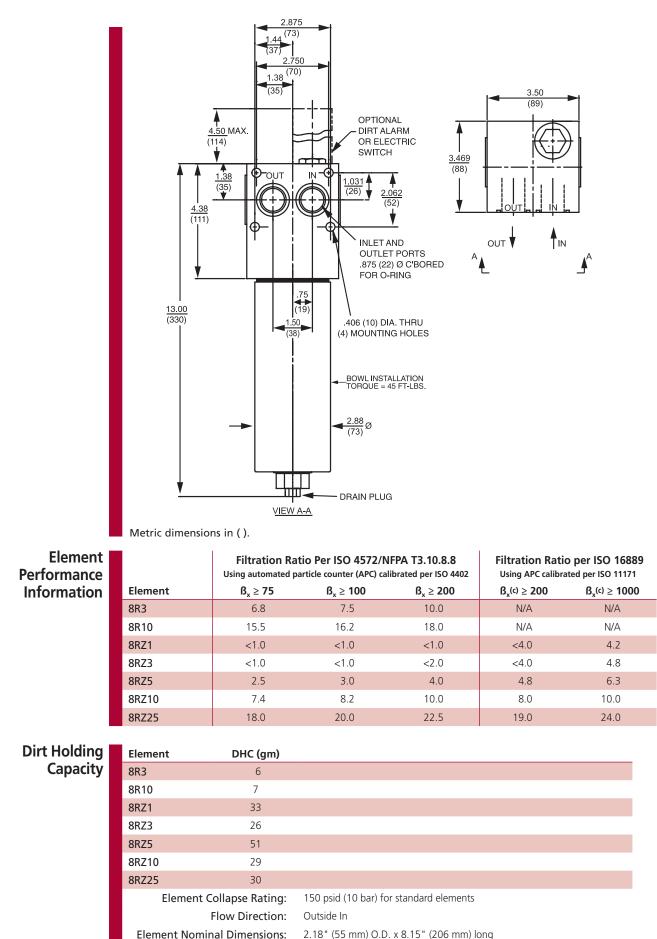
Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

# Manifold Mounted Pressure Filter RFS50

	<ul> <li>Features and Benefits</li> <li>Manifold mounted high pressure filter</li> <li>Offered in square head conventional subplate porting</li> <li>Direct mounting to customer's manifold</li> <li>Standard drain plug in bowl for easy servicing</li> <li>Various dirt alarm options available</li> </ul>	30 gpm <u>115 L/min</u> 5000 psi 345 bar	NF30 NF530 YF30 CFX30 PLD DF40 CF40 PF40 LC50 RF550 RF60 CF60
Model No. of filter in photograph is RFS5	08R10O.		
			CTF60
		Applications	<b>VF60</b>
<u>0</u> *0			LW60
MINING AGRICULTURE TECHNOLOGY	STEEL MOBILE MAKING VEHICLES		KF30
			<b>TF50</b>
			KF50
			KC50
			MKF50
			KC65
		Ν	IOF30-05
			NOF50
		_	FOF60-03
Flow Rating: Max. Operating Pressure:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids	Filter Housing	NMF30
	15,500 psi (1070 bar), per NFPA T2.6.1	Specifications	RMF60
Rated Fatigue Pressure:			Contridae
Temp. Range:	-20°F to 225°F (-29°C to 107°C)		Cartridge Elements
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 56 psi (3.9 bar)		
Porting Head:	Steel		HS60
Element Case: Weight of RFS50-8R:			MHS60
Element Change Clearance:			KFH50
		_	



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



82

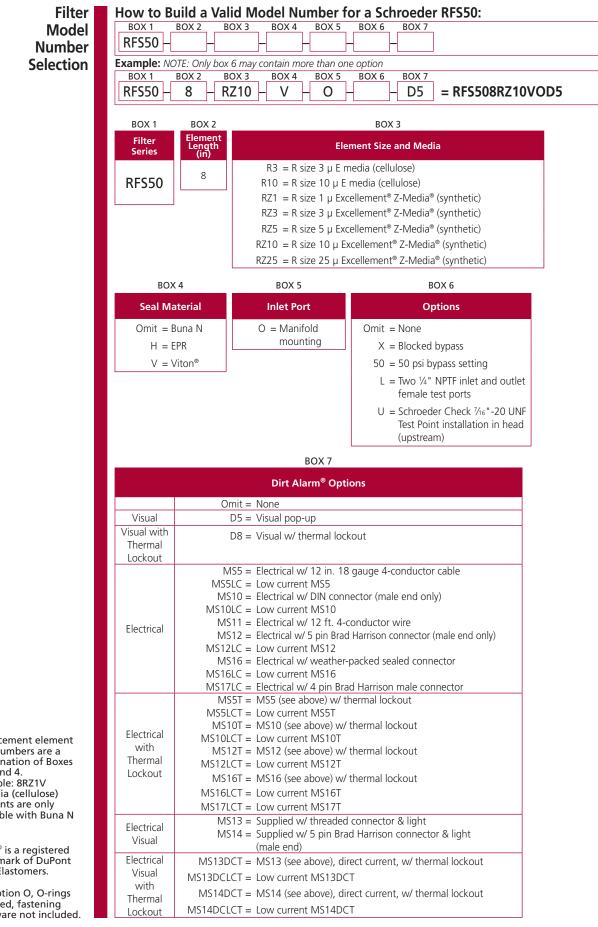
SCHROEDER INDUSTRIES

### 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 Skydrol®	All Z-Media <sup>®</sup> (synthetic 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 petroleum based flu				32 cSt)	Selection	CF40
	E	8R3		8R3				Based on Flow Rate	Cr io
	Media	8R10		8R10					<b>PF40</b>
То		8RZ1	8RZ1						LC50
5000 psi (345 bar)	Z-	8RZ3	8R2			1			
	Media®	8RZ5		8RZ5					RFS50
		8RZ10 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	elements mo	st commonly used in th	is housing.					CTF60
Note: Conta Application:	ct factory r s. For more	egarding us information	e of E Media in High W n, refer to Fluid Compan	′ater Content, Ir tibility: Fire Resi	nvert Emulsio stant Fluids, j	n and Water pages 21 and	Glycol 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 Flow Rate	<b>TF50</b>
14			(1.0)	8R10	.30			and Viscosity	KF50
12 10			(0.75)	8RZ1	.87				KI JU
AP psi			(par)	8RZ3 8RZ5	.43 .39				KC50
₹ 6			(0.50)	8RZ10	.36				MKF50
4				8RZ25	.11				
	5 10	15 20	) 25 30	If working factor by 54		rs & L/min, d	ivide above		KC65
0	5 10	15 20 Flow gpm	) 25 30			iscosity by 15	0 SUS (32 cSt).	N	OF30-05
sp gr = spec 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: $\Delta P_{housing}$	= 5.0 psi [.3	8 harl			artridge
				$\Delta P_{element}$		(200÷150) =	6.0 psi		Elements
					or = [57 x ( 30	÷54 9) x (44÷	32) = .41 bar]		
				$\Delta P_{total}$	$= [57 \times (.50)]$ = 5.0 + 6.0		<i>52)</i> – . <del>T</del> T Dalj		HS60
					or = [.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.

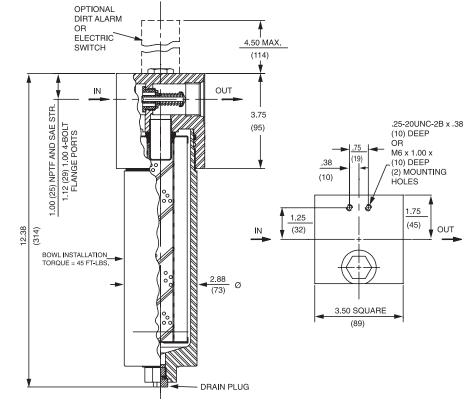
Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

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 <u>115 L/min</u> 6000 psi 415 bar	NF30 NFS30 YF30 CFX30 PLD DF40 CF40 CF40 LC50 RF550 RF550
Model No. of filter in photograp	h is RF608R10P.	•	<b>CF60</b>
		Applications	CTF60
		Applications	<b>VF60</b>
			LW60
MINING AGRICULTURE TECHNOLOGY	STEEL MOBILE CONSTRUCTION MAKING VEHICLES		KF30
			<b>TF50</b>
			KF50
			KC50
			MKF50
			KC65
			OF30-05
			NOF50
Elow Pating	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids	Filter	OF60-03
Max. Operating Pressure:		Housing	NMF30
Min. Yield Pressure:	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) Cracking: 40 psi (2.8 bar)	Ca	artridge lements
	Full Flow: 56 psi (3.9 bar) Non-bypassing model has a blocked bypass.		HS60
Porting Head: Element Case:	Steel		MHS60
Weight of RF60-8R:			KFH50
Element Change Clearance:	3.0" (/5 mm)		VLUDA





Metric dimensions in ( ).

Element Performance			tio Per ISO 4572/N article counter (APC) cal	Filtration Ratio per ISO 16889 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 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 stainless steel wire mes					Skydrol <sup>®</sup> is a registered trademark of Solutia II	
	Fle	ment				6 450 6116	(22.5.1)	Element	<b>DF40</b>
Pressure	Series	Part No.	Element selections a petroleum based flu					Selection	<b>CF40</b>
	E	8R3	8R3			See C	.F60	Based on 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 0 50	1'5		25	30 115		<b>CF60</b>
Shown abov	ve are the e	. ,	st commonly used in th			100	115		CTF60
			e of E Media in High W 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 OU Δr housi	ing for fiulds	with sp gr =	0.00.	El. $\Delta P$ factor				Information	KF30
	(25)	Flow (L/min) (50) (75)	(100)	8R3	.35	1		Based on Flow Rate	<b>TF50</b>
<sup>16</sup>		·	(1.0)	8R10	.30			and Viscosity	1150
14				8RZ1	.87				KF50
10			(0.75)	8RZ3 8RZ5	.43 .39				KCEO
AP psi			(Dar)	8RZ10	.36				KC50
6			(0.50) A	8RZ25	.11				MKF50
4			(0.25)	8RZX3 8RZX10	NA NA				
						ars & L/min, d	livide above		KC65
0	5 10	15 20 Flow gpm	) 25 30	factor by 54	4.9.		50 SUS (32 cSt).	Ν	IOF30-05
$c_{\rm D}$ ar $ c_{\rm D}$ oc	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 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> ∆P at 15 gpi		or		FOF60-03 NMF30
Sizing of ele	ements sho	uld be based	d on element flow info	$\Delta P_{filter} = \Delta$ Exercise: Determine A RF608R10S	<b>\P<sub>housing</sub> +</b> ∆P at 15 gpi	<b>ΔP<sub>element</sub></b> 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> ∆P at 15 gpi	<b>ΔP<sub>element</sub></b> n (57 L/min) fr 0 SUS (44 cSt)	or		FOF60-03 NMF30
Sizing of ele	ements sho	uld be based	d on element flow info	ΔP <sub>filter</sub> = Δ Exercise: Determine Δ RF608R10S Solution:	A <b>P</b> <sub>housing</sub> + ΔP at 15 gp D5 using 20 = 5.0 psi [ = 15 x .30	<b>ΔP<sub>element</sub></b> n (57 L/min) fr 0 SUS (44 cSt)	or ) fluid.		FOF60-03 NMF30 RMF60
Sizing of ele	ements sho	uld be based	d on element flow info	ΔP <sub>filter</sub> = Δ Exercise: Determine A RF608R10S Solution: ΔP <sub>housing</sub>	APhousing + ΔP at 15 gpi D5 using 20 = = 5.0 psi [ = 15 x .30 or	ΔP <sub>element</sub> m (57 L/min) fr 0 SUS (44 cSt) .35 bar] x (200÷150) =	or ) fluid.		FOF60-03 NMF30 RMF60 Cartridge Elements
Sizing of ele	ements sho	uld be based	d on element flow info	ΔP <sub>filter</sub> = Δ Exercise: Determine A RF608R10S Solution: ΔP <sub>housing</sub>	AP <sub>housing</sub> + ΔP at 15 gp D5 using 20 = 5.0 psi [ = 15 x .30 or = [57 x (.3	ΔP <sub>element</sub> m (57 L/min) fr 0 SUS (44 cSt) .35 bar] x (200÷150) =	or ) fluid. : 6.0 psi		FOF60-03 NMF30 RMF60 Cartridge
Sizing of ele	ements sho	uld be based	d on element flow info	ΔP <sub>filter</sub> = Δ Exercise: Determine A RF608R10S Solution: ΔP <sub>housing</sub> ΔP <sub>element</sub>	$\Delta P_{housing} + \Delta P$ at 15 gp D5 using 20 = 5.0 psi [ = 15 x .30 or = [57 x (.3 = 5.0 + 6. or	ΔP <sub>element</sub> m (57 L/min) fr 0 SUS (44 cSt) .35 bar] x (200÷150) = 0÷54.9) x (44÷	or ) fluid. : 6.0 psi		FOF60-03 NMF30 RMF60 Cartridge Elements
Sizing of ele	ements sho	uld be based	d on element flow info	ΔP <sub>filter</sub> = Δ Exercise: Determine A RF608R10S Solution: ΔP <sub>housing</sub> ΔP <sub>element</sub>	$\Delta P_{housing} + \Delta P$ at 15 gp D5 using 20 = 5.0 psi [ = 15 x .30 or = [57 x (.3 = 5.0 + 6. or	ΔP <sub>element</sub> m (57 L/min) fr 0 SUS (44 cSt) .35 bar] x (200÷150) = 0÷54.9) x (44÷ 0 = 11.0 psi	or ) fluid. : 6.0 psi		FOF60-03 NMF30 RMF60 Cartridge Elements HS60

# **RF60** Top-Ported Pressure Filter

Filter Model Number Selection	BOX 1 BOX 2 BOX RF60	OX 3 BOX 4	nore than one option	05			
	BOX 1BOX 2Filter SeriesElement Length (in)RF608RFN60 (Non- bypassing: requires ZX high collapse elements)	R10 = R RZ1 = R RZ3 = R RZ5 = R RZ10 = R RZ25 = R RZX3 = R (I RZX10 = R	BOX 3 Element Size and Media size 3 μ E media (cellulose) size 10 μ E media (cellulose) size 1 μ Excellement® Z-Media® (synthetic) size 3 μ Excellement® Z-Media® (synthetic) size 5 μ Excellement® Z-Media® (synthetic) size 25 μ Excellement® Z-Media® (synthetic) size 3 μ Excellement® Z-Media® (synthetic) size 10 μ Excellement® Z-Media® (synthetic)	BOX 4 Seal Material Omit = Buna N H = EPR V = Viton®			
	BOX 5 Inlet Port		BOX 7 Dirt Alarm <sup>®</sup> Options				
	P = 1" NPTF S = SAE-16 F = 1" SAE 4-bolt flange Code 62	Visual Visual with Thermal Lockout	Omit = None D5 = Visual pop-up D8 = Visual w/ thermal lockout				
	B = ISO 228 G-1" BOX 6 Options Omit = None X = Blocked bypass	Electrical	MS5 = Electrical w/ 12 in. 18 gauge 4-conduct MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connect MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed co MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male	only) tor (male end only) onnector			
cement element numbers are a ination of Boxes	50 = 50 psi bypass setting L = Two ¼" NPTF inlet and outlet female test ports U = Schroeder Check ¼6"-20	Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout MS5T = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T				
nd 4. ple: 8RZ1V dia (cellulose) ents are only ble with Buna ls.	UNF Test Point installation in head (upstream)	Electrical Visual Electrical	MS17ECT = Low current (MS17T MS13 = Supplied w/ threaded connector & ligh MS14 = Supplied w/ 5 pin Brad Harrison conne (male end) MS13DCT = MS13 (see above), direct current, w/ t	ector & light			
<sup>®</sup> is a registered mark of DuPont Elastomers.		Visual with Thermal Lockout	MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ t MS14DCLCT = Low current MS14DCT	hermal lockout			

#### NOTES:

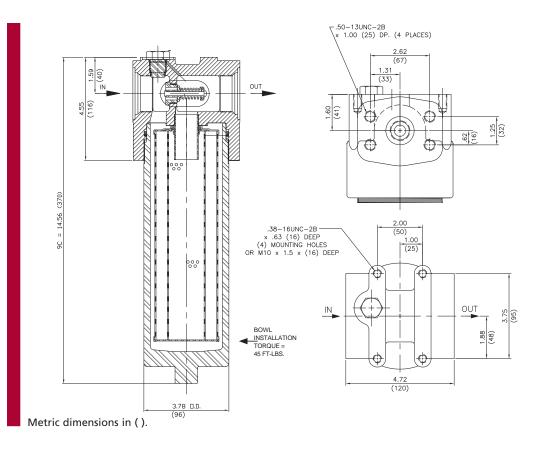
Box 2. Replace part n combi 2, 3 an Examp E meḋ eleme availal N seals

- 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**

	<ul> <li>Features and Benefits</li> <li>Top-ported high pressure filter</li> <li>Available with non-bypass option with high collapse element</li> <li>Offered in pipe, SAE straight thread, flange and ISO 228 porting</li> <li>No-Element indicator option available</li> </ul>	50 gpm 190 L/min       NF30         6000 psi 415 bar       YF30         6000 psi 415 bar       CFX30         PLD       DF40         CF40       PF40         LC50       RF550         RF60       RF60
Model No. of filter in photograph is Cf	F601CCZ3SD5.	CF60
		CTF60
		Applications VF60
INDUSTRIAL AUTOMOTIVE	MACHINE MINING	KF30
MANUFACTURING	TOOL TECHNOLOGY	
		TF50
		KF50
STEEL PULP & PAPER	AGRICULTURE MOBILE	КС50
MAKING	VEHICLES	MKF50
		КС65
		NOF30-05
		NOF50
		FOF60-03
Flow Rating: Max. Operating Pressure:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids	Housing NMF30
	15,500 psi (1070 bar), per NFPA T2.6.1	Specifications
	4000 psi (276 bar), per NFPA T2.6.1-R1-2005	RMF60
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Cartridge
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 75 psi (5.2 bar) Non-bypassing model has a blocked bypass.	Elements HS60
Porting Head: Element Case:		
Weight of CF60-9C:		MHS60
Element Change Clearance:		KFH50



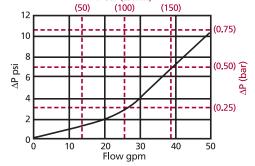


Element Performance			tio Per ISO 4572/N article counter (APC) cal	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$
	CC3	6.8	7.5	10.0	N/A	N/A
	CC10	15.5	16.2	18.0	N/A	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 3000 psid (210 bar) for high collapse (ZX) versions	terminal pressure
		Flow Direction:	Outside In	
	Element Nomir	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®		-Media <sup>®</sup> and all ASP <sup>®</sup> less steel wire mesh in				Skydrol <sup>®</sup> is a registered trademark of Solutia Inc	PLD
	Elemen	+							<b>DF40</b>
Pressure	Series	Part No.		s are predicated on fluid and a 40 psi (2			2 cSt)	Element	<b>67</b> 4 6
riessure	Series	CC3	petroleulli based	CC3	2.6 Dai) Dy	Jass valve.		Selection	<b>CF40</b>
	E	CC10		CC10				Based on Flow Rate	PF40
	Media							FIOW Rate	r 1 <del>4</del> 0
То		CC25	CC25 CC21 See KC65					LC50	
6000 psi					See KC65				
(415 bar)	Z-	CCZ5		CCZ3 See KC65 CCZ5				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 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. 00 dr nous	5						-	Information	<b>TF50</b>
	(50)	Flow (L/min)	(150)	El. $\Delta P$ factors @ 150 SUS (32 cSt):			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** 

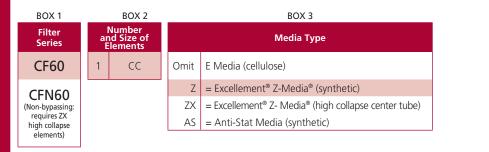
**KC50** 

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 CF601CCZ3SD5 using 200 SUS (44 cS	
Solution:	Cartridge
$\Delta P_{\text{housing}} = 4.0 \text{ psi} [.30 \text{ bar}]$	Elements
$\Delta P_{\text{element}} = 30 \times .20 \times (200 \div 150)$ 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 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 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 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 with	MS13DCLCT = Low current MS13DCT
N = No-Element	With Thermal	MS14DCT = MS14 (see above), direct current, w/ thermal lockout
Indicator	Lockout	MS14DCLCT = Low current MS14DCT
(CF60 only)	Locitout	

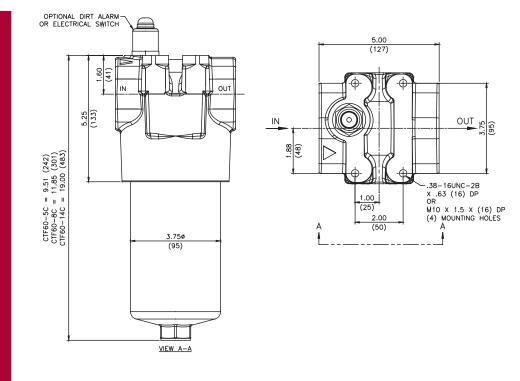
NOTES:

- 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

Wodel No. of filter in photograph is CT	<ul> <li>FE08CTT210F20D9.</li> <li>FE08CTT210F20D9.</li> <li>For the transmission of trans</li></ul>	75 gpm 284 L/min 6000 psi 415 bar       NF30         75 gpm 284 L/min 6000 psi 415 bar       YF30         7600 psi 415 bar       CFX30         9LD       DF40         0F40       CF40         1000       RF550         1000       RF550         1000       RF60         1000       CF60
		Applications VF60 LW60
INDUSTRIAL AUTOMOTIVE MANUFACTURING	MACHINE MINING TOOL TECHNOLOGY	KF30 TF50 KF50 KC50
	VEHICLES	МКF50 КС65 NOF30-05
Flow Rating	Up to 75 gpm (284 L/min) for 150 SUS (32 cSt) fluids	Filter NOF50
Max. Operating Pressure:		Housing FOF60-03
	18,000 psi (1241 bar), per NFPA T2.6.1	Specifications
Rated Fatigue Pressure:	6000 psi (415 bar), per NFPA T2.6.1-R1-2005 (only with F20 4-bolt flange porting)	NMF30
	-20°F to 225°F (-29°C to 107°C)	RMF60
	Cracking: 50 psi (3.4 bar) Full Flow: 83 psi (5.7 bar) Non-bypassing model has a blocked bypass.	Cartridge Elements
Porting Head: Element Case:		HS60
	25 lbs. (11.4 kg) 29 lbs. (13.2 kg) 38 lbs. (17.3 kg)	MHS60
Element Change Clearance:	4.0" (103 mm)	KFH50





Metric dimensions in ( ).

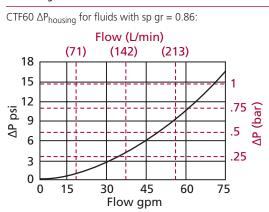
Element Performance			tio Per ISO 4572/N article counter (APC) cali	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$	
	CTZ1/CTZX1	<1.0	<1.0	<1.0	<4.0	4.2
	CTZ3/CTZX3	<1.0	<1.0	<2.0	<4.0	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: Flow Direction:		or standard elements ) for high collapse (ZX	) versions		
	Element Nomir	nal Dimensions:	: 5CT : 2.64" (67 mm) O.D. x 4.88" (124 mm) long				
			8CT: 2.64" (67mm) O.D. x 7.25" (184 mm) long				
			14CT : 2.64" (67 n	nm) 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 Wate	er Conte	nt All	Z-Media® (sy	nthetic)					Compatibility	NFS30
	Invert	Emulsio	<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 Series	Part No.			•		use of 150 SUS (3 ar) bypass valve.	2 cSt)		Element Selection	DF40 CF40
Pressure					•	50 psi (3.4 b	ar) bypass valve.	<b>2 cSt)</b> KC65		Selection Based on	CF40
	Series	No.	petrole	um based flu	uid and a	50 psi (3.4 b	ar) bypass valve.		See KC65	Selection	
To 6000 psi	Series Z-	No. CTZ1	petrole	um based flu 8CTZ1	uid and a	50 psi (3.4 b TZ1	ar) bypass valve. See		See KC65 See KC65	Selection Based on	CF40 PF40
То	Series	No. CTZ1 CTZ3	petrole	um based flu 8CTZ1 5CTZ3 5CTZ5	uid and a	50 psi (3.4 b TZ1 8CTZ3	ar) bypass valve. See 14CTZ3	KC65		Selection Based on	CF40
To 6000 psi	Series Z-	No. CTZ1 CTZ3 CTZ5	petrole	um based flu 8CTZ1 5CTZ3 5CTZ5	uid and a 14C	50 psi (3.4 b TZ1 8CTZ3	ar) bypass valve. See 14CTZ3 14CTZ5	KC65	See KC65	Selection Based on	CF40 PF40
To 6000 psi	Z- Media®	No. CTZ1 CTZ3 CTZ5 CTZ10	petrole	um based flu 8CTZ1 5CTZ3 5CTZ5	uid and a 14C	8CTZ3 8CTZ5	ar) bypass valve. See 14CTZ3 14CTZ5	KC65	See KC65 ICTZ10	Selection Based on	CF40 PF40 LC50
To 6000 psi	Series Z-	No. CTZ1 CTZ3 CTZ5 CTZ10 CTZ25	petrolet 5CTZ1	um based flu 8CTZ1 5CTZ3 5CTZ5 5C	uid and a 14C	50 psi (3.4 b)           TZ1           8CTZ3           8CTZ5           5CTZ25	ar) bypass valve. See 14CTZ3 14CTZ5 8CTZ10	KC65	See KC65 ICTZ10 CTZ25	Selection Based on	CF40 PF40 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 = [265 x (.20÷54.9) x (44÷32) = .68 bar] = 14 + 9.8 = 23.8 psi or = [.96 + .68 = 1.64 bar]

$\Delta P_{element}$			
$\Delta P_{element} = flc$	w x elemer	nt $\Delta P$ factor x visc	osity 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 bars & L/min, divide above factor by 54.9.	
<i>Viscosity factor:</i> Divide viscosity by 150 SUS (32 cSt).	

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

CTF60

	<b>C</b>	
	-	

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

CTZX10

CTZX25

Filter Model Number Selection	How to Build a Valid Model Number for a Schroeder CTF60: BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 CTF60				
	BOX 1	BOX 2		BOX 3	BOX 4
	Filter Series	Element Length (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- bypassing:		CTZ10	= 10 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)	
	requires ZX high collapse		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)	
			CTZX3	= 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 4-bolt flange Code 62 B20 = ISO 228	olt flange de 62
G-1¼"	1⁄4"
BOX 6	K 6
Options	ons
Omit = None	one
UU = Series 1215 7/16" UNF Schroeder Check Test Points installed in the filter head (upstream) & downstream) DR = Drain on bowl	i" UNF oeder ck Test ts installed e filter d (upstream wwnstream) ain on bowl
30 = 30 psi bypass setting	1 21
40 = 40 psi bypass setting	ting
50 = 50 psi bypass setting	1 21

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

Thermal

Lockout

NOTES:

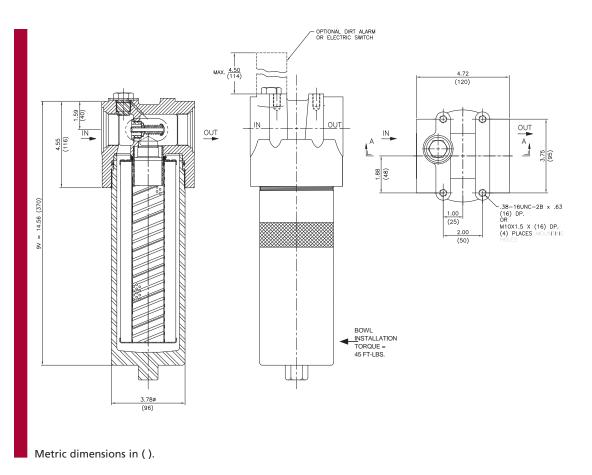
- Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3 and 4.
- Box 4. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
- Box 5. B porting option supplied with metric mounting holes.
- Box 7. All Dirt Alarm® Indicators must be Stainless Steel. Standard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

## Top-Ported Pressure Filter VF60

	<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       NF30         265 L/min       NF530         6000 psi       YF30         415 bar       CFX30         PLD       DF40         CF40       PF40         LC50       RF550         RF60       CF60	
Model No. of filter in photograph is \	/F609VZ10S.	CTF60	
Image: August and	<image/> <image/>	Applications         VF60           LW60         KF30           KF50         KF50           KC50         MKF50           KC65         NOF30-05           NOF50         F0F60-03	
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 Specifications RMF60	
Min. Yield Pressure: Rated Fatigue Pressure:	15,500 psi (1070 bar), per NFPA T2.6.1 3300 psi (230 bar), per NFPA T2.6.1-R1-2005		
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Cartridge Elements	
Bypass Setting:	Cracking: 50 psi (3.5 bar) Full Flow: 65 psi (4.5 bar)	HS60	
Porting Head: Element Case:	Ductile Iron Steel	MHS60	
Weight of VF60-9V:	24.0 lbs. (10.9 kg)		
Element Change Clearance:	4.0" (103 mm)	KFH50	



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



Element Performance			tio Per ISO 4572/N article counter (APC) cali	Filtration Ratio per ISO 16889 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
		low Direction:	Outside In
	Ele	ement Nominal 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 trademark of Solutia Inc.	PLD

Pressure	Elen Series	nent Part No.		ement sel etroleum l	Element Selection						
		9VZ1		petroleum based fluid and a 50 psi (3.5 bar) bypass valve. 9VZ1 Contact Fa					t Factory	Based on Flow Rate	
То		9VZ3		9VZ3						Flow Rate	
6000 psi	Z- Media®	9VZ5				g	VZ5				
(415 bar)		9VZ10				9'	VZ10				
		9VZ25				9'	VZ25				
	gpm		0	10	20	30	40	50	60	70	
Flow (L/r		(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 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 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		

 $\Delta P_{total}$ 

 $= [150 \times (.21 \div 54.9) \times (44 \div 32) = .79 \text{ bar}]$ 

= 6.0 + 11.2 = 17.2 psi

= [.38 + .79 = 1.17 bar]

or

VECO

### VF60 Top-Ported Pressure Filter

el BOX 1 BOX 2 VF60 -	BOX 3	BOX 4 BOX 5 BOX 6						
BOX 1 BOX 2	Example: NOTE: One option per box							
VF60 - 9	вох з - VZ1 -	$\frac{BOX 4}{S} = \frac{BOX 5}{S} = \frac{BOX 6}{S}$	0\/715					
BOX 1 BOX 2		BOX 3	BOX 4					
Filter Element		Element Size and Media	Seal Material					
Series (in)			Sear Wateria					
<b>VF60</b> 9		V size 3 µ E media (cellulose)	Omit = Buna N					
		V size 10 µ E media (cellulose) 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 = 1 <sup>1</sup> / <sub>4</sub> " NPTF	Visual	Omit = None 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-conductor cable						
		MS5 = Electrical W/12 In. 18 gauge 4- MS5LC = Low current MS5	conductor cable					
		MS10 = Electrical w/ DIN connector (male end only)						
		MS10LC = Low current MS10	•					
	Electrical	MS11 = Electrical w/ 12 ft. 4-conductor wire 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 Harrisor MS5T = MS5 (see above) w/ thermal loc						
		MS5LCT = Low current MS5T	-					
	Elo et d'and	MS10T = MS10 (see above) w/ thermal lo	ockout					
	Electrical with	MS10LCT = Low current MS10T						
	Thermal	MS12T = MS12 (see above) w/ thermal lo MS12LCT = Low current MS12T	CKOUT					
	Lockout	MS12LCT = LOW current MS12T 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 Visual	MS14 = Supplied w/ 5 pin Brad Harrisor (male end)	connector & light					
	Electrical	MS13DCT = MS13 (see above), direct currer	t, w/ thermal lockout					
	Visual	MS13DCLCT = Low current MS13DCT						
	with 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	<b>VF60</b>
	LW60
	KF30

300 gpm

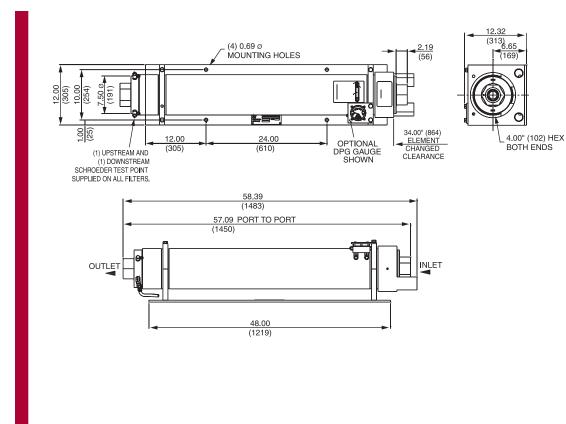
6000 psi 415 bar

1135 L/min

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



# High-Flow, High-Pressure Longwall Filter



Metric dimensions in ( ).

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

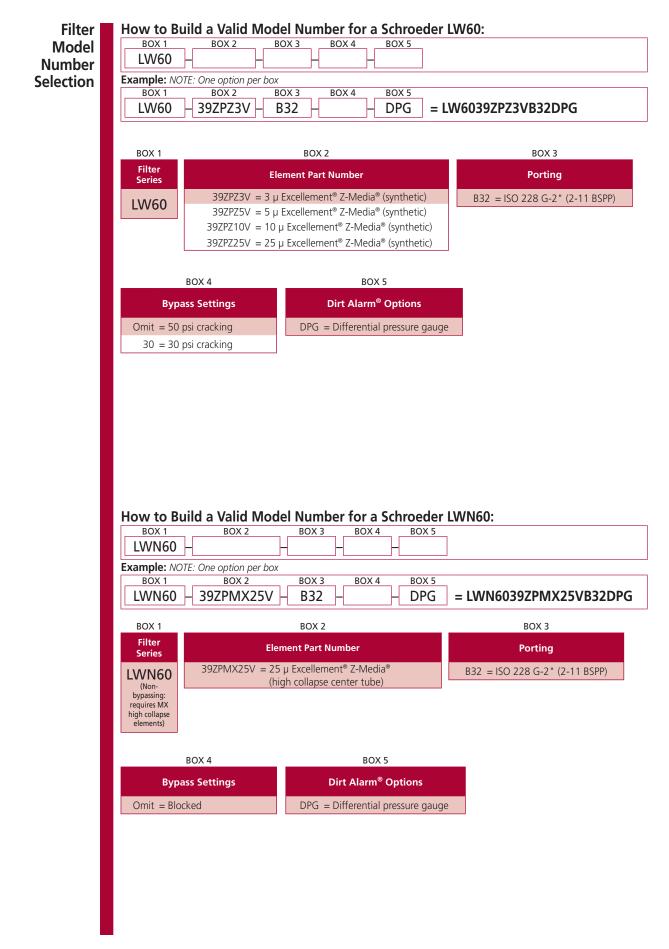
Dirt Ho	
Cap	acity

ing	Element D	PHC (gm)
ity 🛛	39ZPZ3V	449
	39ZPZ5V	359
	39ZPZ10V	429
	39ZPZ25V	284
	Element Collapse Rating:	150 psid (10 bar)
	Flow Direction:	Outside In
	Element Nominal Dimensions:	5.0" (127 mm) O.D. x 38.0" (965 mm) long

### 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 Part No.	Element selection					Element Selection	CF40
Pressure	Series	39ZPZ3V	petroleum base		2PZ3V	) bypass valv	/e.	Based on	
То	Z-	39ZPZ5V			ZPZ5V			Flow Rate	<b>PF40</b>
6000 psi (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 Information	<b>VF60</b>
	Flow (L/min)				El. ΔP factors @ 150 SUS (32 cSt): <b>392PZ3V</b> .06				LW60
200) (400) (600) (800) (1000) 2 <b>1 1 1 1</b>				<b>392PZ5V</b> .05 <b>392PZ10V</b> .04			Flow Rate and Viscosity		
1.5			(0.1)	39ZPZ10V 39ZPZ25V					KF30
<sup>i</sup> sd 1			(0.0) (par) (0.05) d∑	If working	in units of bars	& L/min, divid	le above		<b>TF50</b>
0.5				factor by 5 Viscosity fa	4.9. <i>ctor:</i> Divide visc	cosity by 150 S	US (32 cSt).		KF50
0									КС50
0	50 100 F	150 200 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 Exercise:	$\Delta P_{\text{housing}} + \Delta P_{\text{housing}}$	element			NMF30
					∆P at 250 gpm Z3VB32 using 1				
				Solution:					RMF60
				$\Delta P_{housing}$ $\Delta P_{element}$		bar] (150÷150) = 1	5.0 psi		Cartridge Elements
				ΔP <sub>total</sub>	or = [950 x (.06 - = 0.7+ 15.0 =	÷54.9) x (32÷3. : 15.7 psi	2) = 1.1 bar]		HS60
					or = [0.05 + 1.1	= 1.15 bar]			MHS60
									KFH50

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



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



Features and Benefits	100/150 gpm	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>		
Meets HF4 automotive standard	3000 psi 210 bar	<b>YF30</b>
<ul> <li>Element changeout from top minimizes oil spillage</li> </ul>	210 Dar	CFX30
<ul> <li>Offered in pipe, SAE straight thread, flanged and ISO 228 porting</li> </ul>		PLD
<ul> <li>No-Element indicator option available</li> </ul>		<b>DF40</b>
<ul> <li>Available with non-bypass option with high collapse element</li> </ul>		<b>CF40</b>
<ul> <li>Integral inlet and outlet female test points option available</li> </ul>		<b>PF40</b>
<ul> <li>Offered in conventional subplate porting</li> </ul>		LC50
Same day shipment model available		LCJU
<ul> <li>Double and triple stacking of K-size elements can be replaced by single KK or 27K-size elements</li> </ul>		RFS50
<ul> <li>Available with Patented GeoSeal<sup>®</sup> Elements. See Section 8 – GeoSeal Filters (page 340) for details.</li> </ul>		<b>RF60</b>
SD.		<b>CF60</b>
		CTF60
	Applications	<b>VF60</b>
66		LW60
INE MINING L TECHNOLOGY		KF30
		<b>TF50</b>
		KF50
LE WASTE WATER		КС50
LES TREATMENT		MKF50
		KC65
	-	IOF30-05
380 L/min) for 150 SUS (32 cSt) fluids	Filter	NOF50
g only, up to 150 gpm (570 L/min) 2 cSt) fluids	Housing Specifications	-OF60-03
r)	Specifications	
bar), per NFPA T2.6.1		NMF30
r), per NFPA T2.6.1-2005 29°C to 107°C)		RMF60
(2.8 bar)		
(4.2 bar) nodel has a blocked bypass.		Cartridge Elements
		HS60

Model No. of filter in photograph is KF301K10SD.

AUTOMOTIVE

MANUFACTURING



INDUSTRIAL



PULP & PAPER



AGRICULTURE



MACHINE

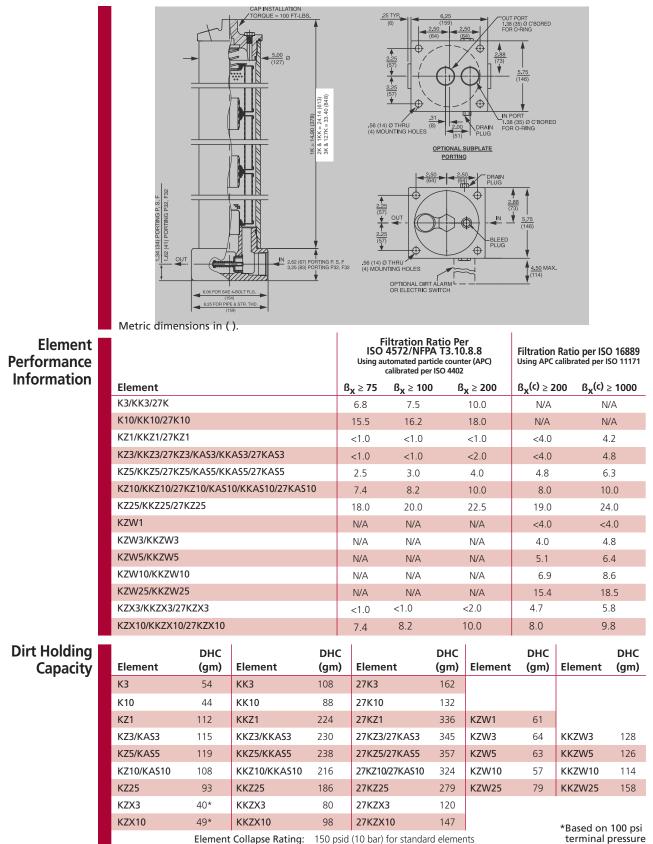
TOOL

VEHICLES



Flow Rating: Up to 100 gpm (380 L/min) for With 2" porting only, up to for 150 SUS (32 cSt) fluids 3000 psi (210 bar) Max. Operating Pressure: 12,000 psi (830 bar), per NFPA Min. Yield Pressure: Rated Fatigue Pressure: 2500 psi (170 bar), per NFPA T2 -20°F to 225°F (-29°C to 107°C Temp. Range: **Bypass Setting:** Cracking: 40 psi (2.8 bar) Full Flow: 61 psi (4.2 bar) Non-bypassing model has a blo Ductile Iron Porting Base & Cap: Element Case: Steel Weight of KF30-1K: 48 lbs. (22 kg) Weight of KF30-2K: 65 lbs. (30 kg) Weight of KF30-3K: 81 lbs. (37 kg) Element Change Clearance: 8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

## KF30 Base-Ported Pressure Filter



lement Conapse Rating.

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

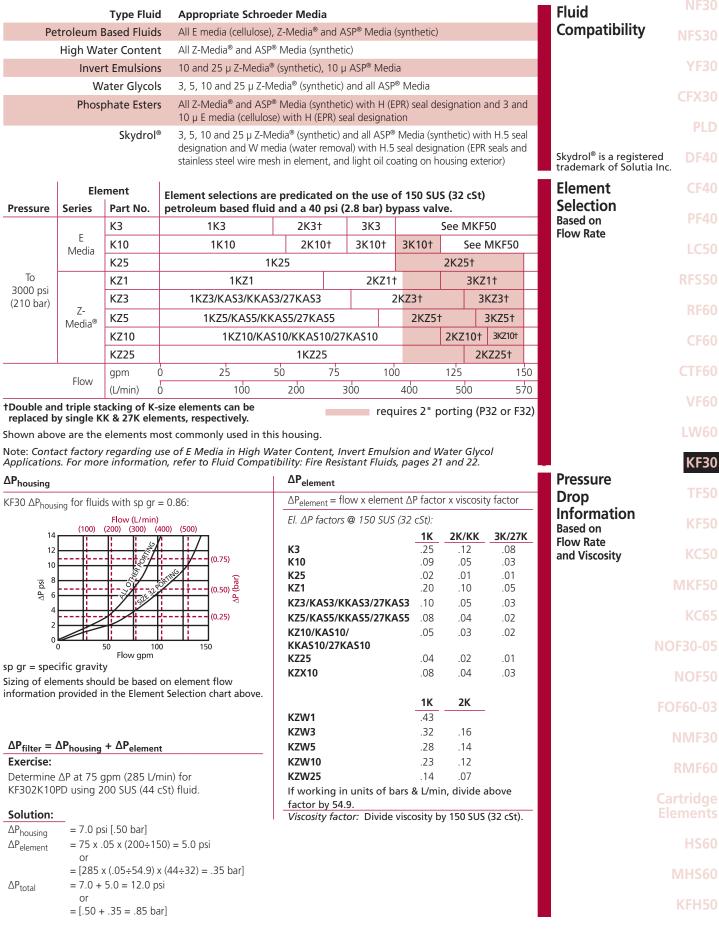
Flow Direction: Outside In Element Nominal Dimensions: K: 3.9"

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

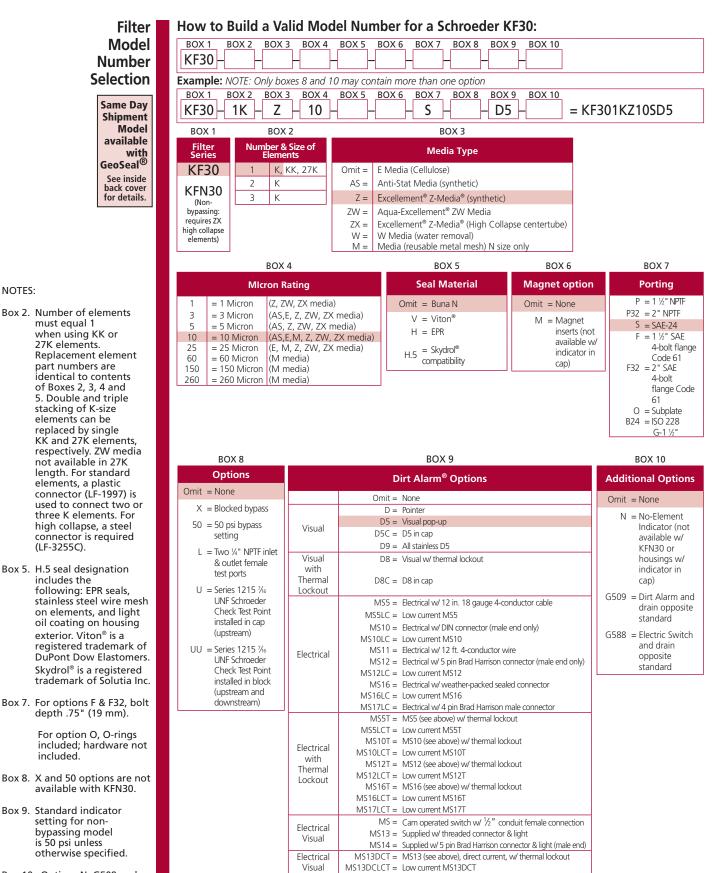
KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long

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

#### Base-Ported Pressure Filter 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

MOBILE VEHICLES



MINING TECHNOLOGY





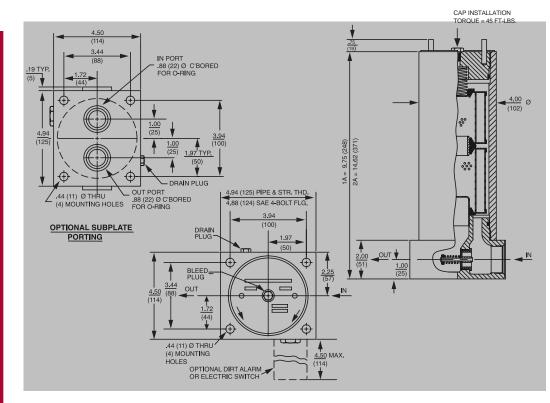


40 gpm 150 L/min

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) Full Flow: 69 psi (4.8 bar) Non-bypassing model has a blocked bypass.		Cartridge Elements
Porting Base: Element Case & Cap:			HS60
Weight of TF50-1A: Weight of TF50-2A:			MHS60
Element Change Clearance:	8.50" (215 mm)		KFH50

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



Metric dimensions in ( ).

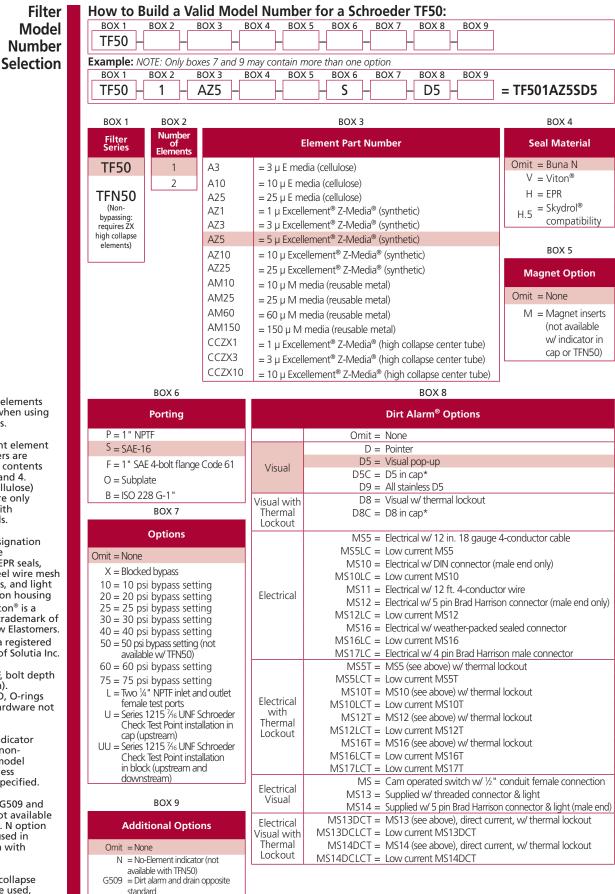
Element Performance			tio Per ISO 4572/N article counter (APC) cali		Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171						
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$ $\beta_x \ge 200$		$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$					
	A3	6.8	7.5	10.0	N/A	N/A					
	A10	15.5	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					
	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:	150 psid (10 bar) fo 3000 psid (210 bar)	*Based on 100 psi terminal pressure							
		Flow Direction:	Outside In								
	Element No	minal Dimensions:	: A: 3.0" (75 mm) O.D. x 4.5" (115 mm) long CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long								

**110 SCHROEDER INDUSTRIES** 

# Base-Ported Pressure Filter TF50

Type Fluid	Appropriate Schroeder Media			Fluid NF30
Petroleum Based Fluids	All E media (cellulose) and Z-Media	® (synthetic)		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 etroleum based fluid and a 40			Element DF40 Selection
A3	1A3	2A3	See KF5	Based on CF40
E 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) <b>1A 2A</b>	):	Information Based on TF50
(25) (75)	(125) A3	.53 .27	-	Flow Rate
10	(0.75) A10 A25	.36 .18 .05 .03		and Viscosity KF50
8	AZ1	.70 .35		КС50
isd d⊴	(0.50) (ling AZ3 d√ AZ5	.50 .25 .32 .16		RC50
4	(0.25) AZ10	.25 .13		MKF50
2	AZ25	.14 .07		КС65
	30 40 CCZX3	.29 .26		KC05
Flow gpm	lf worki	ng in units of bars & L/	min, divide abo	ve NOF30-05
sp gr = specific gravity Sizing of elements should be based on a	-	factor: Divide viscosity		e cst). NOF50
Notes				FOF60-03
Notes	ΔP <sub>filter</sub> Exercise	$= \Delta P_{\text{housing}} + \Delta P_{\text{elem}}$	ent	NMF30
		ne ∆P at 20 gpm (75 L/ Z3SMS using 200 SUS (		RMF60
	Solutio ΔP <sub>housing</sub> ΔP <sub>elemen</sub>	= 2.5 psi [.22 bar]	-150) = 6.7 psi	Cartridge Elements
		or = [75 x (.25÷54.9)	x (44÷32) = .47	bar] HS60
	ΔP <sub>total</sub>	= 2.5 + 6.7 = 9.2 p or	•	MHS60
	ΔP <sub>total</sub>		•	MHS60 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 **KF5**



#### **Features and Benefits**

- Base-ported high pressure filter Can be installed in vertical or horizonta 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® Elements. See Section 8 – GeoSeal Filters (page 340) for details.

Model No. of filter in photograph is KF501K10SD.







MANUFACTURING





AGRICULTURE

Flow Rating:

Temp. Range: **Bypass Setting:** 

Max. Operating Pressure:

Min. Yield Pressure: Rated Fatigue Pressure:

> Porting Base & Cap: Element Case:

> Weight of KF50-1K:

Weight of KF50-2K:

Weight of KF50-3K:

Element Change Clearance:



5000 psi (345 bar)

Full Flow: 61 psi (4.2 bar)

Ductile Iron

59.7 lbs. (27.1 kg)

80.7 lbs. (36.6 kg)

102.0 lbs. (46.3 kg)

Steel

MOBILE VEHICLES

15,000 psi (1035 bar), per NFPA T2.6.1

3500 psi (240 bar), per NFPA T2.6.1-2005 -20°F to 225°F (-29°C to 107°C)

Non-bypassing model has a blocked bypass

Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids

With 2" porting only, up to 150 gpm (570 L/min) for 150 SUS (3

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

Cracking: 40 psi (2.8 bar) Optional Cracking: 50 psi (3.5 bar)

MACHINE

TOOL



STEEL

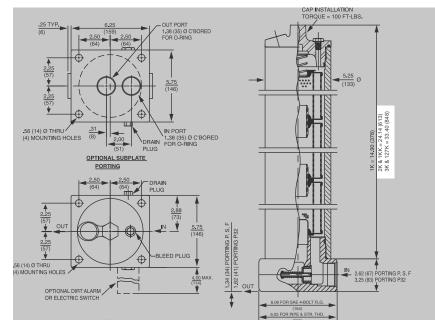
MAKING



TREATMENT

	100/150 gpm	NF30
al	380/570 L/mir	
s	5000 psi	YF30
-	345 bar	<b>CFX30</b>
		PLD
		<b>DF40</b>
		<b>CF40</b>
		<b>PF40</b>
		LC50
		<b>RFS50</b>
		<b>RF60</b>
		<b>CF60</b>
	-	CTF60
	Applications	<b>VF60</b>
		LW60
		KF30
		<b>TF50</b>
		KF50
		KC50
		MKF50
		KC65
		NOF30-05
	Filter	NOF50
2 cSt) fluids	Housing Specifications	FOF60-03
	specifications	NMF30
		RMF60
		Cartridge Elements
		HS60
		MHS60
עדכ		KFH50

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



Metric dimensions in ( ).

Element Performance Information

	ISO Using au	iltration Rat 4572/NFPA T Itomated particle calibrated per ISC	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 1117		
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 (

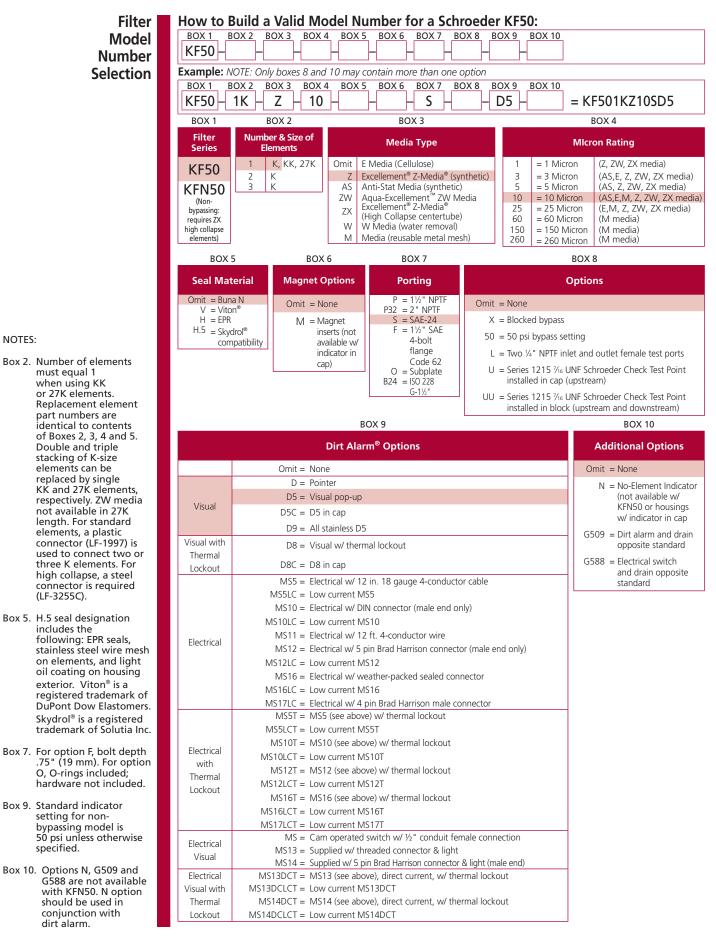
Holding Capacity	Element	DHC (gm)	Element	DHC (gm)	DHC Element (gm) Element		DHC (gm)	Element	DHC (gm)	
	К3	54	ККЗ	108	27K3	162				
	K10	44	KK10	88	27K10	132				
	KZ1	112	KKZ1	224	27KZ1	336	KZW1	61		
	KZ3/KAS3	115	KKZ3/KKAS3	230	27KZ3/27KAS3	345	KZW3	64	KKZW3	128
	KZ5/KAS5	119	KKZ5/KKAS5	238	8 <b>27KZ5/27KAS5</b> 357 <b>KZW5</b>		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:		(10 bar) for standard d (210 bar) for high (		terminal pressure			
			low Direction:	Outside						
	Elemen	t Nomin	al Dimensions:	KK: 3.	9" (99 mm) O.D. x 9" (99 mm) O.D. x 9" (99 mm) O.D. x					

**114 SCHROEDER INDUSTRIES** 

### Base-Ported Pressure Filter KF50

Petr	Typ oleum Based		opropriate Schroe E media (cellulose),			Media	(synthet	ic)			Fluid Compatibility	NF30
High Water Content         All Z-Media® and ASP® Media (synthetic)           Invert Emulsions         10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media										compatibility	NFS30	
		Glycols 3,	5, 10 and 25 μ Z-M	ledia <sup>®</sup> (synt	hetic) and	d all ASP	® Media			nd 3		YF30
	Phosphate Esters         All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation and 3 and 10 μ E media (cellulose) with H (EPR) seal designation           Skydrol®         3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® Media (synthetic) with H.5 seal designation and W media (water removal) with H.5 seal designation (EPR seals and										CFX30	
			signation and W me ainless steel wire mes								Skydrol <sup>®</sup> is a register trademark of Solut	
	Eler	nent	Flow capacity s	elections	are prec	licated	on the	1150 0	of 150 S	115	Flow Capacity Selection	<b>DF40</b>
Pressure	Series	Part No.	(32 cSt) petrole	um based	l fluid ar	nd a 40		3 bar)	bypass	valve.	Based on Pressure Drops	<b>CF40</b>
	Е	K3	1K3	2K3†		3K3	21/10+	_	e MKF5			PF40
	Media	K10 K25	1K10	2K1	UT :	3K10†	3K10†		See N	IKF50		
То		KZ5 KZ1	1KZ1	1K25		2KZ1†		2K2				LC50
5000 psi		KZ1 KZ3	1KZ3/KAS3/KH	ערכוכאע			Z3†	<u> </u>	3KZ1† 3KZ3			DECEO
(345 bar)	Z-	KZ5	1KZ5/KAS5/K			21	2KZ5	+		Z5†		RFS50
	Media®	KZ10		AS10/KKA		Δς10	ZKZJ	2KZ1		Z10†		<b>RF60</b>
		KZ25	1112 10/10		Z25				2KZ2			
		-	0 25	50	75	100		125		150		<b>CF60</b>
	Flow	(L/min)	0 100	200	300	4(	)0	500		570		CTF60
			elements can nents, respectivel	ly.			requi	res 2"	' portir	g (P32)		<b>VF60</b>
			nmonly used in thi	5								LW60
			E Media in High Wa er to Fluid Compat									
ΔP <sub>housing</sub>				ΔP <sub>elem</sub>							Pressure	KF30
KF50 ΔP <sub>housing</sub>	for fluids with	n sp ar = 0.86:			enτ <sub>nt</sub> = flow	x elemei	nt ∆P fao	ctor x \	viscosity	factor	Drop	<b>TF50</b>
nousing	Flov	v (L/min)		El. ΔP fa	actors @ 1	150 SUS	(32 cSt)	:			Information Based on	KF50
<sup>14</sup>	(100) (200)	(300) (400) (50	00)				1K		2K/KK	3K/27K	Flow Rate	<b>KI 30</b>
12		<u>Š</u>	<b>7</b> (0.75)	КЗ К10			.25		.12 .05	.08 .03	and Viscosity	КС50
10		No.		K25			.02		.01	.05		
o P psi		AF32 POR	(0.50) <sup>D</sup> (0.50)	KZ1			.20		.10	.05		MKF50
4		SH	⊲ (0.25)		S3/KKAS S5/KKAS				.05 .04	.03 .02		KC65
2			(0.25)	KZ10/K/	AS10/		.05		.04 .03	.02		RCOD
0	50	100	150		)/27KAS1	0	0.4		00	01		NOF30-05
	Flo	ow gpm		KZ25 KZX10			.04 .08		.02 .04	.01 .03		
sp gr = specif	ic gravity						1K		2K			NOF50
Sizing of elem	ents should b	e based on ele	ment flow ction chart above.	KZW1 KZW3			.43 .32		.16			FOF60-03
internation p				KZW5			.28		.14			NMF30
	P <sub>housing</sub> + ΔF	element		KZW10			.23		.12			
Exercise:	? at 50 gpm (1	90 I /min) for		<b>KZW25</b> If worki	ng in uni	ts of bar	.14 s & L/mi		.07 de abov	e factor		RMF60
KF501KZ3PD		JS (44 cSt) fluic	ł.	by 54.9. Viscosity	y factor:	Divide v	iscosity b	oy 150 S	SUS (32 o	St).		Cartridge
Solution:	= 3.0 psi [.20	barl										Elements
∆P <sub>housing</sub> ∆P <sub>element</sub>		barj 200÷150) = 6.	7 psi									HS60
∆P <sub>total</sub>		÷54.9) x (44÷3. : 9 7 psi	2) = .48 bar]									MHS60
Lotal	or	·										KFH50
	= [.20 + .48 =	= .68 bar]										
										STRIES 1		

### KF50 Base-Ported Pressure Filter



#### **116 SCHROEDER INDUSTRIES**

#### **Base-Ported Pressure Filter** KC

Patent No. 6,843,378 for filter cap seal.



Patent No. 6,843,378 for filter cap seal.		
Features and Benefits	100/150 gpm	NF30
Base-ported high pressure filter		FS30
Patented dirt-tolerant cap design		
Can be installed in vertical or horizontal position		YF30
<ul> <li>Meets HF4 automotive standard</li> <li>Element changeout from top minimizes</li> </ul>	345 bar	FX30
oil spillage Offered in pipe, SAE straight thread, flanged and		PLD
ISO 228 porting		DF40
<ul> <li>No-Element indicator option available</li> <li>Available with new burges ention with</li> </ul>		
<ul> <li>Available with non-bypass option with high collapse element</li> </ul>		<b>CF40</b>
<ul> <li>Integral inlet and outlet female test points option available</li> </ul>		PF40
<ul> <li>Offered in conventional subplate porting</li> </ul>		LC50
Double and triple stacking of K-size		ECEO
elements can be replaced by single KK or 27K-size elements	R	FS50
<ul> <li>Available with Patented GeoSeal<sup>®</sup> Elements. See Section 8 – GeoSeal Filters (page 340) for details.</li> </ul>		RF60
		CF60
aph is KC501KZ10PD.	C	TF60
	Applications	VF60
		.W60
MACHINE STEEL WASTE WATER iY TOOL MAKING TREATMENT		KF30
		TF50
		KF50
		KI 50
RE MOBILE RAILROAD VEHICLES		KC50
	M	KF50
		KC65
	NOF	80-05
Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids	Filter N	OF50
With 2" porting only, up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids	Housing FOF	50-03
5000 psi (345 bar) 15,000 psi (1035 bar), per NFPA T2.6.1	Specifications	4520
3500 psi (240 bar), per NFA 12.0.1	NI NI	<b>MF30</b>
-20°F to 225°F (-29°C to 107°C)	RI	<b>VIF60</b>
Cracking: 40 psi (2.8 bar) Optional Cracking: 50 psi (3.5 bar) Full Flow: 61 psi (4.2 bar)		ridge 1ents
Non-bypassing model has a blocked bypass. Ductile Iron		HS60
Steel 66.8 lbs. (30.3 kg)		
87.8 lbs. (39.8 kg)	M	HS60

Model No. of filter in photograph is KC501KZ10PD.





Flow Rating:

Temp. Range: **Bypass Setting:** 

Max. Operating Pressure:

Rated Fatigue Pressure:

Min. Yield Pressure:

Porting Base & Cap: Element Case:

Weight of KC50-1K:

Weight of KC50-2K:

Weight of KC50-3K:

Element Change Clearance:



TECHNOLOGY









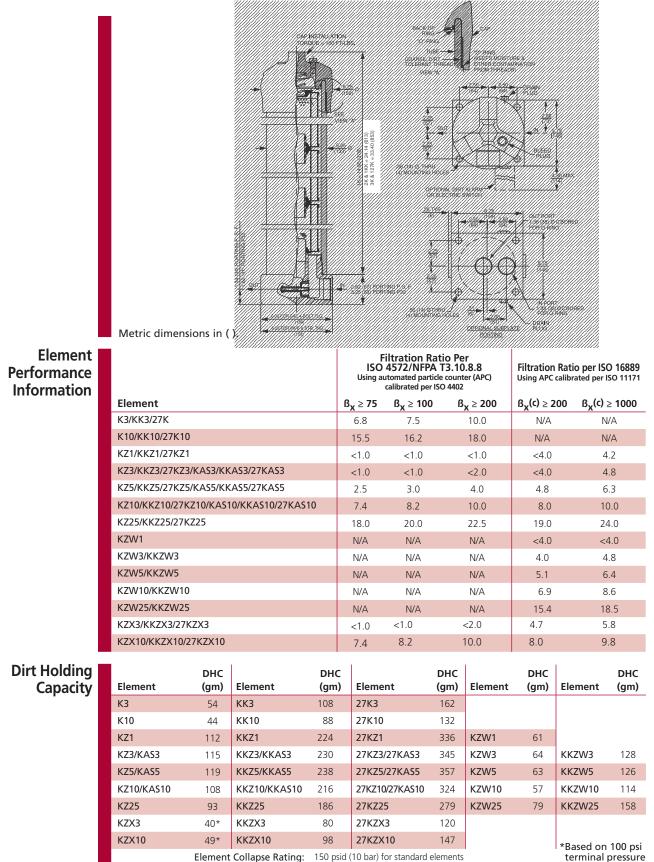
109.6 lbs. (49.7 kg)



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

SCHROEDER	INDUSTRIES 117	

#### **Base-Ported Pressure Filter KC50**



Element Collapse Rating:

Flow Direction: **Element Nominal Dimensions:** 

150 psid (10 bar) for standard elements 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	1						Fluid	NF30
Pet	roleum Ba	sed Fluids	All E Media (cellulose	dia (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic)							Compatibility	NFS30
ŀ	ligh Wate	r Content	ASP <sup>®</sup> Media (synthetic)								11 550	
	Invert I	Emulsions	10 and 25 µ Z-Media	® (synthetic),	10 µ ASP <sup>®</sup> N	ledia (sy	nthetic)					YF30
	Wat	er Glycols	3, 5, 10 and 25 μ Ζ-Ν	/ledia <sup>®</sup> (synth	etic) and all A	ASP® Me	edia (syn	thetic)				
	Phosph	ate Esters	All Z-Media <sup>®</sup> and ASI	<sup>®</sup> Media (syn	thetic) with H	H (EPR) s	seal desig	gnation ar	nd 3			CFX30
			and 10 µ E media (ce									PLD
		Skydrol®	3, 5, 10 and 25 $\mu$ Z-N designation and W m stainless steel wire me	edia (water re	emoval) with I	H.5 seal	designat	tion (EPR s	eals and		Skydrol <sup>®</sup> is a registere trademark of Solutia	d DE40
Pressure	Eler Series	nent Part No.	Element selections petroleum based f					-	t)		Element Selection	<b>CF40</b>
		К3	1K3	2K3†	3K3		S	ee MKF5	0		Based on	PF40
	E Media	K10	1K10	2K10†	3K10†	3K	10†	See	MKF50		Flow Rate	1.050
	Ivieula	K25		K25			2K	25†				LC50
То		KZ1	1KZ1		2KZ1†			3KZ1†				RFS50
5000 psi (345 bar)		KZ3	1KZ3/KAS3/KKA	S3/27KAS3	2K	Z3†		3KZ3	t			
. ,	Z- Media®	KZ5	1KZ5/KAS5/K	KAS5/27KA	S5	2KZ51	t	3KZ!	5†			<b>RF60</b>
	IVIEUIA	KZ10	1KZ10/KA	S10/KKAS1	0/27KAS10		2KZ10	)† 3KZ	10†			6560
		KZ25		1KZ2	1KZ25 2KZ25†			it			<b>CF60</b>	
	Flow	gpm	0 25	50	75	100	1	25	150	)		CTF60
Flow (L/min) 0 100				200	300	4(	00	500	570	)		
			K-size elements can				require	s 2" port	ing (P32	2)		<b>VF60</b>
-			K elements, respecti	-								LW60
hown abov	/e are the e	lements mo	ost commonly used in t	this housing								LVVOO
			se of E Media in High n, refer to Fluid Comp						o/			KF30
∆P <sub>housing</sub>				ΔP <sub>elem</sub>	ient						Pressure	TF50
	ing for fluids	s with sp gr =	= 0.86:	ΔP <sub>eleme</sub>	$\Delta P_{element} = flow x element \Delta P factor x viscosity factor$						Drop	KF50
1005	5	(L/min) (300) (400) (500			actors @ 150						Information Based on	KI JU
14	(100) (200)	(300) (400) (500	») 7 ]				1K	2K/KK	3K/27I	< 🗌	Flow Rate	KC50
12 10		\$ <b>/</b>	(0.75)	К3			.25	.12	.08		and Viscosity	
			(0.50)	K10 K25			.09 .02	.05 .01	.03 .01			MKF50
isa dP ∞	111		(0.50) <del>(</del>	KZ1			.20	.10	.05			VCGE
4		<b>F</b>	(0.25)		S3/KKAS3/2		.10	.05	.03			KC65
0		100	150		S5/KKAS5/2		.08	.04	.02			NOF30-05
	Flow	w gpm		KZ10/K/	AS10/KKAS10/	ZINASI	<b>0</b> .05 .04	.03 .02	.02 .01			
p qr = spec	ific gravity			KZX10			.08	.04	.03			NOF50
		d be based o	n element flow									
nformation	provided in	the Element	Selection chart above.				1K	2K				FOF60-03
<b>ΛΡ</b> αι. = 4	<b>ΛΡ</b>	- ∆P <sub>element</sub>		KZW1			.43	4.5				NMF30
Exercise:	- housing	element		KZW3 KZW5			.32 .28	.16 .14				11111 30
		(1001)	1. ) (	12443			.20	. 14				DMEGO

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 = [190 x (.10÷54.9) x (44÷32) = .48 bar] = 3.0 + 6.7 = 9.7 psi or = [.20 + .48 = .68 bar]

.23

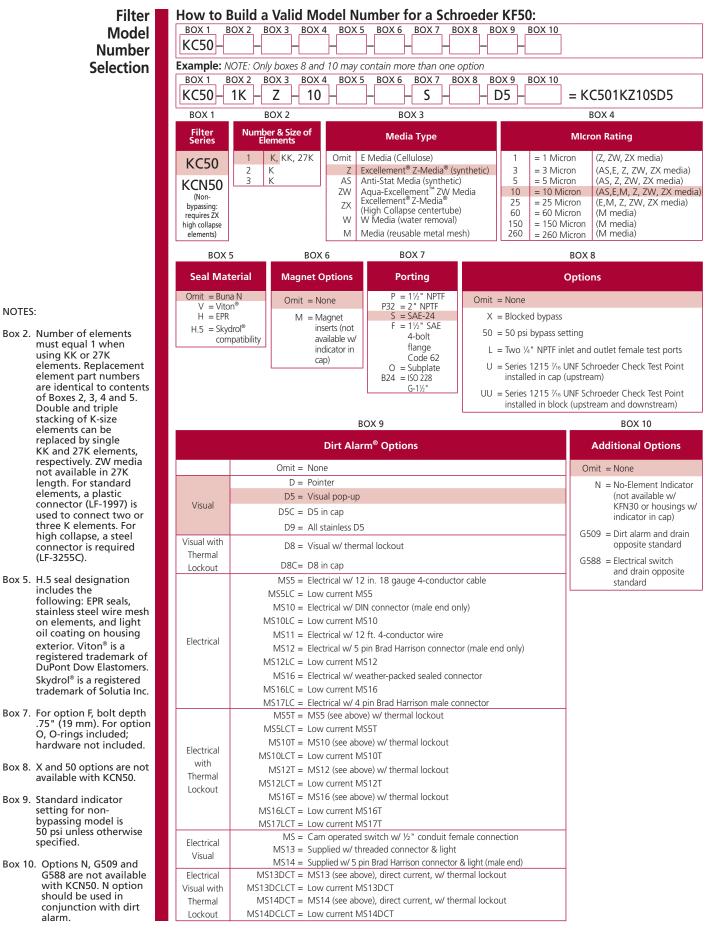
.14

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

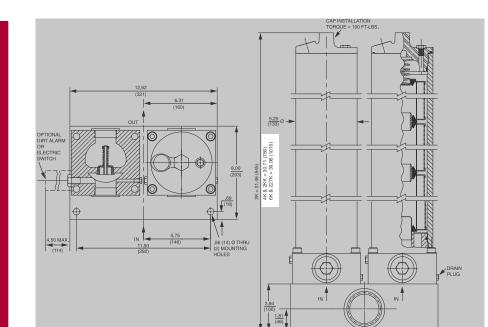


**Applications** 

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)	поизінд	FOF00-05
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) Full Flow: 61 psi (4.2 bar) Non-bypassing model has a blocked bypass.		Cartridge Elements
Porting Base & Cap: Element Case:	Ductile Iron Steel		HS60
Weight of MKF50-2K: Weight of MKF50-4K: Weight of MKF50-6K:	214.0 lbs. (97.3 kg) 243.0 lbs. (110.2 kg) 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 Using au	iltration Rat 4572/NFPA utomated particle calibrated per ISC	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
Element	β <sub>χ</sub> ≥ 75	$\beta_X \ge 100$	$\beta_{\chi} \ge 200$	β <sub>χ</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 C

lolding apacity	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (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 psi
		Element	Collapse Rating:		(10 bar) for standar d (210 bar) for high				terminal	pressure
			Flow Direction:	Outside I	n					

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

### 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		4K	3†			6K3		Based on Flow Rate
	E Media	K10		4K10† & 6K10†						
	IVIEUIA	K25		4K25†						
То		KZ1		4KZ11	ŀ		6K2	21†		
5000 psi (345 bar)		KZ3		6KZ3†						
(5.15.501)	Z- Media®	KZ5		4KZ5†						
	IVIEUIA	KZ10			4KZ10†			6KZ10†		
		KZ25			4KZ25†			6KZ25†		
	EL.	gpm	0 100	120	140	160	180	20	00	
	Flow	(L/min)	0 400	o 400 600 760						
Double and	trinlo stock	ing of K dis	o olomonte con l	ha ranlaca	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

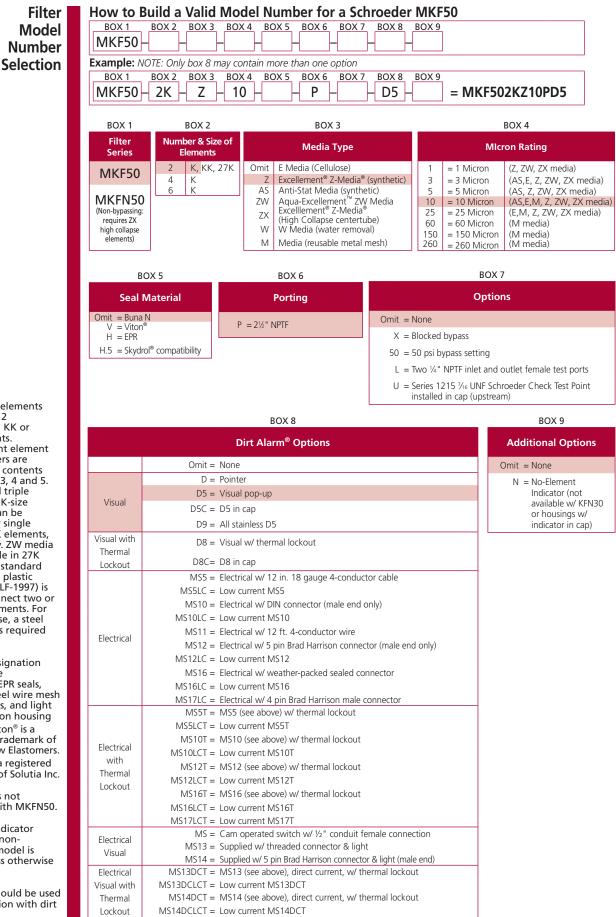
Sizing of elements should be based on element flow information provided in the Element Selection chart above.

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

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 Flow Rate	KC50
К3	.12	.06	.04	and Viscosity	
K10 K25	.05 .01	.02 .01	.02 .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.

#### 124 SCHROEDER INDUSTRIES

### **Features and Benefits** Base-ported high pressure filter

- Patented dirt-tolerant cap design
- Can be installed in vertical or horizontal position
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in flanged porting
- No-Element indicator option available
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Double and triple stacking of K-size element can be replaced by single KK or 27K-size element
- Available with Patented GeoSeal<sup>®</sup> Elements. See Section 8 – GeoSeal Filters (page 341) for details.

#### Model No. of filter in photograph is KC651K10FD9.







TECHNOLOGY

IO

PULP & PAPER



MOBILE VEHICLES





AUTOMOTIVE

AGRICULTURE



MAKING



**Applications** 

### **KC65**

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids	Filter	FOF60-03
Max. Operating Pressure:	6500 psi (450 bar)	Housing	F0F00-05
Min. Yield Pressure:	19,500 psi (1345 bar), per NFPA T2.6.1	Specifications	NMF30
Rated Fatigue Pressure:	5000 psi (345 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) Full Flow: 75 psi (5.2 bar) Non-bypassing model has a blocked bypass.		Cartridge Elements
Porting Base & Cap: Element Case:	Ductile Iron Steel		HS60
Weight of KC65-1K: Weight of KC65-2K: Weight of KC65-3K:	80 lbs. (36.3 kg) 102 lbs. (46.3 kg) 124 lbs. (56.3 kg)		MHS60
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K		KFH50

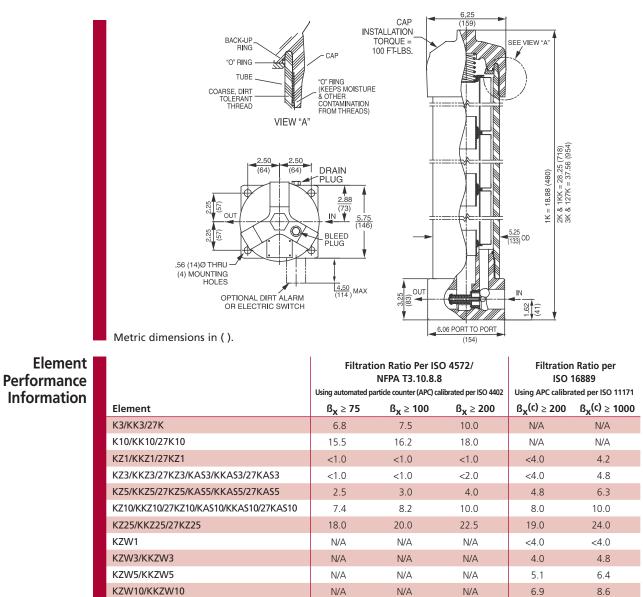


100 gpm

6500 psi 450 bar

380 Ľ/min





### Dirt Holding

irt 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	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:		(10 bar) for standar d (210 bar) for high				terminal	
			Flow Direction:	Outside I	n					
		Element Nom	ninal Dimensions:	KK: 3.	9" (99 mm) O.D. x 9" (99 mm) O.D. x 9" (99 mm) O.D. x	18.0" (46	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

	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 vith H (EPR) seal desigr		natior	n and	3			PLD
	Skydro			ynthetic) and ASP® Mee 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 Series	nent Part No.		ns are predicated o I fluid and a 40 psi (						Element Selection	<b>CF40</b>
		K3	1K3	3	2K3†	3K3	3			Based on Flow Rate	<b>PF40</b>
	E Media	K10		1K10		2K	(10†	3K10†			LC50
_		K25		1K25							
To 6500 psi		KZ1		1KZ1	2KZ1†	3KZ					RFS50
(450 bar)	Z-	KZ3		AS3/KKAS3/27KAS3	_	2KZ		3KZ3†			<b>RF60</b>
	Media®	KZ5 KZ10		<pre>KAS5/KKAS5/27KAS //KAS10/KKAS10/27I</pre>	-	2	KZ5†	3KZ5 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 mmonly used in thi	placed by single KK s housing.	& 2/K elen	nents	, resp	bectively			
				ater Content, Invert E bility: Fire Resistant I							LW60
		initiation, ici	er to ridia compati		iaias, page	.5210		2.			KF30
ΔP <sub>housing</sub>				$\Delta P_{element}$ $\Delta P_{element} = flow x \in \mathbb{R}$				aite : fa atau	_	Pressure	ТГГО
KC65 ∆P <sub>housing</sub>	for fluids with	n sp gr = 0.86	5:	$\Delta P_{element} = 1000 \times 6$ El. $\Delta P$ factors @ 150			VISCO	SILY TACLOF	_	Drop Information	<b>TF50</b>
(50)	Flow (L (150)		350)		505 (52 (51).	1K	2К	ЗК		Based on	KF50
20			(1.25)	K3	-	.25	.12			Flow Rate and Viscosity	КС50
15	·····		<b>-</b> (1.00)	K10 K25		.09 .02	.05 .01	.03 .01			KC30
· <u>a</u> 10	·	/	(0.75) (bg	KZ1	74453	.20	.10	.05			MKF50
	·}	-	(0.50) <sup>A</sup>	KZ3/KAS3/KKAS3/2 KZ5/KAS5/KKAS5/2		.10 .08	.05 .04	.03 .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> .43	2K	-			NOF50
sp gr = specific Sizing of eleme		based on eler	ment flow	KZW3		.32	.16				
information pro	wided in the E	lement Selec	tion chart above.	KZW5 KZW10		.28 .23	.14 .12			F	OF60-03
				KZW25		.14	.07				NMF30
$\Delta P_{\text{filter}} = \Delta P_{\text{filter}}$ Exercise:	housing $+ \Delta P$	element		If working in units factor by 54.9.	of bars & I	/min,	divid	de above			
Determine ∆P 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: ∆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 = or										VELIEA
:	= [.55 + .29 =	.84 bar]									KFH50



Model Number Selection	KC65-	DX 2 BOX 3 BOX 	_	5 BOX 6 BOX 7 BC		DX 9 B(	OX 10	
Selection	BOX 1 BO	DX = BOX =	4 BOX			DX 9 B(	OX 10	= KC651KZ10F
	BOX 1	BOX 2		BOX 3				BOX 4
	Filter Series	Number & Size of Elements		Media Type				Mlcron Rating
	KC65 KCN65 (Non- bypassing: requires ZX high collapse elements)	1 K, KK, 27K 2 K 3 K	Z I AS ZW ZX ZX	E Media (Cellulose) Excellement <sup>®</sup> Z-Media <sup>®</sup> (syn Anti-Stat Media (synthetic) Aqua-Excellement <sup>®</sup> ZV Mee Excelllement <sup>®</sup> Z-Media <sup>®</sup> (High Collapse centertube) W Media (water removal) Media (reusable metal mesl	dia	3 5 10 25 60 150	= 1 Micr = 3 Micr = 5 Micr = 10 Mic = 25 Mic = 60 Mic = 150 M = 260 M	on (AS,E, Z, ZW, ZX media on (AS, Z, ZW, ZX media) cron (AS,E,M, Z, ZW, ZX media) cron (E,M, Z, ZW, ZX media) cron (M media) licron (M media)
	BOX 5	вох	6	BOX 7				BOX 8
	Seal Mate	erial Magnet (	Options	Porting			(	Options
	Omit = Buna M V = Viton <sup>®</sup>		one	F = 1½" SAE 4-bolt flange	Omit =	None		
	V = VROIT H = EPR	M = N	lagnet serts (not	Code 62	X =	Blocked b	oypass	
lements KK ents. element s are ontents	H.5 = Skydrc compa	atibility in	vailable w/ dicator in ap)		L = U = UU =	Series 12 installed i Series 12	NPTF inle 15 ¾6 UI in cap (u 15 ⅔6 UI	t and outlet female test ports NF Schroeder Check Test Point
4 and 5. riple			B	OX 9				BOX 10
-size n be				m <sup>®</sup> Options				Additional Options
single elements,		Omit = N	lone					Omit = None
/. ZW media	Visual	D9 = V	′isual pop∙	-up				N = No-Element Indicator (not
le in 27K standard		MS5SS = E	lectrical w	// 12 in. 18 gauge 4-cond	uctor cab	le		available w/
plastic LF-1997) is		MS5SSLC = Low current MS5						KCN65) G509 = Dirt alarm and
nect two or ments. For		MS10SS = Electrical w/ DIN connector (male end only)						drain opposite standard
se, a steel s reguired		MS10SSLC = Low current MS10 MS11SS = Electrical w/ 12 ft. 4-conductor wire						Stanuaru
, equiled	Electrical							
ignation		MS12SS= Electrical W 5 pin Brad Harrison connector (male end only) MS12SSLC = Low current MS12						
PR seals,		MS12SSLC = LOW CURRENT MS12 MS16SS = Electrical w/ weather-packed sealed connector						
el wire mesh s, and light		MS165SLC = Low current MS16						
n housing on <sup>®</sup> is a		MS17SSLC = E	lectrical w	// 4 pin Brad Harrison mal	e connect	tor		
ademark of		MS5SST = N	/IS5 (see a	bove) w/ thermal lockout				
Elastomers. registered		MS5SSLCT = L	ow currer	nt MS5T				
Solutia Inc.		MS10SST = N	/IS10 (see	above) w/ thermal lockou	ut			
oolt depth ).	Electrical with	MS10SSLCT = L						
	Thermal			above) w/ thermal lockou	ut			
ons are with	Lockout	MS12SSLCT = L						
WICH				above) w/ thermal lockou	ut			
icator		MS16SSLCT = L						
on- odel		MS17SSLCT = L		// threaded connector & li	aht			
ss	Electrical Visual			/ 5 pin Brad Harrison conne	5	nt (male e	nd)	
cified.				above), direct current, w				
509 and ot	Electrical Visual with	MS13SSDCLCT = L			archituri	Jacout		
th KCN65. ould be	Thermal			above), direct current, w/	thermal l	ockout		
unction	Lockout	MS14SSDCLCT = L	,					

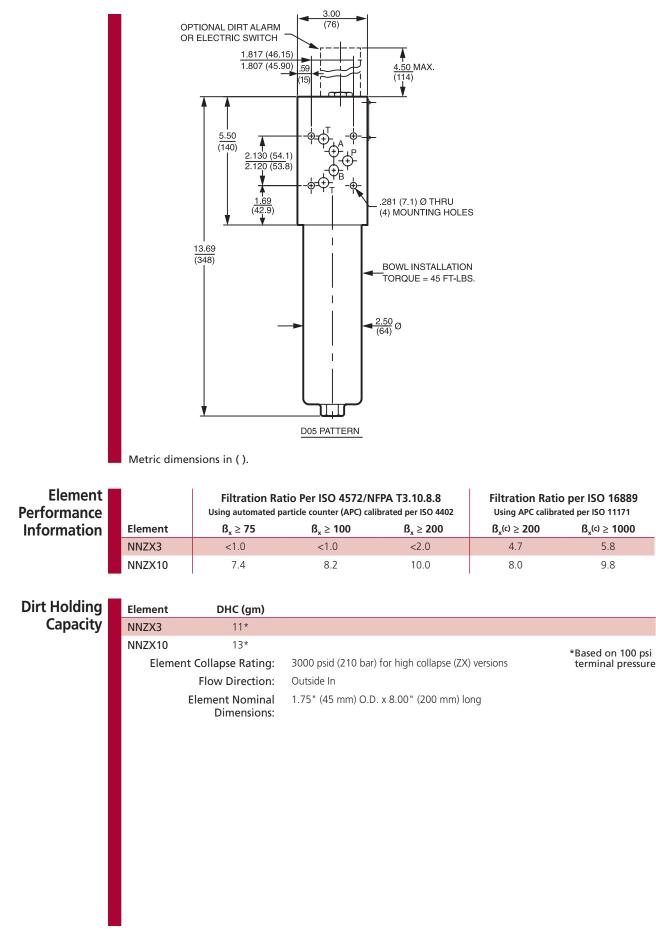
#### NOTES:

- 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

	Exatures and Benefits9. Sandwich filter configured for DO5 subplate9. Withstands high pressure surges, high static pressure loads9. 3000 psi collapse elements	NF30 NFS30 YF30 CFX30 PLD DF40 CF40 PF40 LC50 RF550 RF60 CF60
Model No. of filter in photograph	ACCHINE TOOL	CTF60 VF60 LW60 KF30 TF50 KC50 KC55 KC65 NOF30-05 NOF50
Flow Rating: Max. Operating Pressure: Min. Yield Pressure: Rated Fatigue Pressure: Temp. Range: Non-Bypass Model: Porting Head: Element Case: Weight of NOF30-1NN: Element Change Clearance:	Up to 12 gpm (45 L/min) for 150 SUS (32 cSt) fluidsFilter Housing Specifications3000 psi (210 bar)10,000 psi (690 bar), per NFPA T2.6.1SpecificationsContact Factory-20°F to 225°F (-29°C to 107°C)SpecificationsHigh collapse elements are standardAluminum AluminumSpecifications6.6 lbs. (3.0 kg)4.50° (115 mm)Specifications	NMF30 RMF60 Cartridge Elements HS60 MHS60 KFH50

### **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 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 Selection	CF40
Pressure	Series	Part No. NNZX3	petroleum based flu		NZX3	Based on	
To 3000 psi	Z- 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 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 Information	LW60
		v (L/min)		El. $\Delta P$ factor	rs @ 150 SUS (32 cSt):	Based on	LWOO
40	(10) (20	)) (30)	(40)	NNZX3 NNZX10	1.00 .52	Flow Rate and Viscosity	KF30
30							<b>TF50</b>
			(2.0)	If working 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 5 E	6 8 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 ZX1005D5 using 150 SUS (32 cSt) fluid.		RMF60
				Solution:	_		
				∆P <sub>housing</sub> ∆P <sub>element</sub>	= 15.0 psi [1.0 bar] = 8 x 0.52 x (150÷150) = 4.2 psi		Cartridge Elements
				$\Delta P_{total}$	or = [30 x (0.52 ÷54.9) x (32÷32) = 0.3 bar] = 15.0 + 4.2 = 19.2 psi	1	HS60
				total	or = [1.0 + 0.3 = 1.3 bar]		MHS60
							KFH50

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

ModelBOX 1NumberNOF30-SelectionExample: NO	BOX 2 BOX 3 BOX TE: One option per box BOX 2 BOX 3 BOX 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 V = Viton®	05 = D05 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 cab	le
		MS5LC = Low current MS		
		MS10 = Electrical w/ DIN of	connector (male end only)	
		MS10LC = Low current MS1	0	
	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/ weat	her-packed sealed connecto	r
		MS16LC = Low current MS1	6	
		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 Lockout	MS12T = MS12 (see above		
	Lockout	MS12LCT = Low current MS1		
		MS16T = MS16 (see above MS16LCT = Low current MS1		
		MS16LCT = Low current MS1 MS17LCT = Low current MS1		
	Flactrical	MS17ECT = Low current for state MS13 = Supplied w/ threat		
	Electrical Visual		Brad Harrison connector & light	nht (male end)
		MS13DCT = MS13 (see above		-
	Electrical Visual with	MS13DCLCT = Low current MS1		ocitout
	Thermal	MS14DCT = MS14 (see above		ockout
nt	Lockout	MS14DCLCT = Low current MS1		

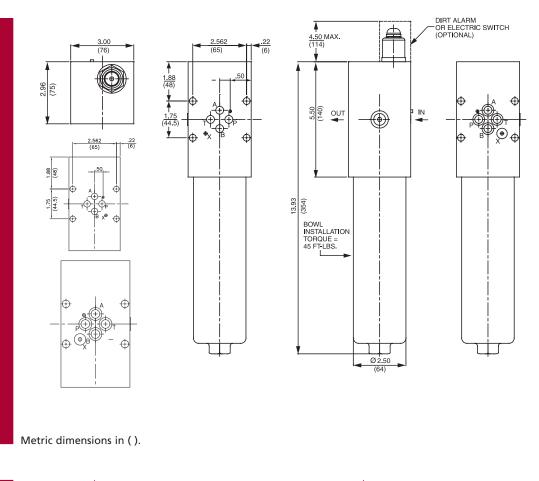
all aluminum parts are anodized. Viton<sup>®</sup> is a registered trademark of DuPont Dow Elastomers.

Box 4. For options V and W,

## High-Pressure Servo Sandwich Filter NOF50

Model No. of filter in photograph i	<ul> <li>Eastily applied to new and existing systems</li> <li>All steel construction</li> <li>ANOPEONEY</li> </ul>	nin OSI Ar CFX30 PLD DF40 CF40 PF40 LC50 RFS50 RF60 CF60
Image: A constraint of the const	Image: Window Structure       Image: Window Structure         Image: Window Structure       Image: Window Structure <th>LW60 KF30 TF50 KF50 KC50 MKF50 KC65</th>	LW60 KF30 TF50 KF50 KC50 MKF50 KC65
Flow Rating: Max. Operating Pressure: Min. Yield Pressure: Rated Fatigue Pressure: Temp. Range: Non-Bypass Model: Porting Head: Element Case: Weight of NOF50-1SV: Element Change Clearance:	Up to 15 gpm (57 L/min) for 150 SUS (32 cSt) fluidsFilter Housing5000 psi (345 bar)Filter Housing15,000 psi (1034 bar), per NFPA T2.6.1Ester4000 psi (276 bar) per NFPA T2-6.1 R2-2005Ester-20°F to 225°F (-29°C to 107°C)EsterStandard with high collapse elementsEsterSteel17 lb. (7.7 kg)17 lb. (7.7 kg)Ester	NOF30-05 NOF50 FOF60-03 NMF30 RMF60 Cartridge Elements HS60 MHS60 KFH50

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



Element Performance			ntio Per ISO 4572/N Darticle counter (APC) ca	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$
	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*	*Beend on 100	
	Eleme	ent Collapse Rating:	3000 psid (210 bar) for high collapse (ZX) versions *Based on 100 terminal press	sure
		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 t Emulsions		Z-Media <sup>®</sup> (synthetic) Media <sup>®</sup> (synthetic)	)		YF30
		ater Glycols		Z-Media <sup>®</sup> (synthetic)	)		
		-		-			CFX30
							PLD
							<b>DF40</b>
Pressure	Eler Series	nent Part No.	Element selecti petroleum base		d on the use of 150 SUS (32 cSt)	Element Selection	<b>CF40</b>
То		SVZX3	p-1		VZX3	Based on Flow Rate	PF40
5000 psi	Z- Media®	SVZX10		15\	/ZX10		FF4U
(345 bar)		SVZX25		15\	/ZX25		LC50
	Flow	51	) 		15 57		RFS50
Shown abov	ve are the e	lements mos	st commonly used	in this housing.			<b>RF60</b>
Note: Conta Application:	ct factory r s. For more	egarding us information	e of E Media in Hi , refer to Fluid Co	igh Water Content, mpatibility: Fire Re	Invert Emulsion and Water Glycol sistant Fluids, pages 21 and 22.		CF60
							CTF60
∆P <sub>housing</sub>				ΔP <sub>element</sub>	(In the second AD for the second for the second	Pressure 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 rs @ 150 SUS (32 cSt):	Information	LW60
120	Flc (10) (20)	w (L/min) (30) (40)	(50)	SVZX3	1.00	Based on Flow Rate	KF30
100			(7.5)	SVZX10	.52	and Viscosity	TEEO
80			(5.0)	If working factor by 5	in units of bars & L/min, divide above 4.9.		<b>TF50</b>
.isq 60		1055076	∆P (bar)		actor: Divide viscosity by 150 SUS (32 cSt).		KF50
40	• • • • • • •		(2.5)				KC50
20							MKF50
	2 4 F	6 8 10 low gpm	12 15				
		nould not be use nould not be use	d beyond 7gpm 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 ZX1076090D5 using 150 SUS (32 cSt) fluid.		
				Solution:			RMF60
				ΔP <sub>housing</sub>	= 30.0 psi [2.1 bar] = 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 or		Elements
				$\Delta P_{total}$	= [30 x (0.52 ÷54.9) x (32÷32) = 0.3 bar] = 30.0 + 4.2 = 34.2 psi		HS60
				lotai	or = [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: BOX 1	VOTE: One opti BOX 2 E	ion per box 3OX 3 BOX 4 BOX 5 BOX 6 BOX 7	BOX 8			
NOF50		VZX3 760		501SVZX3760D5		
BOX 1	BOX 2 Number	BOX 3	BOX 4	BOX 5		
Filter Series	of 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 Test Point				
Omit	= 60 psid	Omit = None				
90	= 90 psid	U = Series 1215 7/16"-20 UNF				
		Schroeder Check Test Point installation				
		BOX 8		_		
		Dirt Alarm <sup>®</sup> Options				
		Omit = None				
Visual		D5 = Visual pop-up (60 psid indicator setting)				
Visual wi Therma 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	r (male end only)			
	N	MS12LC = Low current MS12				
		MS16 = Electrical w/ weather-packed sealed conn	ector			
	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 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 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 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				

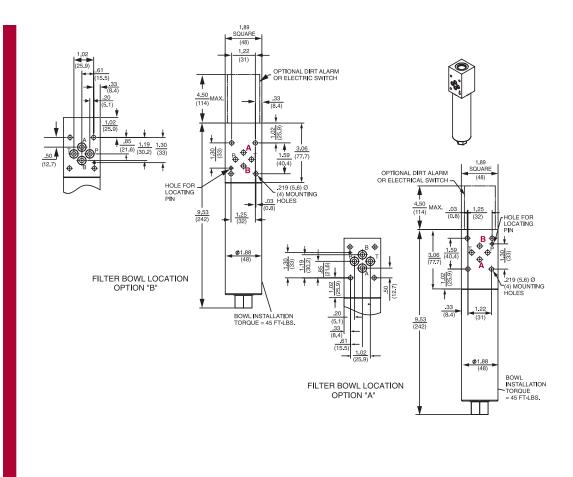
NOTES:

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

## High-Pressure Sandwich Filter FOF60-03

Model No. of filter in photograph is FC	Fortures and Benefits <ul> <li>                 Sandwich filter configured for D03 subplate pattern                 </li> <li>                 Withstands high pressure surges, igh static pressure loads                 </li> <li>                      S000 psi collapse elements                 </li> </ul>	NF30 45 L/min 6000 psi 415 bar CFX30 PLD DF40 CF40 PF40 LC50 RF50 RF50 CF60 CTF60
IndustrialImage: Construction of the second sec		LW60 KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03
Flow Rating: Max. Operating Pressure: Min. Yield Pressure: Rated Fatigue Pressure:	Up to 12 gpm (45 L/min) for 150 SUS (32 cSt) fluids 6000 psi (415 bar) 26,000 psi (1790 bar), per NFPA T2.6.1 4000 psi (275 bar), per NFPA T2.6.1	Filter Housing Specifications Cartridge Elements
Temp. Range: Non-Bypass Model: Porting Head: Element Case: Weight:	-20°F to 225°F (-29°C to 107°C) Available with high collapse elements Steel Steel 7.3 lbs. (3.3 kg)	HS60 MHS60
Element Change Clearance:	4.50" (115 mm)	RIES 137

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



Metric dimensions in ( ).

Element Performance			tio Per ISO 4572/NF article counter (APC) calil	Filtration Ratio per ISO 16889 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 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 To	Series	Part No. FZX3	of 150 SUS (32 cs	· ·	oased fluid. 2X3		_	Selection Based on	PF40
6000 psi (415 bar)	Z- Media®	FZX10			×10		_	Flow Rate	
			)			12			LC50
	Flow		)	20	4	0 45			<b>RFS50</b>
			st commonly used in	-					<b>RF60</b>
Note: Conta Application	s. For more	information	e of E Media in Higi , refer to Fluid Com	n Water Conten npatibility: Fire F	t, Invert Emulsion and Resistant Fluids, pages 2	Water Glycol 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 Information	LW60
		ow (L/min)		El. ΔP facto FZX3	rs @ 150 SUS (32 cSt): 6.06			Based on Flow Rate	KF30
300	(10) (	(20) (30)	(40)	FZX10	4.45			and Viscosity	TF50
250			(16)	lf working i by 54.9.	n units of bars & L/min,	divide above fa	actor		KF50
- <u>isd</u> 150			(12) G U (12) G U U	Viscosity fa	<i>ctor:</i> Divide viscosity by	y 150 SUS (32 cs	5t).		KC50
100 50			(4)						
0		6 8	10 12						MKF50
_ Ir		low gpm 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) 1003 using 200 SUS (44				RMF60
				Solution:	_				
				ΔP <sub>housing</sub> ΔP <sub>element</sub>	= 40.0 psi [2.75 bar] = 5 x 4.45 x (200÷150	) = 29.7 psi			Cartridge Elements
				$\Delta P_{total}$	or = [19 x (4.45 ÷54.9) x = 40.0 + 29.7 = 69.7 g		bar]		HS60
					or = [2.75 + 2.12 = 4.87	bar]			MHS60
									KFH50

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

Filter Model Number Selection	How to Build a Valid Model Number for a Schroeder FOF60-03: BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 FOF60								
	FOF60 - 1 - F2	ZX3	- 03 - A - D5	= FOF601FZX3	03AD5				
	BOX 1 BOX 2		BOX 3	BOX 4	BOX 5				
	Filter Number of 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 Filter Bowl			OX 7					
	Location			m <sup>®</sup> Options					
	A = Bowl adjacent to Port "A"	Visual	Omit = None D5 = Visual pop-up	<u> </u>					
	B = Bowl adjacent	Visual with	D8 = Visual w/ the						
	(Refer to drawing on	to Port "B" Thermal (Refer to drawing on Lockout							
	page 138.)		MS5 = Electrical w/ 1	12 in. 18 gauge 4-condu	ictor cable				
			MS5LC = Low current MS						
			MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10						
			MS11 = Electrical w/ 1						
		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 MS5T = MS5 (see abc	ve) w/ thermal lockout	connector				
			MSST = MSS(SEC use) MSSLCT = Low current N						
			MS10T = MS10 (see ab	oove) w/ thermal lockout					
		Electrical with	MS10LCT = Low current N	VIS10T					
		Thermal Lockout	MS12T = MS12 (see ab	*					
		LUCKUUT	MS12LCT = Low current M 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 above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT						

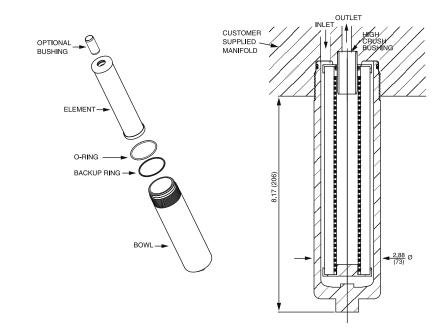
NOTES:

- 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

	Fractures and Benefits         • Allows for effective filtration         in customer's manifold	20 gpm 75 <i>L/min</i> 3000 psi 210 bar	NF30 NFS30 YF30 CFX30 PLD DF40 CF40 CF40 LC50 RF550 RF550 RF60 CF60
	<image/> <image/> <image/> <image/> > Wire wire wire wire wire wire wire wire w		VF60 LW60 KF30 TF50 KC50 KC50 KC65 NOF30-05 NOF50 FOF60-03
Flow Rating: Max. Operating Pressure: Min. Yield Pressure: Rated Fatigue Pressure: Temp. Range: Element Case: Element Change Clearance: *Only with manifold material propertie	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids 3000 psi (210 bar)* 10,000 psi (690 bar)*, per NFPA T2.6.1 2400 psi (185 bar)*, per NFPA T2.6.1 -20°F to 225°F (-29°C to 107°C) Aluminum 4.50" (115 mm) s equivalent to aluminium 6061-T651.	Filter Housing Specifications	NMF30 RMF60 Cartridge Elements HS60 MHS60 KFH50

#### **Manifold Filter Kit** $(\mathbf{0})$ 85



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. Metric dimensions in ( ).

Element Performance			tio Per ISO 4572 Particle counter (APC) of		ation Ratio per ISO 16889 g APC calibrated per ISO 11171		
Information	Element	$\beta_x \ge 75$	<b>B</b> <sub>x</sub> ≥ 100	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$	Capacity 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		ollapse Rating: low Direction: al Dimensions:	3000 psid (210 ba Outside In 1.75" (45 mm) O			*Based on 100 ps terminal pressur
Pressure Drop	$\Delta \mathbf{P}_{element}$						
Information	$\Delta P_{element} = flow x element \Delta P factor x viscosity factor$						
Based on Flow Rate and Viscosity	NNZX3 NNZX10 If working			ove factor by 54.9. 32 cSt).	_		
Filter Model Number Selection	BOX 1 NMF3	BOX 2	BOX 3 BO	ber for a Schro	eder NMF30	:	
Selection	BOX 1 NMF3	BOX 2		X 4 BOX 5	= NMF301N	NZX3	
acement element numbers are	BOX 1	BOX 2		BOX 3		BOX 4	BOX 5
tical to contents oxes 3 and 4.	Filter Series	Number of Elements	Elemer	nt Part Number	Se	al Material	Bushing
ptions V and W,		1	NNZX3 = NN size	e 3 µ high collapse me	edia Omit	= Buna N	Omit = Included
uminum parts are lized. Viton <sup>®</sup> is a	NMF30	,	NNZX10 = NN size	e 10 µ high collapse m	ieula	= Viton®	N = Not included
tered trademark of			NNZX25 = NN size	e 25 µ high collapse m	nedia W	= Buna N	

**142 SCHROEDER INDUSTRIES** 

#### 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

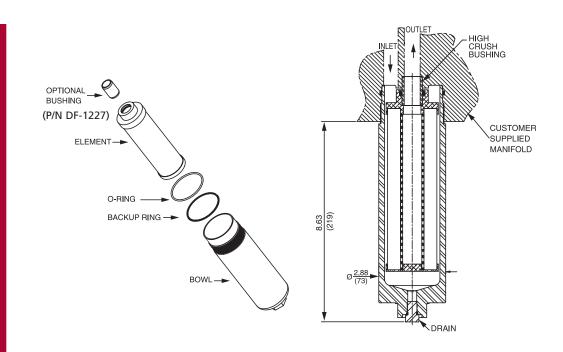
		NF30 <u>115 L/min</u> <u>6000 psi</u> <u>415 bar</u> CF30 PLD DF40 CF40 PF40 RF550 RF60 CF60 CTF60 VF60
INDUSTRIAL       Image: Constraint of the second seco	<image/> <image/> <image/> <image/> <image/>	Applications       LW60         KF30         TF50         KF30         KF50         KC50         MKF50         KC65         NOF30-05         NOF50-760         FOF60-03         NMF30
Flow Rating: Max. Operating Pressure: Min. Yield Pressure: Rated Fatigue Pressure: Temp. Range: Element Change Clearance:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids 6000 psi (415 bar)* 18,000 psi (1240 bar)* 2300 psi (159 bar)* -20°F to 225°F (-29°C to 107°C) Steel 3.0" (75 mm)	RMF60 Filter Housing Specifications HS60 MHS60

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

KFH50



### **Manifold Filter Kit**

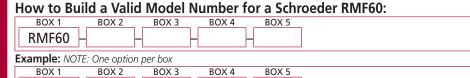


Manifold kit consists of element, o-ring, backup ring and bowl. Bushing is optional depending on machined cavity style. For manifold machining details, request drawing D-10536 from factory.

Metric dimensions in ( ).

Element Performance		Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		Dirt Holding
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \ge 1000$	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 Collapse Rating: 3000 psid (210 bar)						
		F	low Direction:	Outside In			
		Element Nomina	al Dimensions:	2.18" (55 mm) O.	D. x 8.15" (206 m	m) long	
Pressure Drop Information Based on Flow Rate and Viscosity	$\Delta \mathbf{P}_{element}$ $\Delta \mathbf{P}_{element} = flow x element \Delta \mathbf{P} factor x viscosity factor$ $El. \Delta P factors @ 150 SUS (32 cSt):$ $\mathbf{RZX3} \qquad \text{N/A}$ $\mathbf{RZX10} \qquad \text{N/A}$ If working in units of bars & L/min, divide above factor by 54.9. <i>Viscosity factor:</i> Divide viscosity by 150 SUS (32 cSt).						

Filter Model Number Selection



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

= RMF608RZX3

RMF60

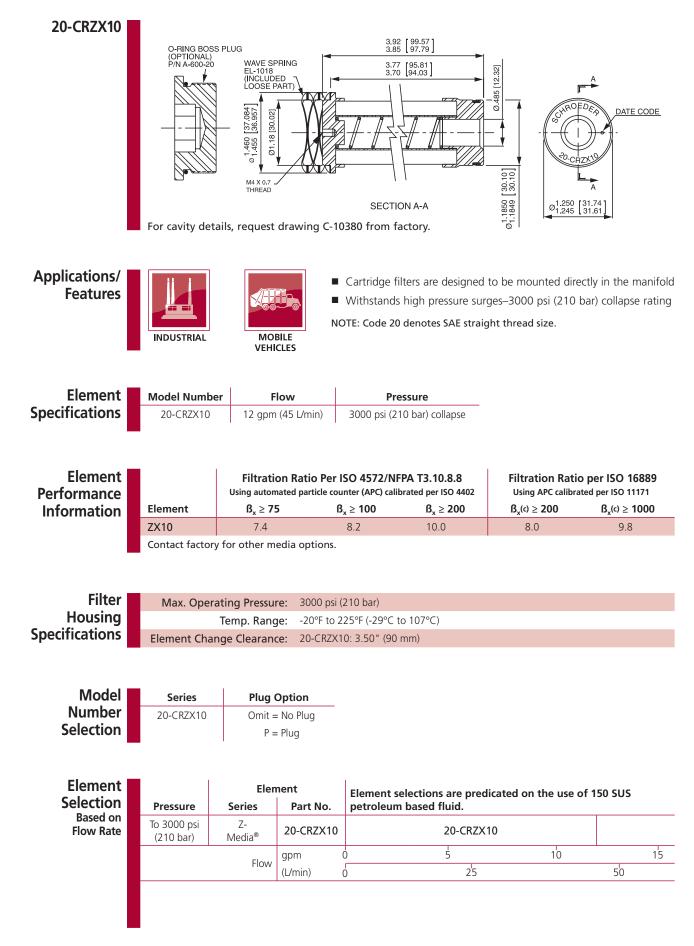
8

RZX3

# Cartridge Element 14-CRZX10

$\frac{126 \ [237]}{16 \ [237]} + \frac{126 \ [237]}$							14-CRZX10	NF30
$\frac{1}{12 (2000)} + \frac{1}{12 (2$		O-RING BOSS PL (OPTIONAL) P/N A-601-14	UG 2.43 2.39	[61.7] [60.7]	A -			NFS30
$ \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c}$								YF30
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} $						-		CFX30
$\frac{33}{123}$ $\frac{14}{12}$ $\frac{13}{123}$ $13$								PLD
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $					A 1.081 [ 27.4	161		<b>DF40</b>
$ \begin{array}{ c c c c c } Fit ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{l loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 4572/MPPA T3 10.8.8 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 4572/MPA T3 10.8.8 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 4572/MPA T3 10.8.8 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{loc Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{loc Ratio Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{loc Ratio Ratio Ratio Ratio Ratio Ratio Ratio Ratio Per ISO 16889 \\ \hline \end{tabular}{loc Ratio $				9.5	Ø 1.079 27.4	ĨĨ <b>」</b>		<b>CF40</b>
Image: Series       Part No.       Element       Series       Plug Option       Model       Minister         Image: Series       Part No.       Element       Series       Plug Option       Model       Model       Model       Minister         Image: Series       Part No.       Element       Series       Plug Option       Model       Model       Minister       Minister         Image: Series       Part No.       Element       Element       Series       Plug Option       Model       Minister								<b>PF40</b>
Image: Note of the second state of	For cavity de	tails, request dra	awing C-10379 fron	n factory.				LC50
$\begin{array}{ c c c c } \hline \begin{tabular}{ c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	,		5	,				RFS50
INDUSTRAL       MOBILE VENCLES       • Withstands high pressure surges-3000 psi (210 bar) collapse rating NOTE: Code 14 denotes SAE straight thread size.       CF60         MODILE VENCLES       MODILE VENCLES       MODILE VENCLES       CF60         Model Number       Flow       Pressure       CF60         Mining automated particle counter (APC) A572/NFPA T3.10.8.8       Filtration Ratio per ISO 16889       Element         Element       6, ≥ 75       B, ≥ 100       8,0       9,8       Contact factory for other media options.         Contact factory for other media options.       MKF50       MKF50       KC65         Max. Operating Pressure:       3000 psi (210 bar)       Filter       Housing Specifications       NOF30-05         Element Change Clearance:       14-CR2X10: 4.50° (115 mm)       Omit = No Plug       Model Number       NMF30         Series       Plug       Omit = No Plug       Model Number       NMF30         C10 bar)       Cartridge Flow       Sub of 150 SUS petroleum based fluid.       Flow       Flow       Flow         NOF30 05       Si0       Si0 <th></th> <td></td> <td></td> <td>5</td> <td></td> <td>·</td> <td></td> <td><b>RF60</b></td>				5		·		<b>RF60</b>
INDUSTRIALMOBILE VEHICLESCTF60Woldel NumberFlowPressureCTF60 $\frac{Model Number}{14-CRZX10}$ 6 gpm (23 Urnin)3000 psi (210 bar) collapseElementFiltration Ratio Per ISO 4572/NFPA T3.10.8.8Using automated particle countre (APC) allorated per ISO 4000B <sub>x</sub> (4) 2 100B <sub>x</sub> (4) 2 100ZX107.48.210.08.09.8Contact factory for other media options.B <sub>x</sub> (4) 2 200B <sub>x</sub> (4) 2 100RC650Max. Operating Pressure:3000 psi (210 bar)Filter Housing P = PlugFilter Housing P = PlugModel NOF50ModelElement14-CRZX10Ornit = No Plug Option P = PlugModel NoF50NOF50-03 NOF50PressureSeriesPart No.Element selections are predicated on the use of 150 SUS petroleum based fluid.Element Selection Based on How RateElement Selection Based on HIS60To 3000 psi $\frac{7}{2}$ (1/min)14-CRZX1014-CRZX10To 15 Sto Sto Setroleum based fluid.Element Selection Based on HIS60			<i>•</i>		•	r) collapse rating	reatures	<b>CF60</b>
$ \frac{Model Number}{14-CRZX10} \frac{Flow}{6 gpm (23 L/min)} \frac{Pressure}{3000 psi (210 bar) collapse} Filtration Ratio per ISO 16889 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 Using automated particle counter (APC) calibrated per ISO 4402 MKF50 MKF50 MKF50 MKF50 MKF50 MKF50 MKF50 MKF50 MKF50 NOF30-05 Specifications NOF30-05 NOF30-05 NOF30-05 NOF30-05 NOF30-05 NOF30-05 NOF50 MMF60 MMF60$	INDUSTRIAL							CTF60
$ \frac{Model Number}{14-CRZX10} = \frac{Flow}{6 \text{ gpm} (23 \text{ L/m}in)} = 3000 \text{ psi} (210 \text{ bar}) \text{ collapse} } $ $ \frac{Filtration Ratio Per ISO 4572/NFPA T3.10.8.8}{Using automated particle counter (APC) calibrated per ISO 4402 B_{4} (200 B_{4} $								<b>VF60</b>
14-CRZX106 gpm (23 L/min)3000 psi (210 bar) collapseKF30KF30Thitration Ratio Per ISO 4572/NFPA T3.10.8.8Filtration Ratio per ISO 16889ElementFiltration Ratio per ISO 16889Filtration Ratio per ISO 16889Filtration Ratio per ISO 16889KF50Leiment $B_a \ge 75$ $B_a \ge 100$ $B_a \ge 200$ $B_a (a) \ge 2$			Model Num	nber Flow		Pressure		LW60
$ \begin{array}{ c c c c c } \hline Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 \\ Using automated particle counter (APC) calibrated per ISO 4402 \\ B_{k} \geq 75 & B_{k} \geq 100 & B_{k} \geq 200 & B_{k} \otimes 2100 \\ ZX10 & 7.4 & 8.2 & 10.0 & 8.0 & 9.8 \\ \hline Contact factory for other media options. \\ \hline Contact factory for other media option for the part No. Isophic (10 bar) \\ \hline Contact factory for other media option for the part No. Isophic (10 bar) \\ \hline Contact factory for other media option for the part No. Isophic (10 bar) \\ \hline Contact factory for other media option for the part No. Isophic (10 bar) \\ \hline Contact factory for other media option for the part No. Isophic (10 bar) \\ \hline Contact factory for other media option for the part No. Isophic (10 bar) \\ \hline Contact factory for other media option for the part No. Isophic (10 bar) \\ \hline Contact factory for other media option for the part No. Isophic (10 bar) \\ \hline Contact factory for other media option for the part No. Isophic factory for o$			14-CRZX1	0 6 gpm (23 L/i	min) 3000 psi	(210 bar) collapse		KE30
Filtration Ratio Per ISO 4572/NFPA 13.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402 Bx $\geq$ 200 Bx $\geq$ 200 Bx ( $d \geq$ 2								N DU
Element $B_{\lambda} \ge 75$ $B_{\lambda} \ge 100$ $B_{\lambda} \ge 200$ $B_{\lambda}(0 \ge 1000$ InformationZX107.48.210.08.09.8KC50Contact factory for other media options.KC65MKF50KC65FilterSolo psi (210 bar)Temp. Range: -20°F to 225°F (-29°C to 107°C)Element Change Clearance:14-CRZX10: 4.50° (115 mm)SeriesPlug Option14-CRZX10Omit = No PlugPlug OptionTemp. Range: -20°F to 225°F (-29°C to 107°C)Element Change Clearance:14-CRZX10: 4.50° (115 mm)ModelNOF500Plug Option14-CRZX10Omit = No PlugPlug OptionPlug OptionPressureElement selections are predicated on the use of 150 SUS petroleum based fluid.FlowI - CRZX1014-CRZX1014-CRZX10PlugPlugPlugPlugPlugPlugPlugPlugPlugPlugPlugPlugPlugPlugPlugPlug								
MKF50         MAX. Operating Pressure: 3000 psi (210 bar)       Filter       Mousing Specifications       NOF30-05         Element Change Clearance: 14-CRZX10: 4.50* (115 mm)       Model Number       Model Number       Series       Plug Option       Model Number       Selection         14-CRZX10       Omit = No Plug P = Plug       Model Number       Selection         To 3000 psi (210 bar)       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element Selection Based on Flow Rate       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Selection Based on Flow Rate       HIG0								TF50
Max. Operating Pressure:     3000 psi (210 bar)     Filter     KC65       Temp. Range:     -20°F to 225°F (-29°C to 107°C)     Plug Option     Specifications     NOF30-05       Element Change Clearance:     14-CRZX10: 4.50° (115 mm)     Model     NOF50       Series     Plug Option     Model     NMF30       P = Plug     P = Plug     NMF30     NMF30       RMF60     RMF60     RMF60       Element     Series     Part No.     Element selections are predicated on the use of 150 SUS petroleum based fluid.     Element selection based fluid.     Element selection based fluid.     Flow Nate     Flow       for     3000 psi (210 bar)     14-CRZX10     14-CRZX10     15     15     NMF30       Flow     gpm o     5     10     15     Mste0     Hs60		Using automate $\beta_x \ge 75$	ed particle counter (APC) $\beta_x \ge 100$	calibrated per ISO 4402 $\beta_x \geq 200$	Using APC calibrid $\beta_x(c) \ge 200$	rated per ISO 11171 $\beta_x^{(c)} \geq 1000$	Performance	TF50 KF50
Max. Operating Pressure:     3000 psi (210 bar)     Filter       Temp. Range:     -20°F to 225°F (-29°C to 107°C)     Housing       Element Change Clearance:     14-CRZX10: 4.50° (115 mm)     NOF50       Model NUF50       Model NUF50       Series     Plug Option       14-CRZX10     Omit = No Plug     Model Number Selection       P = Plug     Plug     Model Number Selection     NMF30       Pressure     Series     Part No.     Element selections are predicated on the use of 150 SUS petroleum based fluid.     Element Selection Based on Flow Rate     Element Selection Based on Flow Rate     Element Selection Based on Flow Rate       To 3000 psi (210 bar)     Z-     14-CRZX10     14-CRZX10     15     MHS60       Flow     gpm     0     5     10     15     MHS60	ZX10	Using automate $B_x \ge 75$ 7.4	ad particle counter (APC) $\beta_x \ge 100$ 8.2	calibrated per ISO 4402 $\beta_x \geq 200$	Using APC calibrid $\beta_x(c) \ge 200$	rated per ISO 11171 $\beta_x^{(c)} \geq 1000$	Performance	TF50 KF50
Specifications         Specifications         Specifications         Series       Plug Option       NOF50         Series       Plug Option       Model       NOF50         Series       Plug Option       Model       NOF50         Series       Plug Option       Model       NOF50         Pressure       Series       Part No.       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element selection are predicated on the use of 150 SUS petroleum based fluid.       Element selection are predicated on the use of 150 SUS petroleum based fluid.       Media®       Hs60         To 3000 psi (210 bar)       Flow       gpm 0       5       10       15       MHS60         Flow       gpm	ZX10	Using automate $B_x \ge 75$ 7.4	ad particle counter (APC) $\beta_x \ge 100$ 8.2	calibrated per ISO 4402 $\beta_x \geq 200$	Using APC calibrid $\beta_x(c) \ge 200$	rated per ISO 11171 $\beta_x^{(c)} \geq 1000$	Performance	TF50 KF50 KC50
SeriesPlug Option 14-CRZX10Model Number SelectionFOF60-03 NMF30P = PlugOmit = No Plug P = PlugNMF30 RMF60PressureElement SeriesElement selections are predicated on the use of 150 SUS petroleum based fluid.Element Selection Based on Flow RateElement Media®Element selections are predicated on the use of 150 SUS petroleum based fluid.Element Selection Based on Flow RateModel Number Selection Based on Flow RateModel Number Selection Media®Media®To 3000 psi (210 bar)Z- Media®14-CRZX1014-CRZX10HS60To 3000 psi (210 bar)Z- Media®14-CRZX101515Flowgpm (U/min)051015To 3000 psi (210 bar)Z- Media®101515Flowgpm (U/min)02550MHS60	ZX10 Contact factor	Using automate $B_x \ge 75$ 7.4 ry for other medi	ad particle counter (APC) $B_x \ge 100$ 8.2 a options.	calibrated per ISO 4402 $\frac{\beta_x \ge 200}{10.0}$	Using APC calibrid $\beta_x(c) \ge 200$	rated per ISO 11171 $\beta_x^{(c)} \geq 1000$	Performance Information Filter	TF50 KF50 KC50 MKF50
SeriesPlug OptionModel14-CRZX10Omit = No PlugNumber SelectionNMF30P = PlugP = PlugRMF60Cartridge Element selections are predicated on the use of 150 SUS petroleum based fluid.Element SelectionElement SelectionCartridge ElementsTo 3000 psi (210 bar) $\frac{Z}{P}$ Media®14-CRZX1014-CRZX101515HS60Flowgpm (L/min)0255050MHS60	ZX10 Contact factor Ma	Using automate $\beta_x \ge 75$ 7.4 ry for other medi x. Operating Pre- Temp. F	ad particle counter (APC) $\beta_x \ge 100$ 8.2 a options. a options. a options 20°F to 22 a operation of the second sec	calibrated per ISO 4402 β <sub>x</sub> ≥ 200 10.0 10 bar) 25°F (-29°C to 107°C)	Using APC calibrid $\beta_x(c) \ge 200$	rated per ISO 11171 $\beta_x^{(c)} \geq 1000$	Performance Information Filter Housing	TF50 KF50 KC50 MKF50 KC65
$\begin{array}{c c c c c c c c c } \hline 14-CRZX10 & Omit = No Plug \\ P = Plug & P = Plug & Plug & P = Plug & RMF30 \\ \hline \end{tabular} \hline $	ZX10 Contact factor Ma	Using automate $\beta_x \ge 75$ 7.4 ry for other medi x. Operating Pre- Temp. F	ad particle counter (APC) $\beta_x \ge 100$ 8.2 a options. a options. a options 20°F to 22 a operation of the second sec	calibrated per ISO 4402 β <sub>x</sub> ≥ 200 10.0 10 bar) 25°F (-29°C to 107°C)	Using APC calibrid $\beta_x(c) \ge 200$	rated per ISO 11171 $\beta_x^{(c)} \geq 1000$	Performance Information Filter Housing	TF50 KF50 KC50 MKF50 KC65 NOF30-05
RMF60         RMF60         Pressure       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element selections are predicated on the use of 150 SUS petroleum based fluid.       Element Selection Based on Flow Rate       How Series       Part No.       14-CRZX10       14-CRZX10       14-CRZX10       14-CRZX10       15       10       15       MHS60         Flow       gpm       0       50       MHS60	ZX10 Contact factor Ma	Using automate $\beta_x \ge 75$ 7.4 ry for other medi x. Operating Pre- Temp. F	ad particle counter (APC) $\beta_x \ge 100$ 8.2 a options. a options. a options 20°F to 22 a operation of the second sec	calibrated per ISO 4402 β <sub>x</sub> ≥ 200 10.0 10 bar) 25°F (-29°C to 107°C) 1: 4.50" (115 mm)	Using APC calib $\beta_x(c) \ge 200$ 8.0	rated per ISO 11171 $\beta_{x}(c) \ge 1000$ 9.8	Performance Information Filter Housing Specifications	TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF50
Pressure     Series     Part No.     Lement selections are predicated on the use of 150 SUS petroleum based fluid.     Selection Based on Flow Rate     Elements       To 3000 psi (210 bar)     Z- Media®     14-CRZX10     14-CRZX10     HS60       Flow     gpm     0     5     10     15       Kincht     y     10     15     MHS60	ZX10 Contact factor Ma	Using automate $\beta_x \ge 75$ 7.4 ry for other medi x. Operating Pre- Temp. F	ad particle counter (APC) $\beta_x \ge 100$ 8.2 a options. a options. a options 20°F to 22 a operation of the second sec	calibrated per ISO 4402	Using APC calib β <sub>x</sub> (c) ≥ <b>200</b> 8.0 ΡΙι	rated per ISO 11171 β <sub>x</sub> (c) ≥ 1000 9.8 9.8 ug Option nit = No Plug	Performance Information Filter Housing Specifications Model Number	TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03
PressureSeriesPart No.use of 150 SUS petroleum based fluid.Selection Based on Flow RateSelection Based on Flow RateMetricityTo 3000 psi (210 bar)Z- Media®14-CRZX1014-CRZX10HS60HS60Flowgpm (L/min)02550MHS60	ZX10 Contact factor Ma	Using automate $\beta_x \ge 75$ 7.4 ry for other medi x. Operating Pre- Temp. F	ad particle counter (APC) $\beta_x \ge 100$ 8.2 a options. a options. a options 20°F to 22 a operation of the second sec	calibrated per ISO 4402	Using APC calib β <sub>x</sub> (c) ≥ <b>200</b> 8.0 ΡΙι	rated per ISO 11171 β <sub>x</sub> (c) ≥ 1000 9.8 9.8 ug Option nit = No Plug	Performance Information Filter Housing Specifications Model Number	TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03 NMF30
Id Sold psile         Z <sup>2</sup> 14-CRZX10         14-CRZX10         Flow Rate         HS60           (210 bar)         Media®         0         5         10         15         MHS60         MHS60	ZX10 Contact factor Ma	Using automate B <sub>x</sub> ≥ 75 7.4 ry for other medi ax. Operating Pre Temp. F ent Change Clea	ed particle counter (APC) $B_x ≥ 100$ 8.2 a options. essure: 3000 psi (2 Range: -20°F to 22 arance: 14-CRZX10	calibrated per ISO 4402 β <sub>x</sub> ≥ 200 10.0 10.0 10 bar) 25°F (-29°C to 107°C) 1: 4.50" (115 mm) Series 14-CRZX	Using APC calibi β <sub>x</sub> (c) ≥ <b>200</b> 8.0 Plu 10 On	rated per ISO 11171 β <sub>x</sub> (c) ≥ 1000 9.8 9.8 ug Option nit = No Plug	Performance Information Filter Housing Specifications Model Number Selection	TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF30-03 FOF60-03 NMF30 RMF60
Flow (L/min) 0 25 50	ZX10 Contact factor Ma Eleme	Using automate $\beta_x \ge 75$ 7.4 ry for other medi ax. Operating Pre Temp. F ent Change Clea Ele Series	ed particle counter (APC) B <sub>x</sub> ≥ 100 8.2 a options. essure: 3000 psi (2 Range: -20°F to 22 arance: 14-CRZX10 ment E	calibrated per ISO 4402 β <sub>x</sub> ≥ 200 10.0 10.0 10 bar) 25°F (-29°C to 107°C) 1: 4.50" (115 mm) Series 14-CRZX Identified to the selection of the selec	Using APC calibi β <sub>x</sub> (c) ≥ 200 8.0 Plu 10 On predicated on the	rated per ISO 11171 β <sub>x</sub> (c) ≥ 1000 9.8 9.8 ug Option nit = No Plug	Performance Information Filter Housing Specifications Model Number Selection Element Selection	TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF30-03 FOF60-03 NMF30 RMF60
	ZX10 Contact factor Ma Eleme Pressure To 3000 psi	Using automate $\beta_x \ge 75$ 7.4 ry for other medi ax. Operating Pre Temp. F ent Change Clea Ele Series Z-	a options. $B_x \ge 100$ 8.2     a options.       a options.     3000 psi (2       Range:     -20°F to 22       arance:     14-CRZX10	calibrated per ISO 4402 $\beta_x \ge 200$ 10.0 10.0 10 bar) 25°F (-29°C to 107°C) 25°F (-2	Using APC calibi B <sub>x</sub> (c) ≥ 200 8.0 Plu 10 On predicated on the um based fluid.	rated per ISO 11171 $\beta_x(c) \ge 1000$ 9.8 Ug Option nit = No Plug P = Plug	Performance Information Filter Housing Specifications Model Number Selection Element Selection Based on	TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF30-03 FOF60-03 NMF30 RMF60 Cartridge
	ZX10 Contact factor Ma Eleme Pressure To 3000 psi	Using automate B <sub>x</sub> ≥ 75 7.4 ry for other medi ax. Operating Pre Temp. F ent Change Clea Ele Series Z- Media®	a options.         essure:       3000 psi (2         Range:       -20°F to 22         arance:       14-CRZX10         Part No.       u         14-CRZX10       0         gpm       0	calibrated per ISO 4402 $\beta_x \ge 200$ 10.0 10.0 10.0 10.0 10.0 10.0 10.0 Series 14-CRZX 14-CRZX 14-CRZX10 5	Using APC calibi B <sub>x</sub> (c) ≥ 200 8.0 Plu 10 On predicated on the um based fluid.	rated per ISO 11171 $\beta_x(c) \ge 1000$ 9.8 Ug Option nit = No Plug P = Plug 15	Performance Information Filter Housing Specifications Model Number Selection Element Selection Based on	TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF30 FOF60-03 RMF60 RMF60 Cartridge Elements

# 20-CRZX10 Cartridge Element

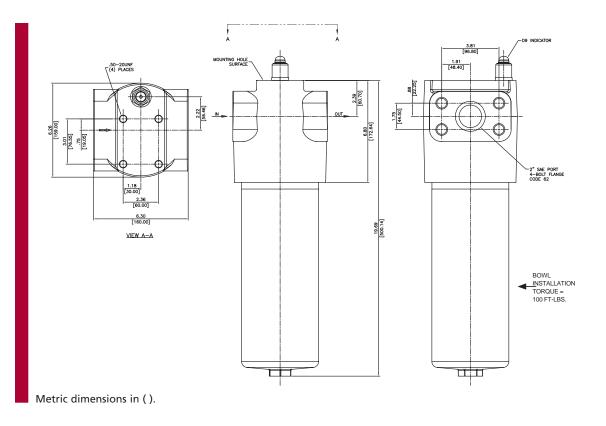


# Top-Ported Pressure Filter **HS60**

Wodel No. of filters in photograph is 1	<ul> <li>Further and Benefits</li> <li>Full flow reverse flow check valve diverts flow past the element in hydrostatic applications</li> <li>Fop-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>Contact factory for higher flow applications</li> </ul>	100 gpm <u>380 L/min</u> 6000 psi 415 bar	NF30 NFS30 YF30 CFX30 PLD DF40 CF40 PF40 LC50 RF550 RF60 CF60 CTF60
INDUSTRIALINDUSTRIALACHINE TOOL	OFFSHORE       MINING         TECHNOLOGY	Applications	VF60 LW60 KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05
Flow Rating	: Up to 100 gpm (380 L/min)	Filter	FOF60-03
	6000 psi (415 bar) only for flange ported models	Housing	NMF30
Min. Yield Pressure		Specifications	B14500
Rated Fatigue Pressure:			RMF60
Temp. Range	: -20°F to 225°F (-29°C to 107°C)		Cartridge Elements
	: Cracking: 87 psi (5.9 bar)		ciements
Porting Head			HS60
Element Case			
Weight of HS60-13H			MHS60
Element Change Clearance	: 4.0" (103 mm)		KFH50



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



Element Performance			io Per ISO 4572/NI article counter (APC) cali		Filtration Ratic	o per ISO 16889 ted per ISO 11171
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$
	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:		or standard elements ) for high collapse (ZX) versio
		Flow Direction:	Outside In	
	Element No	minal Dimensions:	13HZ: 3.5" (90	mm) O.D. x 13" (325 mm) l

# 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 nate Esters	3, 5, 10 and 25 All Z-Media <sup>®</sup> (s			al designation	1				YF30
	тнозрі			ynthetic/			1			•	CFX30
											PLD
Pressure	Element Series	Part No.	Element selecti petroleum base				• • •	)		Element 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 13HZX5				HZX3					LCJU
	Media® (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 Drop Information	LW60 KF30
HS60 ΔP <sub>hou</sub>	5	s with sp gr = low (L/min) (200)	0.86: (300)		$\Delta P_{element} = f$ <i>El.</i> $\Delta P$ factors <b>13HZ3</b>	0.134 ©	(30 cSt): 13HZX3	0.176	or	Drop Information Based on Flow Rate	
-	F	low (L/min) (200)	(300)	)	$\Delta P_{element} = f$ <i>El.</i> $\Delta P$ factors	@ 141 SUS	(30 cSt):		or	Drop Information Based on	KF30
20 15	(100)	low (L/min) (200)	(300)		$\Delta P_{element} = fi$ <i>El.</i> $\Delta P$ factors <b>13HZ3</b> <b>13HZ5</b> <b>13HZ10</b>	© 141 SUS 0.134 0.098 0.060	(30 cSt): 13HZX3 13HZX5 13HZX10	0.176 0.104 0.054	or	Drop Information Based on Flow Rate	KF30 TF50
20	(100)	low (L/min) (200)	(300)	(bar)	$\frac{\Delta P_{element} = fl}{El. \Delta P factors}$ 13HZ3 13HZ5 13HZ10 13HZ25 If working in bars & L/mir	© 141 SUS 0.134 0.098 0.060 0.043 n units of n, divide	(30 cSt): 13HZX3 13HZX5 13HZX10	0.176 0.104 0.054	or	Drop Information Based on Flow Rate	KF30 TF50 KF50
20 15 3 10	F (100)	low (L/min) (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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide	(30 cSt): 13HZX3 13HZX5 13HZX10	0.176 0.104 0.054	or	Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50
20 15 15 10 5 0	F (100)	low (L/min) (200) 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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide	(30 cSt): 13HZX3 13HZX5 13HZX10	0.176 0.104 0.054	or	Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50 MKF50
20 $15$ $10$ $5$ $0$ $0$ $0$ $p gr = spece$	F (100) 20 4 F cific gravity	low (L/min) (200) Reverse Fi fard Flow 0 60 low gpm	(300) (1.0 (0.5 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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide 141 SUS (30	(30 cSt): 13HZX3 13HZX5 13HZX10 13HZX25	0.176 0.104 0.054 0.048		Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50 MKF50 KC65
20 $15$ $10$ $5$ $0$ $0$ $0$ $0$ $0$ $0$ $0$ $0$ $0$ $0$	F (100) 20 4 F cific gravity	low (L/min) (200) Reverse Fi fard Flow 0 60 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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide 141 SUS (30	(30 cSt): 13HZX3 13HZX5 13HZX10 13HZX25	0.176 0.104 0.054 0.048		Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05
20 $15$ $10$ $5$ $0$ $0$ $0$ $17$ $10$ $10$ $10$ $10$ $10$ $10$ $10$ $10$	F (100) 20 4 F cific gravity ements sho	low (L/min) (200) Reverse Fi fard Flow 0 60 low gpm	(300) (1.0 (0.5 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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide 141 SUS (30	(30 cSt): 13HZX3 13HZX5 13HZX10 13HZX25	0.176 0.104 0.054 0.048		Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05 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 (100) 20 4 F cific gravity ements sho ΔPhousing ΔP at 85 gp	low (L/min) (200) Reverse FI ard FIOW 0 60 low gpm	(300) (1.0 (0.5 80 100 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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide 141 SUS (30	(30 cSt): 13HZX3 13HZX5 13HZX10 13HZX25	0.176 0.104 0.054 0.048		Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF50 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 (100) 20 4 F cific gravity ements sho ΔPhousing ΔP at 85 gp ng 141 SUS	low (L/min) (200) Reverse FI ard FION ard FION 0 60 low gpm build be base + ΔP <sub>element</sub>	(300) (1.0 (0.5 80 100 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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide 141 SUS (30	(30 cSt): 13HZX3 13HZX5 13HZX10 13HZX25	0.176 0.104 0.054 0.048		Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03 NMF30 RMF60
$\Delta P_{filter} = Betermine HS60 usi$	F (100) 20 4 F cific gravity ements sho ΔP at 85 gp ng 141 SUS = 13.5 p = 85 x	low (L/min) (200) Reverse FI <sub>aard Flow</sub> 0 60 low gpm build be base + ΔP <sub>element</sub> (30 cSt) fluid	(300) (1.0 (0.5 80 100 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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide 141 SUS (30	(30 cSt): 13HZX3 13HZX5 13HZX10 13HZX25	0.176 0.104 0.054 0.048		Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF50 FOF60-03 NMF30
20 1560 ΔPhouse 15 10 5 0 0 0 20 15 10 5 0 0 0 0 0 0 0 0	F (100) 20 4 F cific gravity ements sho ΔP at 85 gp ng 141 SUS = 13.5 p = 85 x . or = [320 x	low (L/min) (200) Reverse FI ard FION 0 60 0 60 low gpm build be base + ΔP <sub>element</sub> m (320 L/mir (30 cSt) fluid si [0.93 bar] 134 x (141÷1- (.134÷54.9)	(300) (1.0 (0.5 80 100 d on element flo ) for (41) = 11.39  psi $(32 \div 32) = .79 \text{ b}$	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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide 141 SUS (30	(30 cSt): 13HZX3 13HZX5 13HZX10 13HZX25	0.176 0.104 0.054 0.048		Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF30-03 FOF60-03 NMF30 RMF60 Cartridge
$ΔP_{\text{filter}} = \frac{ΔP_{\text{filter}}}{SOlution:}$	F (100) 20 4 F 20 4 F cific gravity ements sho ΔP at 85 gp ng 141 SUS = 13.5 p = 85 x . or = [320 x = 13.5 + or = [320 x = 13.5 + or	low (L/min) (200) Reverse FI ard FION 0 60 0 60 low gpm build be base + ΔP <sub>element</sub> m (320 L/mir (30 cSt) fluid si [0.93 bar] 134 x (141÷1)	(300) (1.0 (0.5 80 100 d on element flo ) for (1) = 11.39  psi $(32 \div 32) = .79 \text{ b}$ (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 0.134 0.098 0.060 0.043 n units of n divide r by 54.9. tor: Divide 141 SUS (30	(30 cSt): 13HZX3 13HZX5 13HZX10 13HZX25	0.176 0.104 0.054 0.048		Drop Information Based on Flow Rate	KF30 TF50 KF50 KC50 MKF50 KC65 NOF30-05 NOF30-03 FOF60-03 NMF30 RMF60 Cartridge Elements

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

Filter Model Number Selection	BOX 1 BOX 2 BU HS60	DX 3 BOX 4	ber for a Schroeder HS60: BOX 5 BOX 5 - D13 = HS6013HZ3F24D13	
	50%4		2012	201/2
	BOX 1 Filter Series	Elo	BOX 2 ment Part Number	BOX 3 Seal Material
			ent® Z-Media® (synthetic) ent® Z-Media® (synthetic)	Omit = Buna N
	HSN60 13HZ10	$= 10 \ \mu$ Excellen	nent <sup>®</sup> Z-Media <sup>®</sup> (synthetic)	V = Viton <sup>®</sup> H = EPR
			nent® Z-Media® (synthetic) 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 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 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 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

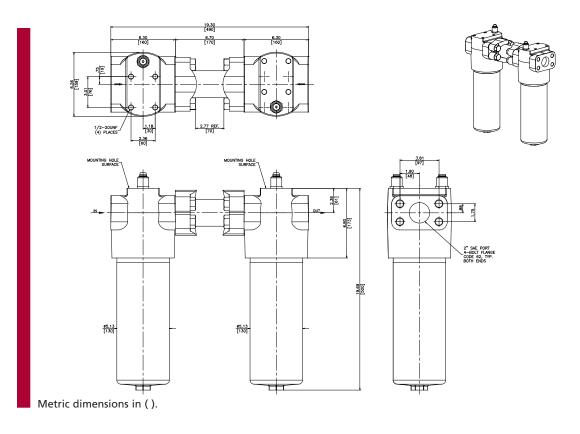
NOTES:

- 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



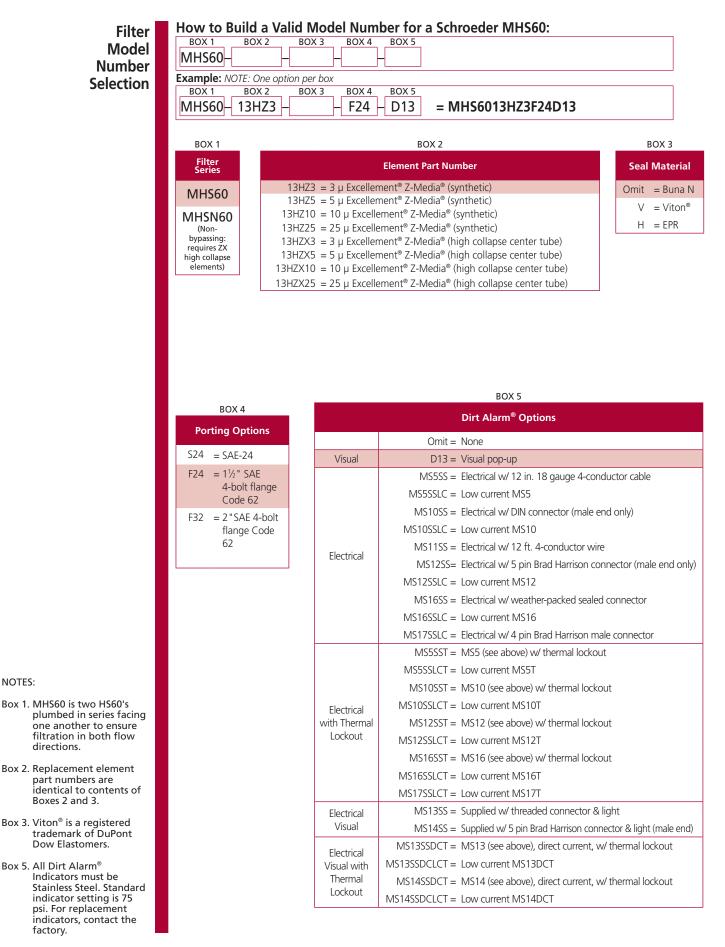
Element Performance			io Per ISO 4572/NI rticle counter (APC) cali		Filtration Ratio	o per ISO 16889 ted per ISO 11171
Information	Element	$\beta_x \ge 75$	$B_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$
	13HZ3/13HZX3	<1.0	<1.0	<2.0	<4.0	4.8
	13HZ5/13HZX5	2.5	3.0	4.0	4.8	6.3
	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:		for standard elements ar) for high collapse (ZX	() versions
		Flow Direction:	Outside In		
	Elemen	t Nominal Dimensions:	13HZ: 3.5"(90	0 mm) O.D. x 13" (325	mm) long

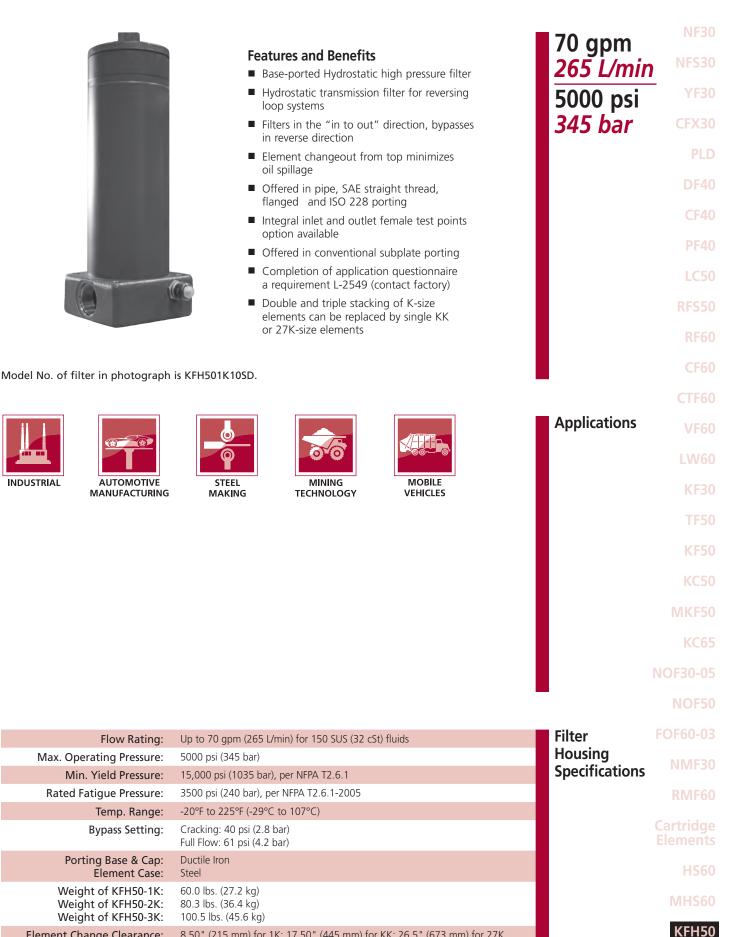
# Top-Ported Pressure Filter MHS60

		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 nate Esters	3, 5, 10 and 25 All Z-Media <sup>®</sup> (sy							YF30
	FIIOSPI	Idle Esters	All Z-IVIEUId (S)			a designation				CFX30
										PLD
Pressure	Element Series	Part No.	Element selection petroleum base					I	Element 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 13HZX5				HZX3 HZX5				
	Media® (High	13HZX10				HZX10				<b>RFS50</b>
	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 Information	KF30
	F (19	Flow (L/min)	80)		∆P factors HZ3	@ <i>141 SUS (</i> 0.134	30 cSt): 13HZX3	0.176	Based on	KI SU
50	(13	()	3.3	13	HZ5	0.098	13HZX5	0.104	Flow Rate and Viscosity	<b>TF50</b>
40			2.7	13	HZ10 HZ25	0.060 0.043	13HZX10 13HZX25	0.054 0.048		KF50
. <u>8</u> 30			2.0	∆P (bar)			10112/120			1/250
₫ 20			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 141 SUS (30				KC65
0	50 I	)	00 150	cSt		141 303 (30				RCOJ
										NOF30-05
sp gr = spe 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> = Exercise:	∆P <sub>housing</sub>	+ ∆P <sub>element</sub>	<u> </u>							NMF30
		om (320 L/mir (30 cSt) fluid								RMF60
Solution:	_									Cartridge
∆P <sub>housing</sub>		osi [0.93 bar]	41) 11 20							Elements
∆P <sub>element</sub>	= 85 x . or	134 x (141÷1	41) = 11.39 psi							11000
$\Delta P_{total}$		(.134÷54.9) ⊦ 11.39 = 24.	x (32÷32) = .79 ba 89 psi	ar]						HS60
10101	or									MHS60
	= [.95 +	.79 = 1.71 b	aı]							KFH50

### MHS60 Top-Ported Pressure Filter



### Hydrostatic Base-Ported Filter KFH50



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

**Element Change Clearance:** 

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

		(4) MODN (4) MODN (5) (5) (5) (5) (5) (5) (5) (5) (5) (5)			DRAIN PLUG 2 28 (72) (72) 		0.00 (15 POR IP PORTED	ED FILTER		
				Note:	Application Que submitted prior factory for deta	r 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 K3/KK3/27K			β <sub>x</sub> ≥		0 1	B <sub>X</sub> ≥ 200		200 ß <sub>x</sub> (c	
	K10/KK10/27K1	0		6.			10.0	N/A N/A		N/A
	KZ1/KKZ1/27KZ			15			18.0 <1.0	N/A <4.0		N/A 4.2
	KZ3/KKZ3/27KZ		AS3/27KAS3	<1			<1.0	<4.0		4.2
	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		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	isa 100 ר
		Element	Collapse Rating:	3000 p	id (10 bar) for stand isid (210 bar) for hig			ns		pressure
	Ele		Flow Direction: ninal Dimensions:	KK:	e in 3.9" (99 mm) O.D. ; 3.9" (99 mm) O.D. ; 3.9" (99 mm) O.D. ;	x 18.0" (	460 mm) lon	g		
I	JU JUNIOEDE	111003								

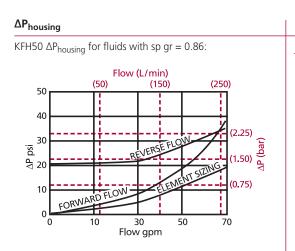
### Hydrostatic Base-Ported Filter KFH50

Type Fluid	Appropriate Schroeder Media	Fluid	NF30
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® Media (synthetic)	Compatibility	NFS30
High Water Content	All Z-Media® (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 $\mu$ 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)	Skydrol <sup>®</sup> is a registered trademark of Solutia Inc.	PLD DF40

	Eler	nent	Element se	elections	are predicat	ed on the use	of 150	) SUS (32	cSt)			
Pressure	Series	Part No.		petroleum based fluid and a 40 psi (2.8 bar) bypass valve.								
		K3		1K3 2K3†								
To 5000 psi	E Media	K10		1K10 2K10†								
	Media	K25				1K25						
		KZ1		1KZ1								
5000 psi (345 bar)		KZ3		1KZ3/KAS3/KKAS3/27KAS3 2KZ3† 3K2						t i		
	Z- Media®	KZ5		1KZ5/KAS5/KKAS5/27KAS5 2KZ5†								
	media	KZ10		1KZ10	/KAS10/KKA	510/27KAS10		2	2KZ10†			
		KZ25			1K	Z25			2KZ25	jt -		
	Flow	gpm	0 10	20	30	40	50	60		70		
	FIOW	(L/min)	0 50		100	150	20	00		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>				Pressu
$\Delta P_{element} = flow x element \Delta P$	Drop			
El. ΔP factors @ 150 SUS (32 cSt	Inform Based on			
	1K	2K	ЗК	Flow Rat
К3	.25	.12	.08	and Visco
K10	.09	.05	.03	
K25	.02	.01	.01	
KZ1	.20	.10	.05	
KZ3/KAS3/KKAS3/27KAS3	.10	.05	.03	
KZ5/KAS5/KKAS5/27KAS5	.08	.04	.02	
KZ10/KAS10/KKAS10/27KAS10	.05	.03	.02	
KZ25	.04	.02	.01	
	<u>1K</u>	2K		
KZW1	.43			
KZW3	.32	.16		
KZW5	.28	.14		
KZW10	.23	.12		
KZW25	.14	.07		
If working in units of bars & factor by 54.9.	L/min,	divide	above	
Viscosity factor: Divide visco cSt).	osity by	150 SU	IS (32	

	PLD
ol <sup>®</sup> is a registered nark of Solutia Inc.	DF40
nent	<b>CF40</b>
ction	PF40
Rate	LC50
	RFS50
	RF60
	<b>CF60</b>
	CTF60
	VF60
	LW60
	KF30

ressure	<b>TF50</b>
rop Iformation	KF50
ased on ow Rate	КС50
nd Viscosity	MKF50
	KC65
	NOF30-05
	NOF50
	FOF60-03
	NMF30
	RMF60
	Cartridge Elements
	HS60
	MHS60

KFH50

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

KM260

Filter Model Number Selection	BOX 1 KFH50- Example: NO BOX 1 KFH50- BOX 1 Filter	BOX 2 BC TE: Only box BOX 2 BC 1 K BOX 2 BOX 2 Number of	DX 3 B	OX 4 BC ain more th OX 4 BC	0X 5 BC an one oppo 0X 5 BC S –	DX 6 BOX 7 BOX 8	1KZ5SD5G509 BOX 4 Seal Material
	Series KFH50	Elements 1 2 3	K Length K3 K10 K25 KZ1 KZ3 KZ5 KZ10 KZ25 KZW1 KZW3 KZW5 KZW10 KZW25 KZW10 KZW25 KW KM10 KM25 KM60 KM150	KK Length KK3 KK10 KKZ1 KKZ3 KKZ0 KKZV5 KKZW3 KKZW5 KKZW10 KKZW25 KKW	27K Length 27K3 27K10 27KZ1 27KZ3 27KZ5 27KZ10 27KZ25	= 3 $\mu$ E media (cellulose) = 10 $\mu$ E media (cellulose) = 25 $\mu$ E media (cellulose) = 1 $\mu$ Excellement® Z-Media® (synthetic) = 3 $\mu$ Excellement® Z-Media® (synthetic) = 5 $\mu$ Excellement® Z-Media® (synthetic) = 10 $\mu$ Excellement® Z-Media® (synthetic) = 25 $\mu$ Excellement® Z-Media® (synthetic) = 3 $\mu$ Aqua-Excellement™ ZW media = 3 $\mu$ Aqua-Excellement™ ZW media = 5 $\mu$ Aqua-Excellement™ ZW media = 5 $\mu$ Aqua-Excellement™ ZW media = 10 $\mu$ Aqua-Excellement™ ZW media = 25 $\mu$ Aqua-Excellement™ ZW media = 10 $\mu$ Aqua-Excellement™ ZW media = 5 $\mu$ Aqua-Excellement ™ ZW media = 5 $\mu$ Aqua-Excellement ™ ZW media = 5 $\mu$ Aqua-Excellement ™ ZW media = 5 $\mu$ Aqua-Excellement № ZW media	Omit = Buna N V = Viton <sup>®</sup> H = EPR H.5 = Skydrol <sup>®</sup> compatibility BOX 5 Porting P = $1\frac{1}{2}$ " NPTF S = SAE-24 F = $1\frac{1}{2}$ " SAE 4-bolt flange Code 62 O = Subplate 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 outlet female test ports U = Series 1215 % UNF	Visual	D = Pointer D5 = Visual pop-up D5C = D5 in cap D9 = All stainless D5
Schroeder Check Test Point installation in cap (upstream)	Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = D8 in cap
UU = Series 1215 % UNF Schroeder Check Test Point installation in block (upstream and downstream)	Electrical Electrical with 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 MS11 = Electrical w/ 12 ft. 4-conductor wire 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 MS10LT = Low current MS10T MS12LT = Low current MS10T MS12LT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS16LCT = Low current MS16T MS16LCT = Low current MS16T MS16LCT = Low current MS16T MS17LCT = Low current MS16T MS17LCT = Low current MS16T MS17LCT = Low current MS16T
BOX 8	Electrical Visual	MS = Cam operated switch w/ ½" conduit female connection MS13 = Supplied w/ threaded connector & light
Additional Options Omit = None G509 = Dirt alarm and drain opposite standard	Electrical Visual with Thermal Lockout	MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end) MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout 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 psi (bar)	Flow gpm (L/min)	Element 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**



- Hydrostatic Charge Circuit
- Closed-loop
- Return Lines

- Cooling Circuit Systems
- Lubrication Systems

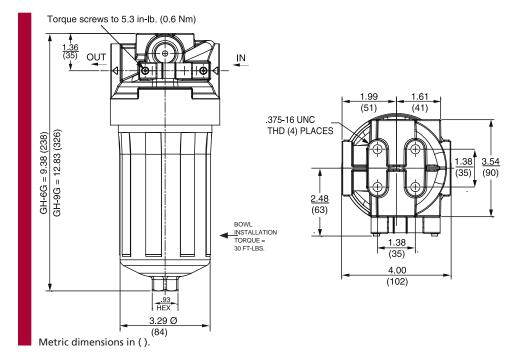
**Applications** 

GH

SSQLF15

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 50 psi (3.5 bar) optional Non-bypassing model also available	
Porting Head: Element Case:	Die Cast Aluminum Aluminum	
Porting Options:	SAE-12 SAE-16 ISO 228 G-¾" ISO 228 G-1"	
Weight of GH-6G: Weight of GH-9G:		
Element Change Clearance:	2" (50 mm)	





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

#### Dirt Holding

Dirt Holding	Media Type	Element	DHC (gm)	
Capacity	Resin Impregnated Cellulose media	6G3 / 9G3 6G10 / 9G10	18/30 15/25	
	Traditional Excellement® Z-Media®	6GZ3 / 9GZ3 6GZ5 / 9GZ5 6GZ10 / 9GZ10 6GZ25 / 9GZ25	30/51 24.5/42 31/49 34/58	
	Hydraspin H media, designed to specifically reduce filter pressure drop	6GH10 / 9GH10	12/20	
	Flow Direc Element Nor	ction: Outside In minal 6G: 3.25" (	.2 bar) for standard and non-b 82 mm) O.D. x 5.7" (144 mi 82 mm) O.D. x 9.0" (229 mi	m) long

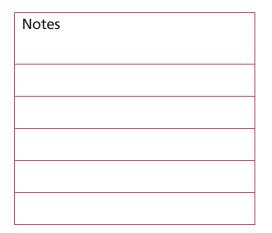
### HydraSPIN Filter GH

	Type Fluid	l Appro	priate Schroed	er Media					Fluid	GH
Petroleun	n Based Fluids		nedia (cellulose), media (Hydraspi		(synthetic)		Compatibility			
		unu m		,					•	GHHF
Pressure	Eler Series	nent Part No.	Element select based fluid, SA						Element Selection	RLT
		G3	6G3	-	9G3	Contac	ct Factory	,	Based on Flow Rate	KF5
	E Media	G10		6G10		9G10	Contact Fa	actory	FIOW Rate	
		G25		(	5G25 & 9G2	5				SRLT
To 725 psi		GZ3			ontact Facto	,				
(50 bar)	Z-	GZ5	6	6GZ5 9GZ5 Contact Factory				,		К9
	Media®	GZ10		6GZ10 9GZ10						
		GZ25		Contact Factory						2K9
	Hydraspin Media	GH10		Co	ontact Facto	ory				
	Flow	51	0 10	15	20		30	35		3K9
	11000	(L/min)	0	50	75	95	125	135		
Shown above	are the elem	ents most co	mmonly used in	this housir	ng.					QF5
			E media in High							
Applications.	For more info	ormation, ref	er to Fluid comp	atibility: F	ire Resistant	Fluids, page	21 and 22		•	3QF5
										54.5
∆ <b>P</b> <sub>housing</sub>				∆ <b>P</b> elemen	t				Pressure	QFD2
GH ∆P <sub>housing</sub> f	or fluids with	sp gr = 0.86	:	$\Delta P_{element}$	= flow x ele	ment $\Delta P$ facto	or x viscosi	ty factor	Drop	
	F (25)	low (L/min) (75)	(125)	El. ∆P fa	ctors @ 150	SUS (32 cSt):			Information Based on	QFD5
6			(0.4)		50 <b>9G3</b>	.35			Flow Rate	
5			(0.3)		40 <b>9G10</b> 08 <b>9G25</b>	.24 <b>6GH1</b> .05	0 CF 9	GH10 CF	and Viscosity	QF15

(25) (75) (125)	EI. $\Delta P$ factors @ 150 SUS (32 cSt):	В
	6G3         .60         9G3         .35           6G10         .40         9G10         .24         6GH10         CF         9GH10         CF           6G25         .08         9G25         .05         C	F
$\begin{array}{c} 1 \\ 1 \\ 1 \\ 2 \\ 2 \\ 2 \\ 1 \\ 2 \\ 1 \\ 1 \\$	6GZ3         CF         9GZ3         CF         6GP3         CF         9GP3         CF           6GZ5         .6         9GZ5         .35         6GP5         .45         9GP5         .26           6GZ10         .27         9GZ10         .16         6GP25         CF         9GP10         .16           6GZ25         CF         9GZ25         CF         6GP25         CF         9GP25         CF	
1 0 5 10 15 20 25 30 35 Flow gpm	If working in units of bars & L/min, divide above factor by 54.9. <i>Viscosity factor:</i> Divide viscosity by 150 SUS (32 cSt). CF = Contact factory.	

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] **QLF15** 

SSQLF15



BOX 1       BOX 2       BOX 3       BOX 4         Filter Series       Lement Length (n)       G       G       G       G         GH       G       G       G       G       G       G       G         GH       G <thg< th=""> <thg< th=""> <thg< th=""></thg<></thg<></thg<>	
Filter Series       Element Length (n)       Element Length (n)       Element 6       Bypass Setting         GH       6       9       3       = 3 μ E media (cellulose)       0       0mit = 25 psid         9       G25       = 25 μ E media (cellulose)       = 25 μ E media (cellulose)       0mit = 25 psid       50 = 50 psid         G23       = 3 μ Excellement* Z-Media* (synthetic)       = 5 μ Excellement* Z-Media* (synthetic)       0mit = 25 psid       N = Non-bypass         G23       = 3 μ Excellement* Z-Media* (synthetic)       = 25 μ Excellement* Z-Media* (synthetic)       0mit = 25 psid       N = Non-bypass         G25       = 5 μ Excellement* Z-Media* (synthetic)       = 25 μ Excellement* Z-Media* (synthetic)       0mit = Non-bypass         G25       = 25 μ Excellement* Z-Media* (synthetic)       = 25 μ Excellement* Z-Media* (synthetic)       0mit = Non-bypass         GH10       = 10 μ Excellement* Z-Media* (synthetic)       GZ       = 25 μ Excellement* Z-Media* (synthetic)       0mit = Non+bypass         Omit = None       Non-bypass       Dift Alarm* Options       Dift Alarm* Options       Non+bypass         0mit = So 228 G-1*       S16 = SAE-16       B12 = ISO 228 G-1*       Visual       R = Bar indicator, left side std       Non+bypass         N = 150 228 G-1*       Visual       B = Bar indicators, left and right side <t< th=""><th></th></t<>	
GH6 9G3 G10= 3 $\mu$ E media (cellulose) = 25 $\mu$ E media (cellulose) G25Omit = 25 psid 50 = 50 psid N = Non-bypassGH6 9G3 G25= 3 $\mu$ Excellement* Z-Media* (synthetic) GZ25Omit = 25 psid S0 = 50 psid N = Non-bypassGZ3= 3 $\mu$ Excellement* Z-Media* (synthetic) GZ25= 5 $\mu$ Excellement* Z-Media* (synthetic) GZ25Omit = 25 psid S0 = 50 psid N = Non-bypassBOX 5BOX 6BOX 7Element Seal MaterialInlet PortDirt Alarm* OptionsOmit = Buna NS12 = SAE-12 S16 = SAE-16 B12 = ISO 228 G-1*Omit = NoneIdicator Locat VisualR = Bar indicator, left side std B = Bar indicator, left and right side 	
$\begin{array}{c} GZ3 &= 3 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ5 &= 5 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ10 &= 10 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ25 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \\ GZ26 &= 25 \ \mu \ Excellement^{\circ} \ Z-Media^{\circ} \ (synthetic) \ Z-Media^{\circ} \ Z-Media^{\circ} \ (synthetic) \ Z-Media^{\circ} \ (synthetic) \ Z-Media^{\circ} \ (synthetic) \ Z-Medi$	ing
Element Seal Material       Inlet Port       Dirt Alarm® Options         Omit = Buna N       S12 = SAE-12       Omit = None       Indicator Locat Option L         S16 = SAE-16 B12 = ISO 228 G-34" B16 = ISO 228 G-1"       L = Bar indicator, left side std       Berindicator         Visual       R = Bar indicators, left and right side VA = Visual pop-up w/auto reset       Indicator Locat Option L         VM = Visual pop-up w/auto reset       VM = Visual pop-up w/auto reset       Indicator Locat Option L	
Offitt = Burla N       S12 = SAE-12       Offitt = None       Option L         S16 = SAE-16       B12 = ISO 228 G-34"       L = Bar indicator, left side std       Berindicator, right side std         B16 = ISO 228 G-1"       Visual       B = Bar indicators, left and right side       Image: Construction of the store of th	
B12 = ISO 228 G- <sup>3</sup> / <sub>4</sub> " B16 = ISO 228 G-1" Visual R = Bar indicator, right side std B = Bar indicators, left and right side VA = Visual pop-up w/auto reset VM = Visual pop-up w/manual reset Omit = None	ion
	f ] _
ElectricalDTC = DC 2 wire, normally closed (NC)DTO = DC 2 wire, normally open (NO)DW = AC/DC 3-wire (NO or NC)	
Image: Second	Сом PIN #1 DTO DTO N.C. PIN #2 DTO DTO DTO
et element part e a combination VA = Auto Reset VM = Manual Reset DW = AC/DC 3-wire DTO, DTC = DC 2	
ass. For 50 psid (VM2B.1) (NOTE: Only available with 50 psid bypass) (VM2BM.1) (NOTE: Only available with 50 psid bypass) (VM2BM.1) (NOTE: Only available with 50 psid bypass) (NO or NC) for 25 psi bypass 25 psi b	for indicator P/N for 94401 (VM1CD.0/- 50 psi bypass D.0/-2M0, NO) for

#### NOTES:

- Box 2. Replacement ele numbers are a co of Boxes 2, 3 and Replacement ele contain bypass. F setting or non-by version, element number includes Examples: 6GZ10 9GZ10N.
- Box 7. VA and VM indicators are available with 50 psid bypass element only.

### Top-Ported Medium Pressure Filter GHH



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

100 gpm 380 L/min GHHF RLT KF5

725 psi 50 bar

GH

**SRLT** 

**K9** 

**2K9** 3K9

**3QF5** 



INDUSTRIAL

AUTOMOTIVE MANUFACTURING





MACHINE

MOBILE VEHICLES





AGRICULTURE

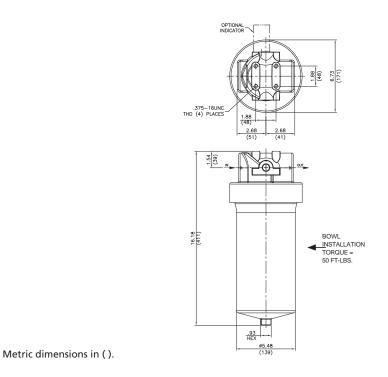
Flow Rating:	Up to 100 gpm (380 L/min)
Max. Operating Pressure:	725 psi (50 bar)
Min. Yield:	2600 psi (179 bar)
Rated Fatigue Pressure:	725 psi (50 bar)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.5 bar) Full Flow: 52 psi (3.6 bar)
Porting Head: Element Case:	Cast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

QFD2
QFD5
QF15
QLF15
SSQLF15

Filter Housing **Specifications** 

**Applications** 

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



Element
Performance
Information

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

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

#### **Dirt Holdir** Сара

ling	Media Type	Element	DHC (gm)							
acity	Traditional Excellement® Z-Media®	11GZ1 11GZ3 11GZ5 11GZ10 11GZ25	158 136 160 152 150							
Element Collapse Rating: 150 psid (10.3 bar) for standard and non-bypassing elements Flow Direction: Outside In										
	Element Nominal Dimensions: 11G: 5.52" (140 mm) O.D. x 11.25" (286 mm) long									

# Top-Ported Medium Pressure Filter GHHF

Petroleum	Type Fluid				lraspin) and A	SP <sup>®</sup> Media (	synthetic)		Fluid Compatibility	GH
Inv	ert Emulsion	5 10 and 25 μ Ζ-Μ	ledia <sup>®</sup> (syı	nthetic), 10 µ A	ASP <sup>®</sup> Media (sy	nthetic)				GHHF
		Element			s are predicat				Element	RLT
Pressure Series Part No				iss valve.	fluid, SAE-20	porting, and	a 50 psi (3.4	bar)	Selection Based on	KF5
		GZ1			110	6Z1			Flow Rate	КГЭ
	7	GZ3			110	GZ3				CDIT
	Z- Media®	GZ5			110	GZ5				SRLT
		GZ10				Z10				
		GZ25			11G					K9
	Flow	gpm	0	20	40	60	80	100		
		(L/min)	0	50	150	2	50	380		<b>2K9</b>
										3К9
Shown above	are the elem	ents most commonly	used in	this housing						QF5
									•	3QF5
∆ <b>P<sub>housing</sub></b> GH ∆ <b>P</b> <sub>housing</sub> fo	or fluide with	r = 0.86		$\triangle \mathbf{P}_{element}$	flow x elemen	t AD factors	, viscosity for	tor	Pressure Drop	QFD2
(50)		(L/min) (250) (350)	.00)	<i>El.</i> ∆ <i>P facto</i> 11GZ1/11G	ors @ 150 SUS AS1 0.33 11G	(32 cSt): <b>Z3/11GAS3</b> (		Information Based on Flow Rate	QFD5	
10 dd			).75)	11GZ25/11	iAS5 0.22 11G GAS25 0.17 n units of bars 8		by 54.9	and Viscosity	QF15	
2AP			0.50) <b>Vb (par)</b>		ctor: Divide visc			5,51.5.		QLF15
0 10 2		60 70 80 90 100								SSQLF15
sp gr = specific Sizing of eleme		gpm e based on element flo	w inform				i chart above.			
Notes					$\mathbf{P}_{housing} + \Delta \mathbf{P}$	element				
					e ∆P at 80 gp Z10S24 using					
				Solution:						
				$\Delta \mathbf{P}_{\text{housing}}$	= 6psi [.41 ba	ar]				
				or	= 80 x .22 x (					
					= [303 x (.22-	÷54.9) x (44	÷32) = 1.66	bar]		
				${\bf \triangle P_{total}}$	= 6 + 23.5 = 2	29.5 psi				

or

= [.41 + 1.66 = 2.07 bar]

### **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: BOX 1 BOX	One option per bo		DX 6 BOX 7	BOX 8		
GHHF – 11	G – Z – 1	0	- S20 -	L = GHHF11GZ10	520L	
BOX 1	BOX 2	BOX 3		BOX 4	BOX 5	
	Element Ingth (in)	Element Me	dia	Micron Rating	Element S Materia	
CLILIE	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 = 1	Excellement® Hyd	aSpin Media	5 = (AS and Z media)		
				10 = (AS, Z and H media)		
				25 = (AS and Z media)		
BOX 6 Bypass Setting	BOX 7 Inlet Port			BOX 8 Dirt Alarm <sup>®</sup> Options		
	Port			Dirt Alarm <sup>®</sup> Options Indica		
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 P24 = 1.5" NP	Visual	B = Bar indicators, left and right sid		Inlet Top View	
	124 - 1.5 10	···		pop-up w/auto reset pop-up w/manual reset		
		Electrical	MS5 = E MS5LC = L MS10LC = L MS10LC = L MS11 = E MS12LC = L MS12LC = L MS16LC = L	lectrical w/ 12 in. 18 gauge 2 ow current MS5 lectrical w/ DIN connector (m ow current MS10 lectrical w/ 12 ft. 4-conducto lectrical w/ 5 pin Brad Harrison con ow current MS12 lectrical w/ weather-packed s ow current MS16 lectrical w/ 4 pin Brad Harriso	ale end only) or wire nector (male en sealed connec	
		Electrical with Thermal Lockout	MS5LCT = L MS10T = N MS10LCT = L MS12T = N MS12LCT = L MS16T = N MS16LCT = L	IS5 (see above) w/ thermal lo ow current MS5T IS10 (see above) w/ thermal ow current MS10T IS12 (see above) w/ thermal ow current MS12T IS16 (see above) w/ thermal ow current MS16T ow current MS17T	lockout lockout	
		Electrical Visual	MS13 = S MS14 = S	am operated switch w/ ½" cond upplied w/ threaded connect upplied w/ 5 pin Brad Harrisc onnector & light (male end)	uit female conn or & light on	
		Electrical Visual with Thermal Lockout	MS13DCLCT = L MS14DCT = N	IS13 (see above), direct current, ow current MS13DCT IS14 (see above), direct current, 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!

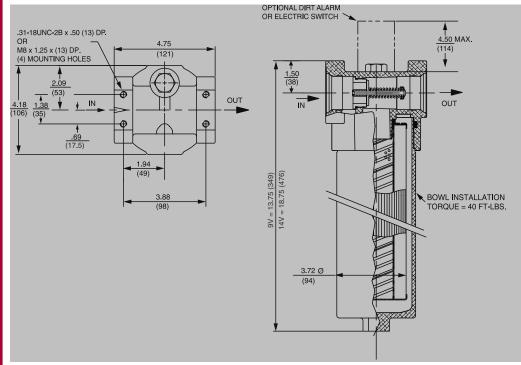
 Weight of RLT-14V:
 8.0 lbs. (3.6 kg)

 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> </ul>	70 gpm <u>265 L/min</u> 1000 psi 69 bar	GH GHHF RLT KF5
	<ul> <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> </ul>		SRLT K9
	<ul> <li>Various Dirt Alarm<sup>®</sup> options</li> <li>Same day shipment model available</li> </ul>		2K9
			3K9
Model No. of filter in photogra	ph is RLT9VZ10P20D5.		QF5
		Applications	3QF5
INDUSTRIAL AUTOMOT	VE MACHINE		QFD2
MANUFACTU			QFD5
			QF15
STEEL PULP & PAF MAKING	PER AGRICULTURE MOBILE VEHICLES		QLF15
		S	SQLF15
Flow Rating:	Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids for P20, S20, & B20 porting Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids for P16, S16, F16, F20 & B16 porting	Filter Housing Specifications	
Max. Operating Pressure:	1000 psi (69 bar)	specifications	
	4200 psi (290 bar) , per NFPA T2.6.1		
_	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 Full Flow: 57 psi (3.9 bar) for P20 & S20 porting Full Flow: 75 psi (5.2 bar) for P16, S16, F16 & F20 porting		
Porting Head:			
Element Case:			
Weight of RLT-9V:	6.7 lbs. (3.0 kg)		
Mainter of Ditt 4 M /			

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



Metric dimensions in ( ).

Element Performance			a <b>tio Per ISO 4572/NF</b> Particle counter (APC) cali	Filtration Ratio per ISO 16889 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	
	Flow Direction:		150 psid (10 bar) 500 psid (34.5 bar) for hydrostatic high collapse (9V5Z10 element) versi Outside In			
	Element Nominal Dir	nensions:			.D. x 9.5" (240 mm) long .D. x 14.5" (370 mm) long	

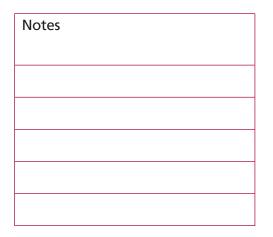
#### Medium Pressure Filter **RLT**

	Тур	e Fluid Appropri	ate So	hroeder	Media								Fluid	GH
Petrole	eum Based	Fluids All E medi	l E media (cellulose) and Z-Media® (synthetic)									Compatibility		
Hig	High Water Content       All Z-Ma         Invert Emulsions       10 and         Water Glycols       3, 5, 10         Whosphate Esters       All Z-Ma         Skydrol®       3, 5, 10         Skydrol®       3, 5, 10         Skydrol®       3, 5, 10         Skydrol®       3, 5, 10         Series       Element         Part No.         PV3 & 14V3         9V10 & 14V10       9V21 & 14V21         OV23 & 14V23         Sbar)			nthetic)										GHHF
	Invert Emu	ulsions 10 and 25	μ Z-Ν	/ledia® (sy	nthetic)									
High In Pressure To 800 psi (55 bar)	Water 0	Glycols 3, 5, 10 a	nd 25	25 μ Z-Media <sup>®</sup> (synthetic)									RLT	
	Petroleum Based FluidsAllHigh Water ContentAllHigh Water ContentAllInvert Emulsions10Water Glycols3,Phosphate EstersAllSkydrol®3,StateStatePressureSeriesE Media9V3 & 14V9V10 & 149V21 & 149VZ3 & 149VZ3 & 149VZ3 & 149VZ3 & 149VZ1 & 14			nthetic) w	ith H (E	PR) seal d	esignatio	on						
											KF5			
				ement sel t) petrole								-	Element Selection	SRLT
	E Modia	9V3 & 14V3		9V3				14\	14 <mark>V3 Contact Factory</mark>		Based on Flow Rate			
	LIVIEUIA	9V10 & 14V10		9V10				14V	10	10 Contact Factory		FIOW Rate	К9	
То		9VZ1 & 14VZ1		9VZ1			1	14VZ <mark>1</mark>		Co	Contact Factory			
	_	9VZ3 & 14VZ3		9VZ3					14	VZ3	Contact Factory			2K9
(55 bar)	-	9VZ5 & 14VZ5		9VZ5 14VZ5										
	Wiedła	9VZ10 & 14VZ10		9VZ10 & 14VZ10										3K9
		9VZ25 & 14VZ25				9VZ25 8	& 14VZ2	5						JKJ
		gpm	0	10	20	30	40	50	)	60	7	0		
	FIOW	(L/min)	0	50	10	00	150		200	)	27	70		QF5
ihown above Note: <i>Contac</i>		ements most comm	only ι	used in thi	s housii	ng.			requ	uires	size 20	porting		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 Information OFD5
Flow (L/min)	El. $\triangle$ P factors @ 150 SUS (32 cSt):	
(50) (150) (250)	<u>9V</u> <u>14V</u>	Based on 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 QLF15
2 0 0 10 20 30 40 50 60 70	If working in units of bars & L/min, divide above factor by 54.9. Viscosity factor: Divide viscosity by 150 SUS (32 cSt).	SSQLF15
6 10 20 30 40 50 60 70 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     Image: RLT       lection     Example: NOTE: One optic					
ipment BOX 1 BOX 2 RLT 9	вох з – VZ10		= RLT	9VZ10S20D5	
Nodel inside BOX 1 BOX 2		BOX 3	BOX 4		
Is. Filter Element Series Length		Element Size and Media		Seal Material	
RLT (See Section 7 for Water Service version) 14 RLTN (Non-bypassing:	V1 VZ VZ VZ 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>	۴	Omit = Buna N H = EPR V = Viton® H.5 = Skydrol® Compatibility	
requires V5Z high collapse		5 = V size 25 µ Excellement® Z-Media® (synthetic) 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 Options		Dirt Alarm <sup>®</sup> Options		Additional 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 S20 = SAE-20 F20 = 1 <sup>1</sup> / <sub>4</sub> " SAE 4-bolt flange	Visual with Thermal Lockout	D8 = Visual w/ thermal lockout		NPTF inl and out female t ports	
Code 61 B16 = ISO 228 G-1" B20 = ISO 228 G-1¼"	Electrical	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire 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	<i>.</i> ,		
ent part ination J. ure re only I 9".	Electrical with Thermal Lockout	MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T			
	Electrical Visual	MS13 = Supplied w/ threaded connector & li MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)	ght		
als, esh ht oil terior. I t Dow	Electrical Visual with Thermal Lockout	MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout 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.







TECHNOLOGY





VEHICLES

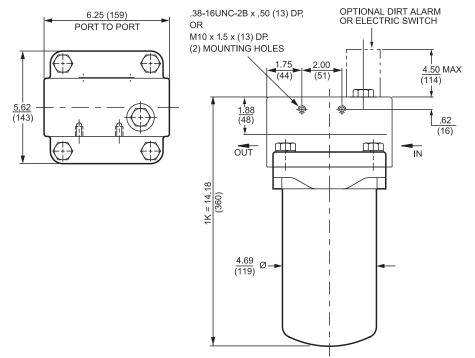
<u>380 L/min</u> 500 pci	GHHF
500 psi <u>35 bar</u>	RLT
	KF5
	SRLT
	К9
	<b>2K9</b>
	<b>3K9</b>
	QF5
Applications	3QF5
	QFD2
	QFD5
	QF15
	QLF15
	SSQLF15

100 gpm

GH

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) 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 Performance		Filtration Ratio Per ISO 4572/NFPA T3.10.8.8         Filtration Ratio per ISO 1           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 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	delements				
	Flow Direction	n: Outside In						
	Element Nominal Dimensions	<b>::</b> 3.9" (99 mr	n) O.D. x 9.0" (23	30 mm) long				

### Medium Pressure Filter KF

	Type Fluid	Appropriate Sch	oeder Media	Fluid	GH				
Petroleum B	ased Fluids	All E media (cellulo	ose), Z-Media® and	Compatibility					
High Wat	High Water Content All Z-Media <sup>®</sup> (synthetic), 3, 5 and 10 $\mu$ ASP <sup>®</sup> media (synthetic)								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 E media (cellulose)					edia (synthetic)		RLT
	Skydrol®	3, 5, 10 and 25 µ 2 removal) with H.5 light oil coating on	Skydrol <sup>®</sup> is a registered trademark of Solutia Inc.	KF5					
Pressure	E Series	lement 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.					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 (34 bar)		KZ3/KAS3		1KZ3					
(54 601)	Z- Media®	KZ5/KAS5		1KZ	25				<b>3K9</b>
	IVIEUIa	KZ10/KAS10		1KZ	10				
		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 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.


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

Solution:

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

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

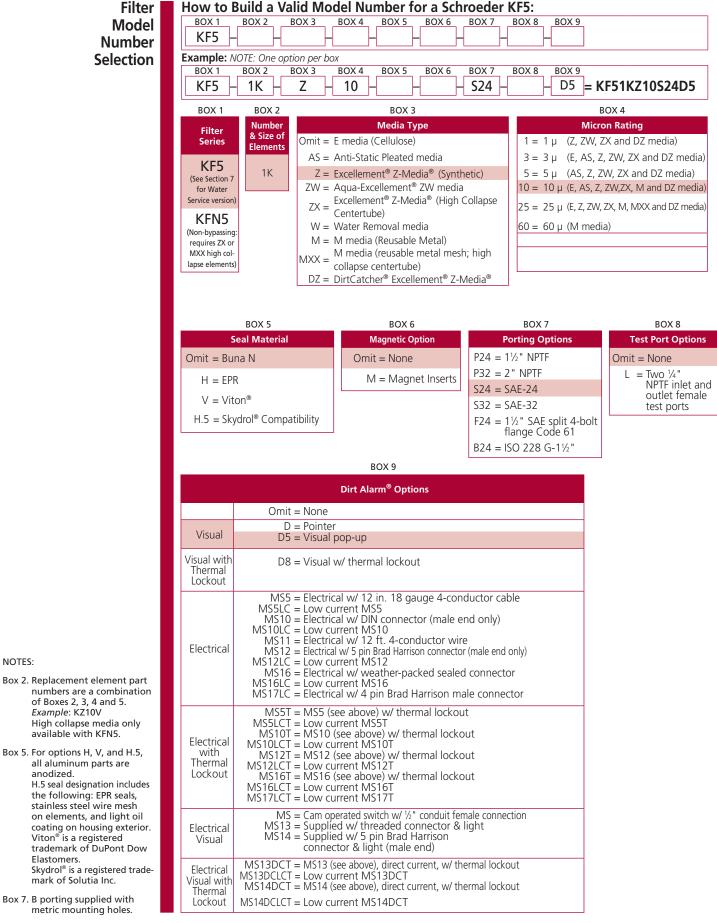
$$\Delta P_{element} = 50 \times .05 \times (200 \div 150) = 3.3 \text{ psi}$$
  
or  
= [189 x (.05 ÷ 54.9) x (44 ÷ 32) = .24 bar]  
$$\Delta P_{total} = 3.0 + 3.3 = 6.3 \text{ psi}$$
  
or  
= [.20 + .24 = .44 bar]

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!

 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 Head:AluminumElement Case:AluminumWeight of SRLT-6R:3.0 lbs. (1.4 kg)

Element Change Clearance: 2.75" (70 mm)

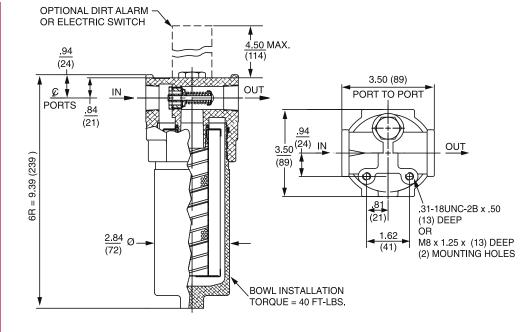
Full Flow: 55 psi (3.8 bar)

### Medium Pressure Filter SRLT

Wodel No. of filter in photograph is SRLT6RZ10512	<ul> <li>Features and Benefits</li> <li>Smaller, compact version of the RLT</li> <li>Quick and easy cartridge element changeouts</li> <li>Lightweight at 3 pounds</li> <li>Offered in pipe, SAE straight thread and ISO 228 porting</li> <li>Available with NPTF inlet and outlet female test ports</li> <li>Various Dirt Alarm<sup>®</sup> options</li> <li>Same day shipment model available</li> </ul>	25 gpm 100 L/min 1400 psi 100 bar       GH         4400 psi 100 bar       RLT         KF5       SRLT         K9       2K9         3K9       QF5	
		Applications3QF5QFD2QFD5QF15QLF15SSQLF15	
Flow Rating: Up to 25 gpm (10 Max. Operating Pressure: 1400 psi (100 bar Min. Yield Pressure: 4000 psi (276 bar Rated Fatigue Pressure: 750 psi (52 bar) p	r), per NFPA T2.6.1	Filter Housing Specifications	



#### **Medium Pressure Filter**



Metric dimensions in ( ).

Element Performance			atio Per ISO 4572/NF particle counter (APC) calib	Filtration Ratio per ISO 16889 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 µ 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 Part No.								Element 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- 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 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) 50)	(75) (95)		El. △P factors @ 150 SUS (32 cSt):					Information Based on	QFD5	
12 10 8	12 (0.75)			6R3       .45         6R10       .38         6R21       1.11         6R23       .55						Flow Rate and Viscosity	QF15	
.isd d⊽ 4			(0.5)	∆P (bar)	6RZ5 6RZ10 6RZ25	.5 .4 .1	6					QLF15
2				If working in units of bars & L/min, divide above factor by 54.9.				tor by 54.9.		SSQLF15		
0	5 10 Flow	15 r gpm	20 25		Viscosity f	factor: Di	vide viscosity b	y 150 SUS	5 (32 cSt).			
sp gr = specif 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.		
Notes					$\triangle \mathbf{P}_{filter} =$	$\triangle \mathbf{P}_{housin}$	$h_{pg} + \Delta \mathbf{P}_{eleme}$	ent				
NULES					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 SRLT - 6	2 BOX 3		вох 5 – <b>S12</b>	BOX 6	вох 7 - D5	= SRLT6RZ10S12D5	
Shipment Model			0 -	- 312		- 05	= SKLIOKZ 105 1205	
See inside back cover	See inside back cover BOX 1 BO			BOX 3			BOX 4	
for details.	Filter Lengt Series Elemen		E	lement Size a	nd Media	Seal Material		
	SRLT 6		R3 = R size 3 j			Omit = Buna N		
		10 μ E media (cellulose) 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 at <sup>®</sup> Z-Media <sup>®</sup>	ynthetic)	H.5 = Skydrol <sup>®</sup> Compatibility			
		$RZ25 = R size 25 \mu$				μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) 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 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 nd outlet	Visual				
			female test ports 30 = 30 psi bypass setting 40 = 40 psi bypass setting 50 = 50 psi bypass setting 60 = 60 psi bypass	with Thermal Lockout	D8 =	= Visual w/ thermal lockout		
							(42) 40	
					MS5	gauge 4-cor	lectrical w/ 12 in. 18 uge 4-conductor cable ow current MS5	
					MS5LC			
					MS10	(male end only) C = Low current MS10 = 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 = Electrical w/ weather packed sealed connector c = Low current MS16		
					MS16			
					IVISTOLC			
				MS17LC	= Electrical w/ 4 pin Brad Harrison male connector			
					= MS5 (see a	above) w/ thermal lockout		
						= Low currer		
nent part			Electrical		= MS10 (see = Low currer	above) w/ thermal lockout		
nation				with			above) w/ thermal lockout	
				Thermal	-	= Low currer		
ts are only 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 ncludes the			Electrical	MS13	= Supplied v	v/ threaded connector &		
R seals, wire mesh				Visual	MS14	= Supplied v	v/ 5 pin Brad Harrison light (male end)	
ght oil exterior.						connector &	light (male end) above), direct current, w/	
ered Pont Dow				Electrical	MS13DCT	thermal lock	out	
				Visual with	MS13DCLCT	= Low currer		
stered lutia Inc.				Thermal	MS14DCT	thermal lock	above), direct current,w/ 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



MANUFACTURING

POWER



MACHINE

TOOL

GENERATION

STEEL MAKING





GH

GHHF

**RLT** 

KF5

SRLT

K9

**2K9** 

3K9

100 gpm

900 psi 60 bar

380 Ľ/min

5	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) 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!

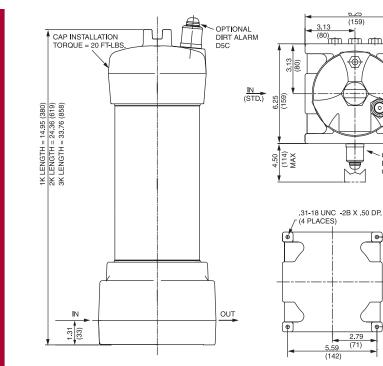
OUT

(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/N rticle counter (APC) cali	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 1117		
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	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/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			Appropriate Schroeder Media			Fluid	GH		
				ledia <sup>®</sup> and ASP <sup>®</sup> me				Compatibility	
-				5 and 10 µ ASP <sup>®</sup> r					GHHF
				thetic), 10 μ ASP®					
				<sup>®</sup> (synthetic), 3, 5 a			thetic)		DIT
Pho	osphate Este			th H (EPR) seal desi (EPR) seal designati			nedia (synthetic)		RLT
	Skydro	removal)	with H.5 seal desig	<sup>®</sup> (synthetic) with H. gnation (EPR seals a 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 Series	ient Part No.		ns are predicated o d fluid and a 40 psi (			St)	Element 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 pplication	act factory red	ments most arding use o	commonly used ir of E media in Higl	n this housing. In Water Content, Ir patibility: Fire Resi:	nvert Emul	sion and Wate	r Glycol	Pressure	QFD2
ote: Conta oplication <b>P<sub>housing</sub></b>	act factory reg s. For more in	ments most garding use of formation, r	commonly used ir of E media in Higl refer to Fluid com	n this housing. In Water Content, Ir patibility: Fire Resis	nvert Emul stant Fluid	lsion and Wate ls, page 21 and	r Glycol 22.	Pressure	QFD2 QFD5
ote: Conta pplication <b>P</b> <sub>housing</sub>	act factory reg s. For more in for fluids wit	ments most garding use of formation, r h sp gr = 0.8	commonly used ir of E media in Higl refer to Fluid com	h this housing. h Water Content, Ir patibility: Fire Resis ΔP <sub>element</sub> ΔP <sub>element</sub> = flow	nvert Emul stant Fluid x element	lsion and Wate ls, page 21 and ∆P factor x visc	r Glycol 22.	Drop	
ote: Conta oplication Phousing ∂ ∆P <sub>housing</sub> (50)	act factory reg s. For more in	ments most garding use of formation, r h sp gr = 0.8	commonly used ir of E media in Higl refer to Fluid com	n this housing. In Water Content, Ir patibility: Fire Resis	nvert Emul stant Fluid x element 150 SUS (.	lsion and Wate ls, page 21 and ∆P factor x visc 32 cSt):	r Glycol 22. osity factor		
te: Conta pplication $P_{housing}$ $\partial \Delta P_{housing}$ 10 (50)	act factory reg s. For more in for fluids wit Flow (L	ments most garding use of formation, r h sp gr = 0.8 /min)	commonly used ir of E media in Higl refer to Fluid com 36:	this housing. The Water Content, Ir patibility: Fire Resist $\Delta P_{element}$ $\Delta P_{element} = flow$ EI. $\Delta P$ factors @	x element 550 SUS (. <u>1K</u>	lsion and Wate ls, page 21 and ∆P factor x visc (32 cSt): <u>2K</u>	r Glycol 22. osity factor <u>3K</u>	Drop Information Based on Flow Rate	QFD5
ote: Conta oplication Phousing ∂ ∆P <sub>housing</sub> (50)	act factory reg s. For more in for fluids wit Flow (L	ments most garding use of formation, r h sp gr = 0.8 /min)	commonly used ir of E media in High refer to Fluid com 36:	h this housing. h Water Content, Ir patibility: Fire Resis ΔP <sub>element</sub> ΔP <sub>element</sub> = flow	nvert Emul stant Fluid x element 150 SUS (.	lsion and Wate ls, page 21 and ∆P factor x visc 32 cSt):	r Glycol 22. osity factor	Drop Information Based on	QFD5 QF15
bete: Conta pplication housing ) △Phousing 10 (50) 10 8	act factory reg s. For more in for fluids wit Flow (L	ments most garding use of formation, r h sp gr = 0.8 /min)	commonly used ir of E media in High refer to Fluid com 36: (350) (0.50)	this housing. The Water Content, Ir patibility: Fire Resist $\Delta P_{element}$ $\Delta P_{element} = flow$ $El. \Delta P factors @$ $K3$ $K10$ $K25$	x element 2 150 SUS (. 1 <b>K</b> .25 .09 .02	lsion and Wate. ls, page 21 and ∆P factor x visc (32 cSt): 2K .12 .05 .01	r Glycol 22. osity factor <u>3K</u> .08 .03 .01	Drop Information Based on Flow Rate	QFD5 QF15
te: Conta pplication housing	act factory reg s. For more in for fluids wit Flow (L	ments most garding use of formation, r h sp gr = 0.8 /min)	commonly used ir of E media in High refer to Fluid com 36: (350) (0.50)	this housing. The Water Content, Ir patibility: Fire Resist $\Delta P_{element}$ $\Delta P_{element} = flow$ EI. $\Delta P$ factors @ K3 K10 K25 KZ1	x element <b>150 SUS (.</b> <b>1K</b> .25 .09 .02 .20	Ision and Wate Is, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10	r Glycol 22. osity factor <u>3K</u> .08 .03 .01 .05	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
te: Conta plication housing $\Delta P_{housing}$	act factory reg s. For more in for fluids wit Flow (L	ments most garding use of formation, r h sp gr = 0.8 /min)	commonly used ir of E media in High refer to Fluid com 36:	this housing. The Water Content, Ir patibility: Fire Resist $\Delta P_{element}$ $\Delta P_{element} = flow$ EI. $\Delta P$ factors @ K3 K10 K25 KZ1 KZ3/KAS3	x element <b>150 SUS (.</b> <b>1K</b> .25 .09 .02 .20 .10	Ision and Wate Is, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10 .05	r Glycol 22. osity factor <u>3K</u> .08 .03 .01 .05 .03	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
te: Conta plication housing $\Delta P_{housing}$	act factory reg s. For more in for fluids wit Flow (L	ments most garding use of formation, r h sp gr = 0.8 /min)	commonly used ir of E media in High refer to Fluid com 36: (350) (0.50) (tropped) a	this housing. The Water Content, Ir patibility: Fire Resist $\Delta P_{element}$ $\Delta P_{element} = flow$ EI. $\Delta P$ factors @ K3 K10 K25 KZ1	x element <b>150 SUS (.</b> <b>1K</b> .25 .09 .02 .20	Ision and Wate Is, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10	r Glycol 22. osity factor <u>3K</u> .08 .03 .01 .05	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
te: Conta pplication housing	act factory reg s. For more in for fluids wit Flow (L	ments most garding use of formation, r h sp gr = 0.8 /min)	commonly used ir of E media in High refer to Fluid com 36: (350) (0.50) (tropped) a	A this housing. A Water Content, Ir patibility: Fire Resis ΔP <sub>element</sub> EI. ΔP factors @ K3 K10 K25 KZ1 KZ3/KAS3 KZ5/KAS5	x element <b>150 SUS (.</b> <b>1K</b> .25 .09 .02 .20 .10 .08	Ision and Wate. Is, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10 .05 .04	r Glycol 22. osity factor <u>3K</u> .08 .03 .01 .05 .03 .02	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
te: Conta pplication housing 10 Phousing 10 (50) 10 (	for fluids wit Flow (L (150) Flow (L (150) Flow (L (150) Flow (L (150) Flow (L (150) Flow (L (150) Flow (L) (150) Flow (L) (15	ments most formation, r h sp gr = 0.8 (min) (250)	commonly used ir of <i>E</i> media in High refer to Fluid com 36: (350) (0.50) (0.50) (0.25)	A this housing. A Water Content, Ir patibility: Fire Resis ΔP <sub>element</sub> EI. ΔP factors @ K3 K10 K25 KZ1 KZ3/KAS3 KZ5/KAS5 KZ10/KAS10	x element 2 150 SUS (. 150 S	lsion and Wate, ls, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10 .05 .04 .03 .02	r Glycol 22. osity factor .08 .03 .01 .05 .03 .02 .02	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
te: Conta pplication housing 10 Phousing 10 (50) 10 (	for fluids wit Flow (L (150)	ments most formation, r h sp gr = 0.8 (min) (250)	commonly used ir of <i>E</i> media in High refer to Fluid com 36: (350) (0.50) (0.50) (0.25)	this housing. $\Delta P_{element}$ $\Delta P_{element} = flow$ <i>El.</i> $\Delta P$ factors @ K3 K10 K25 KZ1 KZ3/KAS3 KZ5/KAS5 KZ10/KAS10 KZ25	x element <b>150 SUS (.</b> <b>1K</b> .25 .09 .02 .20 .10 .08 .05 .04 <b>1K</b>	Ision and Wate. Is, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10 .05 .04 .03	r Glycol 22. osity factor .08 .03 .01 .05 .03 .02 .02	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
te: Conta plication housing ) △Phousing (50) 10 8 6 4 2 0 0	for fluids wit Flow (L (150) Solution S	ments most formation, r h sp gr = 0.8 (min) (250)	commonly used ir of <i>E</i> media in High refer to Fluid com 36: (350) (0.50) (0.50) (0.25)	A this housing. A Water Content, Ir patibility: Fire Resis ΔP <sub>element</sub> EI. ΔP factors @ K3 K10 K25 KZ1 KZ3/KAS3 KZ5/KAS5 KZ10/KAS10	x element 2 150 SUS (. 150 S	lsion and Wate, ls, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10 .05 .04 .03 .02	r Glycol 22. osity factor .08 .03 .01 .05 .03 .02 .02	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
pte: Conta pplication housing $\Delta P_{housing}$ (50) (50	for fluids wit Flow (L (150) Flow (L) (150) Flow (L) (150) (150) Flow (L) (150) (	ments most formation, r h sp gr = 0.8 (min) (250) 60 80 pm 80	commonly used ir of <i>E</i> media in High refer to Fluid com 36: (350) (0.50) (0.25) (0.25) (0.25)	this housing. A Water Content, Ir patibility: Fire Resis △Pelement EI. △P factors @ K3 K10 K25 K21 K23/KAS3 K25/KAS5 K210/KAS10 K225 KZW1 KZW3 KZW3 KZW5	nvert Emul stant Fluid x element 2 150 SUS ( 150 SUS ( 150 SUS ( 20 .09 .02 .20 .10 .08 .05 .04 <b>1K</b> .43 .32 .28	lsion and Wate, ls, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10 .05 .04 .03 .02 2K .16 .14	r Glycol 22. osity factor .08 .03 .01 .05 .03 .02 .02	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
bote: Conta polication Phousing D  Phousing D  Phousing 0  Phousing	for fluids wit Flow (L (150) Flow (L) (150) Flow (L) (150) (150) Flow (L) (150) (	ments most formation, r h sp gr = 0.8 (min) (250) 60 80 pm 80	commonly used ir of E media in High refer to Fluid com 36: (350) (0.50) (0.25)	a this housing. b Water Content, Ir patibility: Fire Resis $\Delta P_{element} = flow$ EI. $\Delta P$ factors (a) K3 K10 K25 K21 K23/KAS3 K25/KAS5 K210/KAS10 K225 KZW1 KZW3 KZW5 KZW10	nvert Emul stant Fluid x element 2 150 SUS ( 150 SUS ( 150 SUS ( 20 .09 .02 .20 .10 .08 .05 .04 <b>1K</b> .43 .32 .28 .23	lsion and Wate, ls, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10 .05 .04 .03 .02 2K .16 .14 .12	r Glycol 22. osity factor .08 .03 .01 .05 .03 .02 .02	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
ote: Conta pplication Phousing 9 ΔPhousing 10 (50) 10	for fluids wit Flow (L (150) Flow (L) (150) Flow (L) Flow (L) (150) Flow (L) (150) (150) Flow (L) (150) Flow (L) (150) Flo	ments most parding use of formation, r h sp gr = 0.8 (min) (250) 60 80 pm be based on he Element So	commonly used ir of <i>E</i> media in High refer to Fluid com 36: (350) (0.50) (0.25) (0.25) (0.25)	A this housing. A Water Content, Ir patibility: Fire Resis ΔP <sub>element</sub> ΔP <sub>element</sub> = flow El. ΔP factors @ K3 K10 K25 KZ1 KZ3/KAS3 KZ5/KAS5 KZ10/KAS10 KZ25 KZW1 KZW3 KZW5 KZW1 KZW3 KZW5 KZW10 KZW5 KZW10 KZW25	x element 2 150 SUS (. 1K .25 .09 .02 .20 .10 .08 .05 .04 1K .43 .32 .28 .23 .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 22. osity factor <u>3K</u> .08 .03 .01 .05 .03 .02 .02 .01	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
ote: Conta pplication Phousing $9 \Delta P_{housing}$ 10 (50) 10 (5	for fluids wit Flow (L (150) Flow (L) (150) Flow (L) (150) (150) Flow (L) (150) (	ments most parding use of formation, r h sp gr = 0.8 (min) (250) 60 80 pm be based on he Element So	commonly used ir of <i>E</i> media in High refer to Fluid com 36: (350) (0.50) (0.25) (0.25) (0.25)	A this housing. A Water Content, Ir patibility: Fire Resis ΔPelement ΔPelement = flow EI. ΔP factors @ K3 K10 K25 K21 K23/KAS3 K25/KAS5 K210/KAS10 K225 KZW1 KZW3 KZW5 KZW1 KZW3 KZW5 KZW10 KZW25 If working in unit	x element 5 150 SUS (. 1K .25 .09 .02 .20 .10 .08 .05 .04 1K .43 .32 .28 .23 .14 sof bars & L	lsion and Wates (s, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10 .05 .04 .03 .02 2K .16 .14 .12 .07 /min, divide abox	r Glycol 22. osity factor <u>3K</u> .08 .03 .01 .05 .03 .02 .02 .01	Drop Information Based on Flow Rate and Viscosity	QFD5 QF15 QLF15
ote: Conta pplication $P_{housing}$ 9 $\Delta P_{housing}$ 10 (50) 10 (50)	act factory reg s. For more in for fluids wit Flow (L (150) 20 40 Flow g cific gravity ments should provided in th Phousing + ΔP	ments most parding use of formation, r h sp gr = 0.8 (min) (250) 60 80 be based on the Element So element n (303 L/mir	commonly used ir of E media in High refer to Fluid com 36: (350) (0.50) (0.25) 100	a this housing. b Water Content, Ir patibility: Fire Resis $\Delta P_{element}$ $\Delta P_{element} = flow$ El. $\Delta P$ factors @ K3 K10 K25 KZ1 KZ3/KAS3 KZ5/KAS5 KZ10/KAS10 KZ25 KZW1 KZW3 KZW5 KZW10 KZW5 KZW7 KZW5 KZW10 KZW5 KZW7 KZW7 KZY7	x element 5 150 SUS (. 1K .25 .09 .02 .20 .10 .08 .05 .04 1K .43 .32 .28 .23 .14 sof bars & L	lsion and Wates (s, page 21 and △P factor x visc 32 cSt): 2K .12 .05 .01 .10 .05 .04 .03 .02 2K .16 .14 .12 .07 /min, divide abox	r Glycol 22. osity factor <u>3K</u> .08 .03 .01 .05 .03 .02 .02 .01	Drop Information Based on Flow Rate and Viscosity	QFD5 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	How to Build a Valid Model Number for a Schroeder 2K9:					
вох 1 е 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 К9 –			05 = K91KZ10BP16	NP16ND5		
BOX 1	BOX 2	BOX 3	BOX 4	BOX 5		

ROX	L BOX 2	BOX 3	BOX 4	BOX 3
Filte Seri		Media Type	Micron Rating	Seal 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 3 K	Z = Excellement® Z-Media® AS = Anti-Stat Pleat media (synthetic)	$3 = 3 \mu$ AS, E, Z, ZW, ZX media $5 = 5 \mu$ AS, Z, ZW, ZX media	V = Viton® H = EPR
Ро	rting Options	ZW = Aqua-Excellement®ZW media ZX = Excellement® Z-Media®	$10 = 10 \mu AS, E, M, Z, ZW,$ ZX media	H.5 = Skydrol <sup>®</sup> Compatibility
		(high collapse centertube) W = W media (water removal) M = media (reusable metal mesh)	25 = 25 $\mu$ E, M, Z, ZW, ZX media 60 = 60 $\mu$ M media 150 = 150 $\mu$ M media 260 = 260 $\mu$ M media	

	BOX 6 Specification	of all 4 ports is re	quired	BOX 7		
	Porting					
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 P20 = 1 <sup>1</sup> / <sub>4</sub> " NPTF P24 = 1 <sup>1</sup> / <sub>2</sub> " NPTF		P16 = 1 " NPTF P20 = 1 <sup>1</sup> / <sub>4</sub> " NPTF P24 = 1 <sup>1</sup> / <sub>2</sub> " NPTF	P16 = 1" NPTF P20 = 1¼" NPTF P24 = 1½" NPTF	U=Test point in cap (upstream) UU=Test points in		
	F16 = 1" SAE 4-bolt flange Code 61 F20 = $1\frac{1}{4}$ " SAE 4-bolt flange Code 61 F24 = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61	S16 = SAE-16 S20 = SAE-20 S24 = SAE-24	F16 = 1" SAE 4-bolt flange Code 61 F20 = $1\frac{1}{4}$ " SAE 4-bolt flange Code 61 F24 = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61	block (upstream and downstream 10 = 10 psi bypass		
B16 = ISO 228 G-1" B20 = ISO 228	S16 = SAE-16 S20 = SAE-20 S24 = SAE-24	B16 = ISO 228 G-1" B20 = ISO 228	S16 = SAE-16 S20 = SAE-20 S24 = SAE-24	20=20 psi bypass setting		
B24 = 150 228 G=11/2"	B16 = ISO 228 G-1" B20 = ISO 228 G-1¼" B24 = ISO 228 G-1½"	G-1¼" B24 = ISO 228 G-1½"	B16 = ISO 228 G-1" B20 = ISO 228 G-1¼" B24 = ISO 228 G-1½"	25 = 25 psi bypass setting 30 = 30 psi bypass		
				cotting		

<ul> <li>X=Blocked bypass</li> <li>U=Test point in cap (upstream)</li> <li>UU=Test points in block (upstream and downstream</li> <li>10 psi bypass setting</li> <li>20 = 20 psi bypass setting</li> <li>25 = 25 psi bypass setting</li> <li>30 = 30 psi bypass setting</li> <li>40 = 40 psi bypass setting</li> <li>60 = 60 psi bypass setting</li> <li>75 = 75 psi bypass</li> </ul>	
(upstream) UU=Test points in block (upstream and downstream 10=10 psi bypass setting 20=20 psi bypass setting 30=30 psi bypass setting 40=40 psi bypass setting 60=60 psi bypass setting	X=Blocked bypass
block (upstream and downstream 10 = 10 psi bypass setting 20 = 20 psi bypass setting 25 = 25 psi bypass setting 30 = 30 psi bypass setting 40 = 40 psi bypass setting 60 = 60 psi bypass setting	U=Test point in cap (upstream)
setting 20 = 20 psi bypass setting 25 = 25 psi bypass setting 30 = 30 psi bypass setting 40 = 40 psi bypass setting 60 = 60 psi bypass setting	block (upstream
setting 25=25 psi bypass setting 30=30 psi bypass setting 40=40 psi bypass setting 60=60 psi bypass setting	10 = 10 psi bypass setting
setting 30 = 30 psi bypass setting 40 = 40 psi bypass setting 60 = 60 psi bypass setting	
setting 40 = 40 psi bypass setting 60 = 60 psi bypass setting	
setting 60=60 psi bypass setting	
setting	40 = 40 psi bypass 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 D5C = D5 in cap
Visual with Thermal Lockout	<sub>D8 =</sub> Visual w/ thermal lockout <sub>D8C =</sub> D8 in cap
Electrical	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 MS11 = Electrical w/ 12 ft. 4-conductor wire 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
Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = Low current MS16T MS16LT = Low current MS16T MS17LCT = Low current MS17T
Electrical Visual	MS13 = Supplied w/ threaded connector & light MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT

BOX 8

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





	100 gpm	GH
<ul><li>Features and Benefits</li><li>Two patent-pending K9 filters supplied</li></ul>	380 L/min	GHHF
in series as a single filter assembly providing in-line single pass particulate and water filtration	900 psi 60 bar	RLT
Meets HF4 automotive standard		
<ul> <li>900 psi rating covers almost all transfer line pressure specs including air driven transfer systems</li> </ul>		KF5
<ul> <li>Top loading for easy access for element changeout</li> </ul>		SRLT
<ul> <li>Allows consolidation of inventoried elements by using K-size elements</li> </ul>		К9
<ul> <li>Can be fitted with test points for oil sampling</li> </ul>		21/0
<ul> <li>Available with Patented GeoSeal<sup>®</sup></li> <li>Elements. See Section 8 – GeoSeal</li> <li>Filters (page 343) for details.</li> </ul>		2K9
		3K9
		QF5
	Applications	3QF5
STEEL MOBILE		QFD2
MAKING VEHICLES		QFD5
		QF15
		QLF15
	2	SSQLF15

Custom 2K9, contact factory for details.



INDUSTRIAL



AGRICULTURE



POWER GENERATION



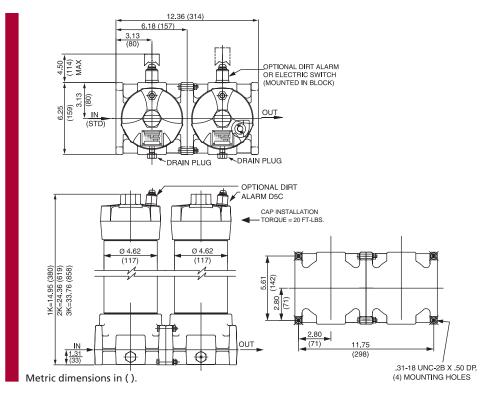
MACHINE TOOL

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; 26.5" (673 mm) for 27K	



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





Element Performance			io Per ISO 4572/N article counter (APC) ca			<b>per ISO 16889</b> 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/ 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

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/ 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 Co	llapse Ratii	ng: 150 p	sid (10 bar) fo	r standard eler	ments			
		FI	ow Directi	on: Outsic	le In					
	Elem	ient Nomina	Il Dimensio	ns: K: KK:		n) O.D. x 9.0' 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

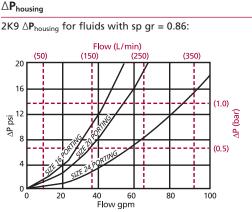
Type Fluid	Appropriate Schroeder Media	Fluid	GH
Petroleum Based Fluids	All Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic)	Compatibility	
High Water Content	All Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic)		GHHF
Invert Emulsions	10 and 25 $\mu$ Z-Media® and 10 $\mu$ ASP® media (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 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 Model	BOX 1 BOX 2 B	a Valid N		mber for a Schroe	eder 2K9: 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	ing		
	2K9 1		Size Element	A = 1 $\mu$ Z-Media <sup>®</sup> B = 3 $\mu$ Z-Media <sup>®</sup>	A = 1 $\mu$ Z-Media <sup>6</sup> B = 3 $\mu$ Z-Media <sup>6</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> F = W Water Removal	$E = 25 \mu Z$ -Medi			
				$G = 1 \mu ZW$ -media	F = W Water Ren G = 1 $\mu$ ZW-medi			
				$H = 3 \mu$ ZW-media	$H = 3 \mu$ 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 M = 3 µ AS-media	L = 25 $\mu$ ZW-me M = 3 $\mu$ AS-media			
				$N = 5 \mu AS-media$ 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" Porting	"Ou Porti			
	B = Buna N		P16 = 1" NPT	F	P16 = 1" NPTF			
	V = Viton®		P20 = $1^{1}_{A}$ " NPTF P24 = $1^{1}_{2}$ " NPTF P24 = $1^{1}_{2}$ " NPTF B16 = ISO 228 G-1" B20 = ISO 228 G-1" B20 = ISO 228 G-1 $4$ " B20 = ISO 228 G-1 $4$ "					
	H = EPR							
	H.5 = Skydrol® C	ompatible	B20 = ISO 220 B24 = ISO 220	B20 = ISO 228 G-1 B24 = ISO 228 G-1				
			F20 = 1 <sup>1</sup> /4" SA	4-bolt flange Code 61 AE 4-bolt flange Code 61 AE 4-bolt flange Code 61	F16 = 1" SAE 4-bol F20 = $1^{1}_{4}$ " SAE 4-bol F24 = $1^{1}_{2}$ " SAE 4-bol SAE 4-bol	olt flange Code 61		
			S16 = SAE-16 S20 = SAE-20 S24 = SAE-24	)	S16 = SAE-16 S20 = SAE-20 S24 = SAE-24			
			BOX	9	L	BOX 10		
			Dirt Alarm <sup>®</sup>	Options		Options		
		Omit	= None			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 = Visual w/ the	ermal lockout		(upstream)		
ed by KK and 27K ents, respectively.	Lockout	D8C	= D8 in cap			UU = Test points in block (upstream and		
er of elements must 1 when using KK or			= Electrical w/	12 in. 18 gauge 4-conductor MS5	cable	downstream)		
lements. ZW media not ble in 27K length.			= Electrical w/ I = Low current	DIN connector (male end onl MS10	y)			
cement element part	Electrical			12 ft. 4-conductor wire pin Brad Harrison connector (n	nale and only)			
ers are identical to K9		MS12LC	= Low current	MS12	<i>,</i> ,			
cement parts. Please ence page 184.			= Electrical w/v = Low current	weather-packed sealed conn MS16	ector			
ptions H, V, and H.5,				4 pin Brad Harrison male con	nector			
uminum parts are ized.		MS5LCT	= Low current					
al designation includes blowing: EPR seals,	Electrical		= MS10 (see at = Low current	oove) w/ thermal lockout MS10T				
ess steel wire mesh	with Thermal	MS12T		oove) w/ thermal lockout				
ements, and light oil og on housing exterior.	Lockout	MS16T	= MS16 (see ab	oove) w/ thermal lockout				
<sup>®</sup> is a registered 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- of Solutia Inc.	Visual			pin Brad Harrison connector & li pove), direct current, w/ theri	-			
	Electrical Visual							
on UU not available in ination with indicator	with Thermal		= Low current	MS13DCT 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 3K



#### **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<sup>®</sup> Elements. See Section 8 – GeoSeal Filters (page 343) for details.

Model No. of filter in photograph is 3K9127EDBBP20P20UUD5C.



INDUSTRIAL



AGRICULTURE



POWER GENERATION



MACHINE

TOOL

 $\odot$ 

PULP & PAPER

STEEL MAKING



VEHICLES

GHHF
RLT
KF5
SRLT
К9
2K9
3K9
QF5
3QF5
QFD2
QFD5
QF15
QLF15
SSQLF15

100 apm

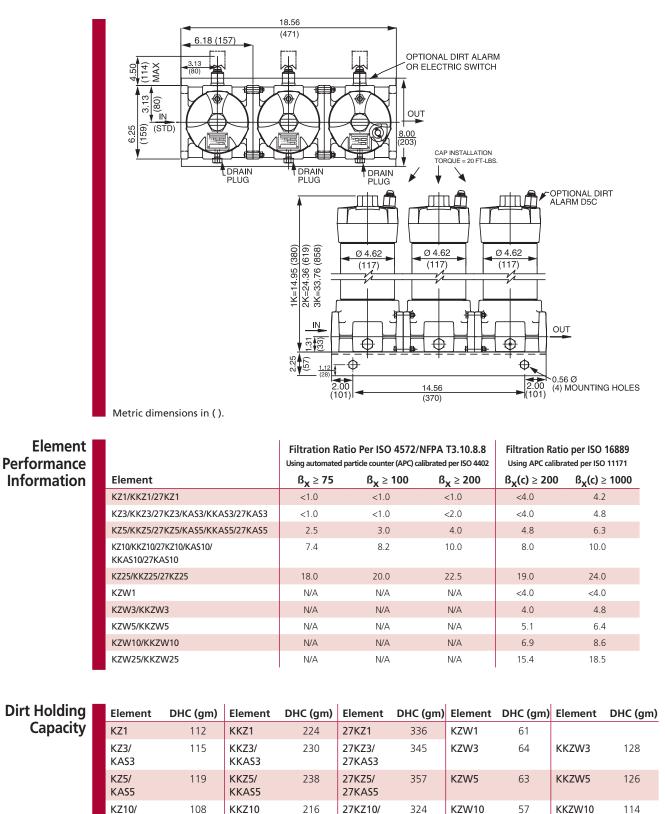
GH

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	



### **Single Pass Filter Kit**





27KAS10

27KZ25

150 psid (10 bar) for standard elements

279

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

KZW25

186

Outside In

K:

KK:

KKZW25

158

79

KKAS10

KKZ25

Flow Direction:

93

**Element Nominal Dimensions:** 

Element Collapse Rating:

KAS10

KZ25

## 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.

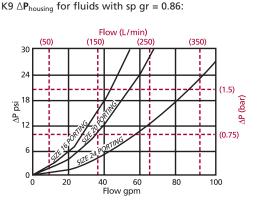
 Element
 Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve.
 Element Selection Based on Based State State

		KZ1		11	(Z1		2KZ1 <sup>+</sup>		Based on Flow Rate	
То		KZ3		1	KZ3/KAS3/KI	KAS3/27KAS	3		now nate	2K9
900 psi	Z- Media®	KZ5		1	KZ5/KAS5/KI	KAS5/27KAS	5			
(60 bar)	Wiedła	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]
- $\Delta P_{element2} = 80 \text{ x} .03 = 2.4 \text{ psi} [0.2 \text{ bar}]$

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

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

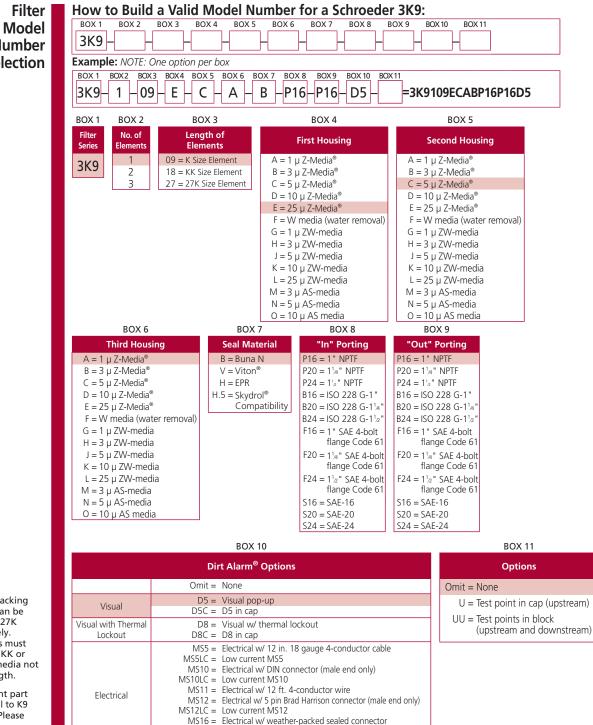
$\Delta \mathbf{P}_{element}$								
$\Delta P_{element}$ = flow x element $\Delta P$ factor x viscosity factor								
El. △P factors @ 150 SUS (32 cSt):								
<u>1K</u> <u>2K/KK</u> <u>3K/27K</u>								
К25	.02	.01	.01					
KZ1	.20	.10	.05					
KZ3/KAS3	.10	.05	.03					
KZ5/KAS5	.08	.04	.02					
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** 

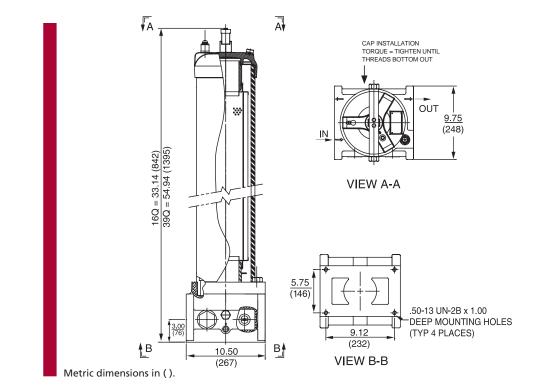


	<ul> <li>Features and Benefits</li> <li>Element changeout from the top minimizes oil spillage</li> <li>Available with optional core assembly to accommodate coreless elements</li> <li>Offered with standard Q, QPML deep-plated and QCLQF coreless elements in 16" and 39" lengths with standard Viton® seals</li> <li>Offered in pipe, SAE straight thread, and flange porting</li> <li>Optional inlet and outlet test points</li> <li>WQF5 model for water service also available</li> <li>Various Dirt Alarm® options</li> </ul>	GH 300 gpm 1135 L/min 500 psi 35 bar RLT KF5 SRLT K9 2K9 3K9
Model No. of filter in photogra	ph is QF539QZ10P32.	Viton <sup>®</sup> is a registered trademark of DuPont Dow Elastomers.
		Applications 3QF5
INDUSTRIAL AUTOMOT MANUFACTU		QFD2 QFD5
		Qrub
<u>7</u>		QF15
MINING POWER TECHNOLOGY GENERATI		QLF15
		SSQLF15
	Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids	Filter Housing
Max. Operating Pressure: Min. Yield Pressure:	500 psi (35 bar) 2500 psi (172 bar), per NFPA T2.6.1-R1-2005	Specifications
Rated Fatigue Pressure:		
_	-20°F to 225°F (-29°C to 107°C)	
	Cracking: 30 psi (2.1 bar) Full Flow: 55 psi (3.8 bar)	
-	Cast Aluminum	
Element Case:	Steel Ductile Iron	
Weight of QF539:		
weight of Q1555.	103 103. (0+ kg/	

 Element Change Clearance:
 16Q
 12.0" (205 mm)

 39Q
 33.8" (859 mm)





Element Performance Information				o <b>Per ISO 4572/N</b> ed particle counter ( <i>A</i> per ISO 4402	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
internation	Ele	ement	β <sub>X</sub> ≥ 75	$\beta_X \ge 100$	$\beta_X \ge 200$	β <sub>X</sub> (c) ≥ 200	β <sub>χ</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/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
	200	Z3/CLQFZ3/PMLZ3/PMLAS3V/AS3V	<1.0	<1.0	<2.0	<4.0	4.8
	39Q	39Q Z5/CLQFZ5/PMLZ5/PMLAS5V/AS5V		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	Element		DHC	(am)	Elem	ent	DHC (gm)	Element	DHC (gm)
Capacity	acity Z1 Z3/AS3V		270	-	CLQFZ	21	307	PMLZ1	307
			283	3	CLQFZ	23	315	PMLZ3/PMLAS3V	315
	16Q	Z5/AS5V	351		CLQFZ5		364	PMLZ5/PMLAS5V	364
		Z10/AS10V 28		0	CLQFZ	210	306	PMLZ10/PMLAS10V	330
		Z25	254		CLQFZ	225	278	PMLZ25	299
	Z1		974		CLQFZ	21	1259	PMLZ1	1485
		Z3/AS3V	1001		CLQFZ	23	1293	PMLZ3/PMLAS3	1525
	39Q	Z5/AS5V	954	4	CLQFZ	25	1302	PMLZ5/PMLAS5	1235
		Z10/AS10V	940	0	CLQFZ	210	1214	PMLZ10/PMLAS10	1432
		Z25	85	3	CLQFZ	225	1102	PMLZ25	1299
		Element Collapse F	Rating:	Q and	d QPML:	150 ps	id (10 bar), QCI	QF: 100 psid (7 bar)	
		Flow Dire	ection:	Outsi	de In				
		Element Nominal Dimensi		39Q:		6.0" (	(150 mm) O.D.	x 38.70" (985 mm) long	
					CLQF:			x 40.01" (1016 mm) long	
				39QF	PML:	6.0" (	(150 mm) O.D.	x 37.80" (960 mm) long	
	101 50		- c						



Pressure

Based on

Flow Rate

and Viscosity

Information

**OLF15** 

SSQLF15

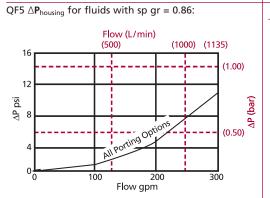
Drop

	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	10 and 25 µ	ι Z-Media <sup>®</sup> and 10 μ ASP <sup>®</sup> media	(synthetic)			GHHF
				l 25 μ Z-Media <sup>®</sup> and all ASP <sup>®</sup> Me				
Ph		,		(synthetic) with H (EPR) seal de	· ,	edia (synthetic)		RLT
	-			-	-	-		
	2	kyuror-		25 µ Z-Media <sup>®</sup> (synthetic) with H.5 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	ting with a 30 psi (2.1 bar	) bypass valve.	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		2K9
То	Z-		9QCLQFZ3	16QCLQ		39QCLQFZ3		
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		QPMLZ25			<b>3QF5</b>
	Flow	gpm	(	0 100	200	300		
	TIOW	(L/min)	(	0	500	1000 1135		
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 △P at 150 gpm (570 L/min) for QF516QZ3VF40D5 using 200 SUS (44 cSt) fluid. Solution:

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

$$\Delta P_{element} = 150 \text{ x} .04 \text{ x} (200 \div 150) = 8.0 \text{ psi} \\ \text{or} = [570 \text{ x} (.04 \div 54.9) \text{ x} (44 \div 32) = .57 \text{ bar}]$$

$$\Delta P_{total} = 3.0 + 8.0 = 11.0 \text{ psi} \\ \text{or} = [.21 + .57 = .78 \text{ bar}]$$

$\Delta \mathbf{P}_{element}$				
$\Delta P_{element} = flow$	x element ∆P	factor x viscosity fa	actor	
El. △P factors @	150 SUS (32 d	:St):		
16QZ1	.09	39QZ1	.03	
16QZ3/		39QZ3/	~ .	
16QAS3V 16QZ5/	.04	39QAS3V 39QZ5/	.01	
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 16QCLQFZ25	.04 .03	39QCLQFZ10 39QCLQFZ25	.01 .01	
16QPMLZ1	.08	39QPMLZ1	.03	
16OPMLZ3/	.00	390PMLZ3/	.05	
16QPMLAS3V	.05	39QPMLAS3V	.02	
16QPMLZ5/		39QPMLZ5/		
16QPMLAS5V	.05	39QPMLAS5V	.02	
16QPMLZ10/ 16QPMLAS10V	04	39QPMLZ10/ 39QPMLAS10V	.01	
16QPMLZ25	.04	39QPMLZ25	.01	
•		in, divide above fact		
Viscosity factor			01 by 54.9.	

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



Filter Model	BOX 1 BOX 2	a Valid Model Number for a Schroeder QF5: BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8	BOX 9
Number	QF5 –		-
Selection	Example: NOTE: On BOX 1 BOX 2 B	e option per box OX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9	
			F539QZ3P32DPG
	BOX 1	BOX 2 BOX 3 BOX 4	BOX 5
		lement Element Media Type ngth (in) Style	Micron Rating
		16 Q Z = Excellement® Z-Media®	1 = 1 µ Z-Media®
	QF5	39 QCLQF (synthetic) AS = Anti-Stat Pleat media	3 = 3 μ AS and Z-Media <sup>®</sup> 5 = 5 μ AS and Z-Media <sup>®</sup>
		QPML (synthetic)	10 = 10 μ AS and Z-Media <sup>®</sup>
		W = W Media (water removal)	25 = 25 μ Z-Media®
	BOX 6	BOX 7 B	OX 8
	Housing Seal Mater	ial Porting Bypas	s Setting
	Omit = Buna N		psi cracking
	H = EPR	flange Code 61 50 = 50	psi cracking
	V = Viton <sup>®</sup>		cked bypass
		P48 = 3 "NPTF flange Code 61	
		S32 = SAE-32 F48 = 3" SAE 4-bolt	
		flange Code 61	
		·	
		BOX 9	
		Dirt Alarm <sup>®</sup> Options	
		Omit = None	
		DPG = Standard differential pressure gauge D5 = Visual pop-up	
	Visual	D5C = D5 in cap	
	Visual with Thermal	D5R = D5 mounted opposite standard location D8 = Visual w/ thermal lockout	
	Lockout	D8C = D8 in cap	
		D8R = D8 mounted opposite standard location MS5 = Electrical w/ 12 in. 18 gauge 4-conductor of	able
		MS5LC = Low current MS5	
		MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10	
NOTES:	Electrical	MS11 = Electrical w/ 12 ft. 4-conductor wire	(
Box 2. Replacement element part		MS12 = Electrical w/ 5 pin Brad Harrison connector MS12LC = Low current MS12	(male end only)
numbers are a combination of Boxes 2, 3, 4 and 5 plus the		MS16 = Electrical w/ weather-packed sealed connec MS16LC = Low current MS16	tor
letter V. Example: 39QZ10V		MS17LC = Electrical w/ 4 pin Brad Harrison male conn	ector
Box 3. QCLQF are CoreCentric <sup>®</sup>		MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T	
coreless elements – housing includes rigid metal core.	Electrical	MS10T = MS10 (see above) w/ thermal lockout	
QPML are deep-pleated elements with more media	with	MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout	
and higher dirt holding capacity.	Thermal Lockout	MS12LCT = Low current MS12T	
Box 4. For option W, Box 3 must	Lockout	MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T	
equal Q.		MS17LCT = Low current MS17T	
Box 6. All elements for this filter are supplied with Viton <sup>®</sup> seals.	Electrical Visual	MS13 = Supplied w/ threaded connector & light MS14 = Supplied w/ 5 pin Brad Harrison connector	& light (male end)
Seal designation in Box 6 applies to	Electrical Visual	MS13DCT = MS13 (see above), direct current, w/ therm	-
housing only. Viton <sup>®</sup> is a registered	with Thermal	MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ therm	al lockout
trademark of DuPont Dow Elastomers.	Lockout	MS14DCLCT = Low current MS14DCT	

**196 SCHROEDER INDUSTRIES** 

In-Line Filter 3QF5





#### **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<sup>®</sup> options

Model No. of filter in photograph is 3QF539QEDBP40P40.



INDUSTRIAL



MINING TECHNOLOGY



POWER GENERATION



 $\mathbf{r}$  $\odot$ IC O

PULP & PAPER



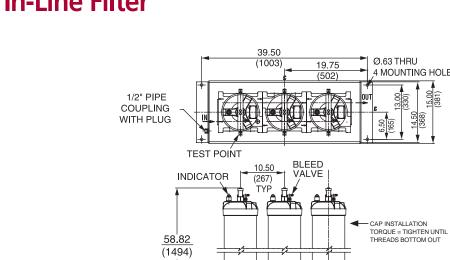
MAKING



300 gpm <i>1135 L/mi</i>	GH M GHUE
500 psi <i>35 bar</i>	RLT
	KF5
	SRLT
	К9
	<b>2K9</b>
	3K9
Viton® is a registered trademark of DuPont Dow Elastomers.	QF5
Applications	3QF5
	QFD2
	QFD5
	QF15
	QLF15
	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) 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)	





1

TEST POINT

IN

<u>5.00</u> (127)

1

-DRAIN PLUG

42.0 (1067)

©!©

<u>36.0</u> (914)

Ø.63 THRU 4 MOUNTING HOLES

14.50 (368)

13.00

6.88 TO (175) INLET/OUTLET PORT

6.50

<u>15.00</u> (381)

Metric dimensions	in	()

Element Performance				Per ISO 4572/NF			o per ISO 16889 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/ AS3V/PMLAS3V	<1.0	<1.0	<2.0	<4.0	4.8
	39Q	Z5/CLQFZ5/PMLZ5/ AS5V/PMLAS5V	2.5	3.0	4.0	4.8	6.3
		Z10/CLQFZ10/PMLZ10/ 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	Eleme	ent	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: 10	00 psid (7 bar)		
	Flow Direction: Element Nominal Dimensions:		Direction:	Outsid	e In			
			16Q:	6.0" (15	0 mm) O.D. x 16.8	5" (430 mm) long		
			16QCL	QF: 6.0" (15	0 mm) O.D. x 18.2	I " (463 mm) long		
				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 40.0	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	ds All Z-Media® and ASP® 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)					Сппг
	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. 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 16Q				_	Flow Rate	
		16 & 39		וטע	16QZ10					К9
		16 & 39		16QZ25 & 39QZ25						
			9QCLQFZ1	16QCLQFZ1	39QCLQFZ1					01/0
То	7		9QCLQFZ3 16QCLQFZ3			39	QCLQFZ	3		<b>2K9</b>
500 psi	Z- Media®	16 & 39	9QCLQFZ5	16QCLQ	FZ5	39QCLQFZ5		5		
(35 bar)	IVICUIU		9QCLQFZ10	16QCL0						3K9
			OQCLQFZ25			_		JKJ		
			9QPMLZ1	16QPMLZ1	39QPM	1		_		
			POPMLZ3	16QPML		· · · ·	MLZ3	_		QF5
			9QPMLZ5 9QPMLZ10	16QPML 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	△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 Flow Rate	
and Viscosity	QLF15
	SSQLF15

Pressure Drop

.01

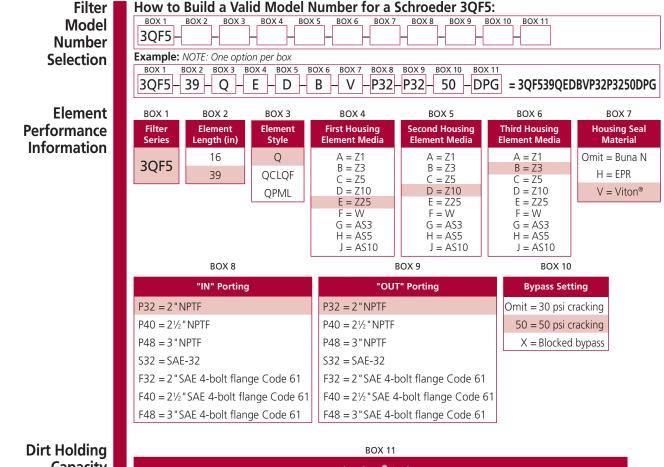
.01

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 D5 = Visual pop-up D5C = D5 in cap D5R = D5 mounted opposite standard location						
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = D8 in cap D8R = D8 mounted opposite standard location						
Electrical	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 MS11 = Electrical w/ 12 ft. 4-conductor wire 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						
Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T						
Electrical Visual	MS13 = Supplied w/ threaded connector & light MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)						
Electrical Visual with Thermal Lockout	MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT						

### In-Line Filter **QFD2**

#### Features and B



<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 <u>1135 L/min</u> 200 psi 14 bar	GH GHHF RLT KF5 SRLT K9
		2K9 3K9
A48.	•	QF5
EL ING	Applications	3QF5 QFD2 QFD5

Model No. of filter in photograph is QFD216QZ10FA48.



INDUSTRIAL





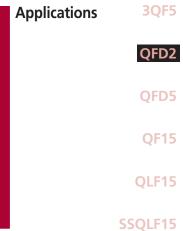
MAKING



POWER GENERATION



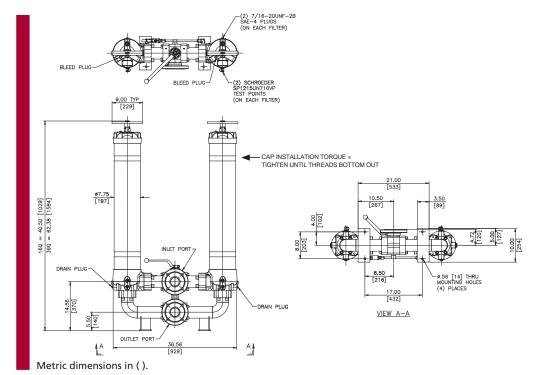
PULP & PAPER



Flow Rating:Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluidsMax. Operating Pressure:200 psi (14 bar)Min. Yield Pressure:600 psi (41 bar), per NFPA T2.6.1Detect Facture:Context Facture:	
Min. Yield Pressure: 600 psi (41 bar), per NFPA T2.6.1	Filter Hous
	Speci
Deted Fatigue Dressures, Contest Fasters	
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) 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)           39Q         33.80" (859 mm)	

r sing cifications

### QFD2 In-Line Filter



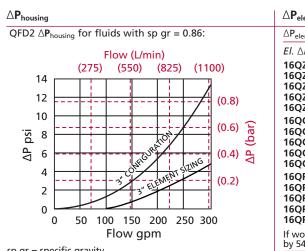
Element Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Filtration Ratio per ISO 16889 Performance Using automated particle counter (APC) calibrated per ISO 4402 Using APC calibrated per ISO 11171 Information Element  $\beta_X \ge 75$  $\beta_X \ge 100$  $\beta_X \ge 200$  $\beta_x(c) \ge 200$  $\beta_{\chi}(c) \ge 1000$ Z1/CLQFZ1/PMLZ1 <1.0 <1.0 <4.0 4.2 <1.0 Z3/CLQFZ3/PMLZ3 <1.0 <1.0 <2.0 <4.0 4.8 Z5/CLQFZ5/PMLZ5 2.5 3.0 4.0 6.3 16Q 4.8 Z10/CLQFZ10/PMLZ10 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 4.2 <1.0 <1.0 <4.0 Z3/CLQFZ3/PMLZ3 <1.0 <1.0 <2.0 <4.0 4.8 39Q Z5/CLQFZ5/PMLZ5 2.5 3.0 4.0 4.8 6.3 Z10/CLQFZ10/PMLZ10 7.4 10.0 8.2 8.0 10.0 Z25/CLQFZ25/PMLZ25 18.0 20.0 22.5 19.0 24.0 Dirt Holding

Element DHC (gm) Element DHC (gm) Element DHC (gm) Capacity Z1 CLQFZ1 307 PMLZ1 307 276 Z3 283 CLQFZ3 315 PMLZ3 315 Z5 364 16Q 351 CLQFZ5 364 PMLZ5 Z10 280 CLQFZ10 306 PMLZ10 330 PMLZ25 299 Z25 254 CLQFZ25 278 974 Z1 CLQFZ1 1259 PMLZ1 1485 CLQFZ3 PMLZ3 1525 Ζ3 1001 1293 39Q Z5 954 CLQFZ5 1302 PMLZ5 1235 Z10 940 CLQFZ10 1214 PMLZ10 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 6.0" (150 mm) O.D. x 18.21" (463 mm) long 16QCLQF: 6.0" (150 mm) O.D. x 16.00" (405 mm) long 16QPML: 6.0" (150 mm) O.D. x 38.70" (985 mm) long 39Q: 6.0" (150 mm) O.D. x 40.01" (1016 mm) long 39QCLQF: 39QPML: 6.0" (150 mm) O.D. x 37.80" (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	ynthetic)				Compatibility	
Hig	h Water	Content	All Z-Media	<sup>®</sup> and ASP <sup>®</sup> media (s	ynthetic)					CUUE
				u Z-Media <sup>®</sup> (syntheti	- ·	(synthe	etic)			GHHF
			-	d 25 µ Z-Media® (syr		-		c)		
	water	arycors	5, 5, 10 and			meana	Syntheti	C)		RLT
Pressure	Series	Elemen Pa	t rt No.		are predicated on th uid and 3" flange po				Element Selection Based on	KF5
		16 & 39		16QZ1	390	Z1			Flow Rate	
		16 & 39			16QZ3			39QZ3		SRLT
		16 & 39			16QZ5			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		· ·	LQFZ5		2K9
(14 bar)	incula		QCLQFZ10	160	QCLQFZ10		39	QCLQFZ10		213
			QCLQFZ25		16QCLQFZ25			39QCLQFZ25		
			QPMLZ1	16QPMLZ1	39QPN	LZ1				3K9
			QPMLZ3		MLZ3	_		PMLZ3		<b>D</b> ICO
			QPMLZ5		MLZ5			PMLZ5		
			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.					

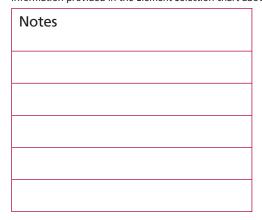
Shown above are the elements most commonly used in this housing. Note: For more information, refer to Fluid compatibility: Fire Resistant Fluids, Page 21 and 22



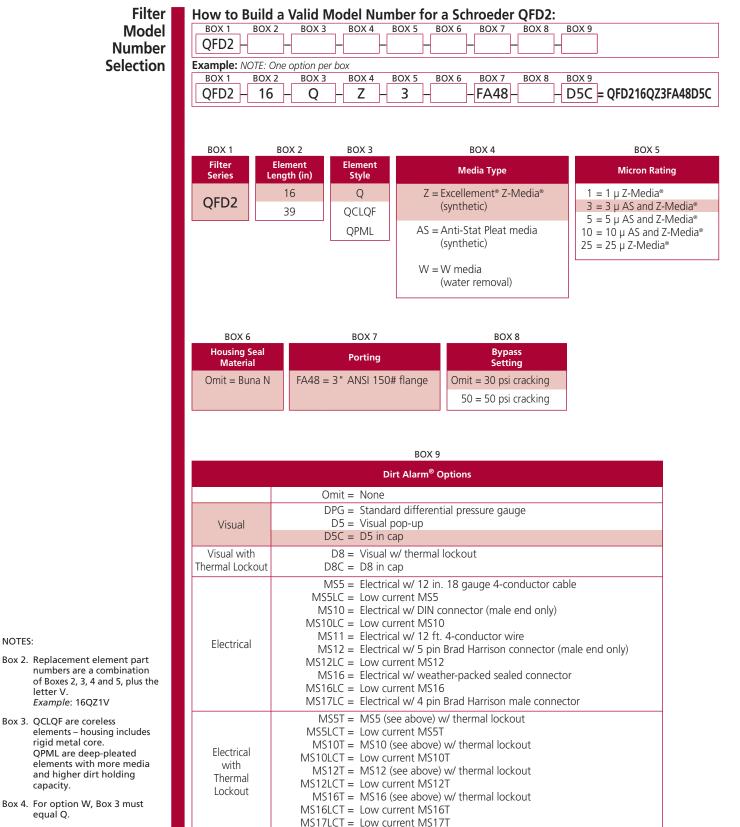
isistant nan	as, rage 21 ana 22	-		-	0503
$\triangle \mathbf{P}_{element}$	t			Pressure	QFD2
$\Delta P_{element}$	= flow x element	$\Delta P$ factor x viscosity	/ factor	Drop	
El. ∆P fao	tors @ 150 SUS (3	32 cSt):		Information	QFD5
16QZ1 16QZ3 16QZ5	.09 .04 .04	39QZ1 39QZ3 39QZ5	.03 .01 .01	Based on Flow Rate	<b>OF15</b>
16QZ10 16QZ25	.03 .01	39QZ10 39QZ25	.01 .01	and Viscosity	Q. IS
16QCLQI 16QCLQI 16QCLQI 16QCLQI 16QCLQI	<b>Z3</b> .05 <b>Z5</b> .05 <b>Z10</b> .04	39QCLQFZ1 39QCLQFZ3 39QCLQFZ5 39QCLQFZ10 39QCLQFZ25	.03 .02 .02 .01 .01		QLF15
16QPML 16QPML 16QPML 16QPML 16QPML	<b>Z1</b> .08 <b>Z3</b> .05 <b>Z5</b> .05 <b>Z10</b> .04	39QPMLZ1 39QPMLZ3 39QPMLZ5 39QPMLZ10 39QPMLZ25	.03 .02 .02 .01 .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 Z3FA48D5C usin	n (570 L/min) for 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 or	200÷150) = 8.0 psi			
		54.9) x (44÷32) = .	57 bar]		
$\Delta P_{total}$	= 2.5 + 8.0 = 10 or = [.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-pleate 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 stand on all models
- Various Dirt Alarm<sup>®</sup> options
- Also available in 4, 6 or 8 housing modular (contact factory)

Model No. of filter in photograph is QFD516QZ10F48DPG.



INDUSTRIAL



MINING

TECHNOLOGY



POWER GENERATION



MANUFACTURING



MACHINE

TOOL

PULP & PAPER



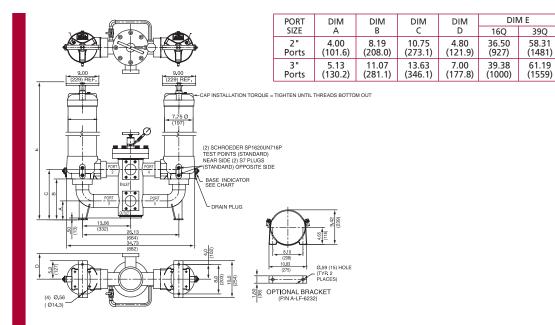
MAKING

MOBILE VEHICLES

	500 psi <i>35 bar</i>	RLT
ed 9 "		KF5
le		SRLT
dard		К9
designs		2K9
	Viton® is a registered trademark of DuPont Dow Elastomers.	<b>3K9</b>
	-	QF5
	Applications	3QF5
		QFD2
		QFD5
		QF15
		QLF15
	S	SQLF15

Flow Rating:	Up to 175 gpm (675 L/min) for 2"; 350 gpm (1325 L/min) for 3" for 150 SUS (32 cSt) fluids	Filter Housing
Max. Operating Pressure:	500 psi (34.5 bar)	Specifications
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) 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) 39Q 33.80" (859 mm)	

## QFD5 In-Line Filter



Metric dimensions in ( ).

Element Performance					atio Per ISO 4572/N d particle counter (APC) cal			per ISO 16889 ted per ISO 11171
Information	Elen	nent		$\beta_X \ge 75$	β <sub>χ</sub> ≥ 100	$\beta_X \ge 200$	β <sub>X</sub> (c) ≥ 200	β <sub>X</sub> (c) ≥ 1000
		Z1/CLQFZ1/PMLZ	1	<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/PMLZ	5/PMLAS5V/AS5V	2.5	3.0	4.0	4.8	6.3
		Z10/CLQFZ10/PMLZ1	0/PMLAS10V/AS10V	7.4	8.2	10.0	8.0	10.0
		Z25/CLQFZ25/PML	Z25	18.0	20.0	22.5	19.0	24.0
		Z1/CLQFZ1/PMLZ	1	<1.0	<1.0	<1.0	<4.0	4.2
		Z3/CLQFZ3/PMLZ	3/PMLAS3V/AS3V	<1.0	<1.0	<2.0	<4.0	4.8
	390	Z5/CLQFZ5/PMLZ	5/PMLAS5V/AS5V	2.5	3.0	4.0	4.8	6.3
		Z10/CLQFZ10/PML AS10V	Z10/PMLAS10V/	7.4	8.2	10.0	8.0	10.0
		Z25/CLQFZ25/PML	Z25	18.0	20.0	22.5	19.0	24.0
Dirt Holding	Elen	nent	DHC (gm)	Element	DHC (gm)	Element		DHC (gm)
Capacity		Z1	276	CLQFZ1	307	PMLZ1		307
Capacity		<b>Z3/AS3V</b> 283		CLQFZ3	315	PMLZ3/PML	AS3V	315
	16Q	Z5/AS5V	351	CLQFZ5	364	PMLZ5/PML	AS5V	364
		Z10/AS10V	280	CLQFZ10	306	PMLZ10/PM	LAS10V	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
		Element Co	ollapse Rating:	O and OPML:	150 psid (10 bar), C	OCLOF: 100 psid	(7 bar)	
			low Direction:	Outside In	C O II (1E0) O I	· · · · · · · ·		
		Element Nomina	al Dimensions:	16Q: 16QCLQF:	6.0" (150 mm) O.I 6.0" (150 mm) O.I		-	
				16QPML:	6.0" (150 mm) O.I		. 5	
				39Q:	6.0" (150 mm) O.I			
				39QCLQF:	6.0" (150 mm) O.I	D. x 40.01" (101	6 mm) long	
				39QPML:	6.0" (150 mm) O.I	D. x 37.80" (960	mm) long	
:	206 SC	HROEDER IND	USTRIES					

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

	т	ype Fluid	Appropri	ate Schroeder M	edia				Fluid	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	jh Water	Content	All Z-Med	ia® and ASP® med	ia (synthetic)					GHHF
	Invert E	mulsions	10 and 25	μ Z-Media® and	10 µ ASP® media (	synthetic)				Giili
	Wate	er Glycols	3, 5, 10 a	nd 25 µ Z-Media®	and all ASP <sup>®</sup> med	ia (synthet	ic)			
	Phospha	ate Esters	All Z-Med	ia® (synthetic) witł	n H (EPR) seal desi	gnation ar	d all ASP <sup>®</sup> media (sy	nthetic)		RLT
		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 16 & 39Q			16QZ5 16QZ10		39QZ5 39QZ	10		SRLT
		16 & 39Q				& 39QZ25				
		16 & 39Q		16QCLQFZ		9QCLQFZ				К9
То	_	16 & 39Q			CLQFZ3		39QCLQFZ3			R9
500 psi	Z- 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 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 (200)	./min) (500)			El. △P factors @ 1	50 SUS (32	? cSt):		Information	QFD5
					16QZ1	.09	39QZ1	.03	Based on	
16	·		(1.00)		16QZ3/16QAS3V 16QZ5/16QAS5V		39QZ3/39QAS3V 39QZ5/39QAS5V	.01 .01	Flow Rate	QF15
isd 12 d⊽		CATION	∆P (bar)		16QZ10/16QAS10	<b>V</b> .03	39QZ10/39QAS10V	.01	and Viscosity	QFIS
8		TELEMENT SIZING	(0.50)		16QZ25 16QCLQFZ1	.01 .07	39QZ25 39QCLQFZ1	.01 .03		
4	+	2" ELEMENT	(0.50)		16QCLQFZ3	.07	39QCLQFZ3	.03		OLF15
0	50 100	150	200		16QCLQFZ5	.05 .04	39QCLQFZ5 39QCLQFZ10	.02 .01		<b>Q</b> =1.10
	Flow	gpm	Flow (L/m		16QCLQFZ10 16QCLQFZ25	.04 .03	39QCLQFZ10	.01		
		14	(200) (500) (8	300) (1000)	16QPMLZ1	.08	39QPMLZ1	.03		SSQLF15
		12		(0.75)	16QPMLZ3/ 16QPMLAS3V	.05	39QPMLZ3/ 39QPMLAS3V	.02		
		8		(0.5) (0.5)	16QPMLZ5/		39QPMLZ5/			
		isd 4	MFIG		16QPMLAS5V 16QPMLZ10/	.05	39QPMLAS5V 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 y by 150 SUS (32 cSt).	by 54.9.		
sp gr = sp Sizing of e	-	-	ased on ela	ment flow inform	,		y by 150 SUS (32 CSt). ht Selection chart abo	ove		
Jizing of e					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 Model Number Selection	How to Build a Valid Model Number for a Schroeder QFD5: BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9 QFD5						
	BOX 1 BOX 2	BOX 3	BOX 4	BOX 5			
	Filter Element Series Length (in)	Element Style	Media Type	Micron Rating			
	QFD5 16 39	Q QCLQF QPML	Z = Excellement® Z-Media® (synthetic) AS = Anti-Stat Pleat media (synthetic) W = W media (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 Material		Porting	Bypass 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 NSI 300# flange	50 = 50 psi cracking			
		F48M = 3" SA	NE 4-bolt flange Code 61 NE 4-bolt flange Code 61 NSI 300# flange	X = Blocked bypass			
			POX 0				

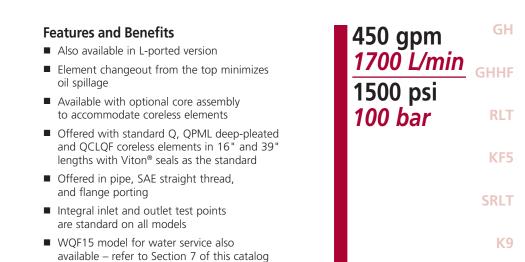
	Dirt Alarm <sup>®</sup> Options
	Omit = None
Visual	DPG = Standard differential pressure gauge D5 = Visual pop-up D5C = D5 in cap
Visual with Thermal	DS = Visual w/ thermal lockout
Lockout	D8 = VISUAI W (Hernial lockout) D8C = D8 in cap
LUCKUUL	
	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable 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**



■ Various Dirt Alarm<sup>®</sup> options

Model No. of filter in photograph is QF1516QZ10P24MS10AC.



INDUSTRIAL



MINING



POWER

GENERATION





PULP & PAPER



STEEL MAKING

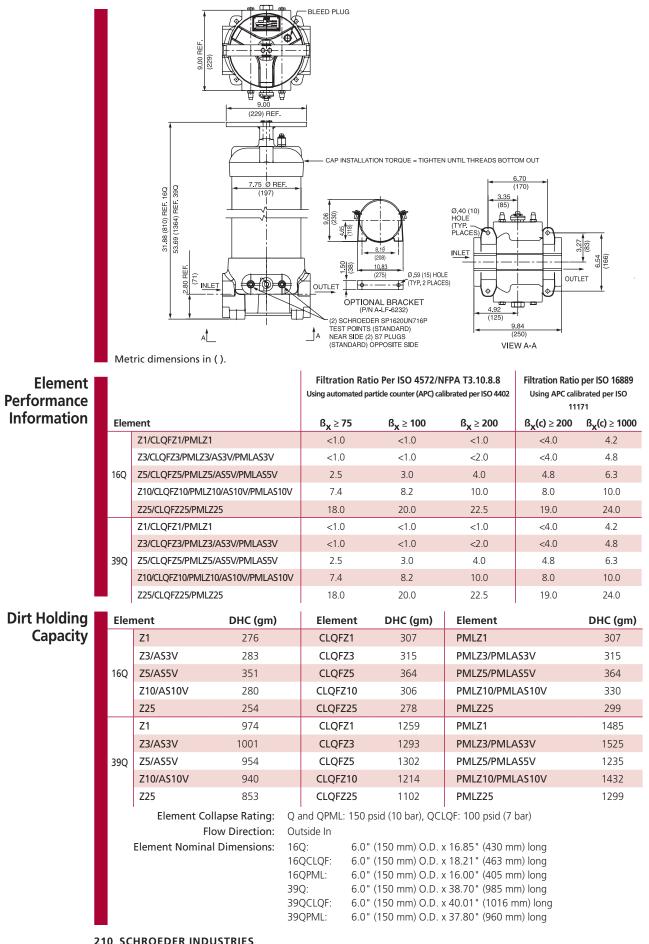


	2K9
Viton® is a registered trademark of DuPont Dow Elastomers.	<b>3K9</b>
	QF5
Applications	3QF5
	QFD2
	QFD5
	QF15
	QLF15
	SSQLF15

----

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) 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) 39Q 33.8" (859 mm)	

### QF15 In-Line Filter



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

**QFD2** 

QF15

**OLF15** 

SSQLF15

Pressure

Based on

Flow Rate

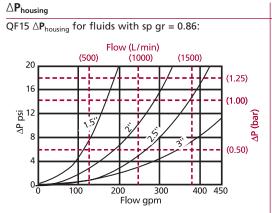
and Viscosity

Information

Drop

	Ту	pe Fluid	Appropriate Schroeder Media							Fluid	GH	
Petroleu	um Base	d Fluids	All E media	(cellulose), Z-Media	Compatibility							
High	ligh 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® mod	dia (cunth	otic)		RLT
r	nospnai	e esters	All Z-Ivieula	synthetic) with H	(EPR) Sea	al designatio			lia (Syritri	elic)		
Pressure	Series	Elemer Pa	nt rt No.	Element selections based fluid and 3" f				•	<i>·</i> ·	leum	Element Selection	KF5
		16 & 39	QZ1	16QZ1		39QZ1					Based on	
		16 & 39			QZ3		_	39QZ3			Flow Rate	SRLT
		16 & 39	QZ5	16QZ5				39QZ5				SULI
		16 & 39	-		16QZ10 39QZ10							
		16 & 39		16QZ25 & 39QZ25							К9	
			QCLQFZ1	16QCLQFZ1		39QCLC	·					R5
То	Z-		QCLQFZ3	· · · ·	LQFZ3			QCLQFZ3				
1500 psi	Media®		QCLQFZ5	-	LQFZ5		390	QCLQFZ5				2K9
(100 bar)			QCLQFZ10		LQFZ10			39QCLQ				LICU
			QCLQFZ25		QCLQFZ			39QC	_QFZ25			
			QPMLZ1	16QPMLZ1		39QPMLZ1						3K9
			QPMLZ3	16QP				PMLZ3				<b>U</b> IKU
			QPMLZ5	· · · · · · · · · · · · · · · · · · ·			390	PMLZ5				
			QPMLZ10	· · · · · · · · · · · · · · · · · · ·			39QPML				QF5	
		16 & 39	QPMLZ25		16Q	PMLZ25			39QPML	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]

$\Delta \mathbf{P}_{element}$										
$\triangle P_{element}$ = flow x element $\triangle P$ factor x viscosity factor										
El. $\triangle P$ factors @ 1	El. △P factors @ 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 16QCLQFZ25	.04 .03	39QCLQFZ10 39QCLQFZ25	.01 .01							
16QPMLZ1	.08	39QPMLZ1	.03							
16QPMLZ3/ 16OPMLAS3V	.05	39QPMLZ3/ 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 Number	BOX 1 BOX 2 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 QF15 - 16 - C		x 6 BOX 7 BOX 8 BOX 9 - D5C =	QF1516QZ3D5C				
	BOX 1 BOX 2	BOX 3	BOX 4	BOX 5				
	Filter Element Series Length (in		Media Type	Micron Rating				
	QF15 16 39	QCLQF AS = Ar	cellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) Iti-Stat Pleat media (synthetic) media (water removal)	1 = 1 $\mu$ Z-Media <sup>®</sup> 3 = 3 $\mu$ AS and Z-Media <sup>®</sup> 5 = 5 $\mu$ AS and Z-Media <sup>®</sup> 10 = 10 $\mu$ AS and Z-Media <sup>®</sup> 25 = 25 $\mu$ Z-Media <sup>®</sup>				
	BOX 6		BOX 7	BOX 8				
	Housing Seal Material		Porting	Bypass Setting				
	Omit = Buna N	P24 = 1½" NPTF P32 = 2" NPTF	F24 = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61	Omit = 30 psi cracking				
	V = Viton®	P40 = 2½" NPTF P48 = 3" NPTF	F32 = 2" SAE 4-bolt flange Code 61	15 = 15 psi cracking 40 = 40 psi cracking				
		S32 = SAE-32	$F40 = 2\frac{1}{2}$ " SAE 4-bolt flange Code 61	50 = 50  psi cracking				
		B24 = ISO 228 G-1½"	F48 = 3" SAE 4-bolt flange Code 61	X = Blocked bypass				
		B32 = ISO 228 G-2 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 F32M = 2" SAE 4-bolt flange					
			Code 61 F40M = $2\frac{1}{2}$ " SAE 4-bolt flange					
			Code 61 F48M = 3" SAE 4-bolt flange					
			Code 61					
			Dirt Alarm <sup>®</sup> Options					
		Omit = Non						
		DPG = Standard differential pressure gauge						
	Visual	D5 = Visual pop-up D5C = D5 in cap						
placement element part	Visual with Thermal	D5R = D5 mounted opposite standard location D8 = Visual w/ thermal lockout						
mbers are a combination Boxes 2, 3, 4 and 5, plus	Lockout	D8C = D8 in						
letter V. ample: 16QZ1V		MS5 = Elect	D8R = D8 mounted opposite standard location MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable					
LQF are CoreCentric <sup>®</sup>		MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only)						
eless elements – housing ludes rigid metal core.	Fleetvicel	MS10LC = Low MS11 = Elect	rical w/ 12 ft. 4-conductor wire	. /				
iuues rigiu metal core.				Tor (male end only)				
ML are deep-pleated	Electrical	MS12LC = Low						
ML are deep-pleated ments with more media d higher dirt holding	Electrical	MS12LC = Low MS16 = Elect MS16LC = Low	current MS12 rical w/ weather-packed sealed cor current MS16	nector				
ML are deep-pleated ments with more media d higher dirt holding bacity. • option W, Box 3 must		MS12LC = Low MS16 = Elect MS16LC = Low MS17LC = Elect	current MS12 rical w/ weather-packed sealed cor current MS16 rical w/ 4 pin Brad Harrison male c	nector				
ML are deep-pleated ments with more media d higher dirt holding bacity. option W, Box 3 must ual Q.		MS12LC = Low MS16 = Elect MS16LC = Low MS17LC = Elect MS5T = MS5 MS5LCT = Low	current MS12 rical w/ weather-packed sealed cor current MS16 rical w/ 4 pin Brad Harrison male co (see above) w/ thermal lockout current MS5T	nector				
ML are deep-pleated ments with more media d higher dirt holding bacity. Toption W, Box 3 must ual Q. elements for this filter supplied with Viton® seals.	Electrical	MS12LC = Low MS16 = Elect MS16LC = Low MS17LC = Elect MS5T = MS5 MS5LCT = Low MS10LCT = Low	current MS12 rical w/ weather-packed sealed cor current MS16 rical w/ 4 pin Brad Harrison male co (see above) w/ thermal lockout current MS5T 0 (see above) w/ thermal lockout current MS10T	nector				
ML are deep-pleated ments with more media d higher dirt holding bacity. r option W, Box 3 must ual Q. elements for this filter supplied with Viton <sup>®</sup> seals. al designation Box 6 applies to	Electrical	MS12LC = Low MS16 = Elect MS16LC = Low MS17LC = Elect MS5T = MS5 MS5LCT = Low MS10LT = Low MS10LT = Low MS12LT = MS1 MS12LCT = Low	current MS12 rical w/ weather-packed sealed cor current MS16 rical w/ 4 pin Brad Harrison male co (see above) w/ thermal lockout current MS5T 0 (see above) w/ thermal lockout current MS10T 2 (see above) w/ thermal lockout current MS12T	nector				
ML are deep-pleated ments with more media d higher dirt holding bacity. Toption W, Box 3 must ual Q. elements for this filter supplied with Viton® seals. al designation Box 6 applies to using only. on® is a registered	Electrical with Thermal	MS12LC = Low MS16 = Elect MS16LC = Low MS17LC = Elect MS5T = MS5 MS5LCT = Low MS10T = MS1 MS10LCT = Low MS12LT = MS1 MS12LCT = Low MS16LCT = Low	current MS12 rical w/ weather-packed sealed cor current MS16 rical w/ 4 pin Brad Harrison male co (see above) w/ thermal lockout current MS5T 0 (see above) w/ thermal lockout current MS10T 2 (see above) w/ thermal lockout current MS12T 6 (see above) w/ thermal lockout current MS16T	nector				
ML are deep-pleated ments with more media d higher dirt holding bacity. r option W, Box 3 must ual Q. elements for this filter supplied with Viton® seals. al designation 30x 6 applies to using only.	Electrical with Thermal Lockout Electrical	MS12LC = Low MS16 = Elect MS16LC = Low MS17LC = Elect MS5T = MS5 MS5LCT = Low MS10LT = MS1 MS10LCT = Low MS12LT = MS1 MS12LCT = Low MS16LCT = Low MS17LCT = Low MS13 = Supp	current MS12 rical w/ weather-packed sealed cor current MS16 rical w/ 4 pin Brad Harrison male co (see above) w/ thermal lockout current MS5T 0 (see above) w/ thermal lockout current MS10T 2 (see above) w/ thermal lockout current MS12T 6 (see above) w/ thermal lockout current MS16T current MS16T current MS17T	inector prinector				
ML are deep-pleated ments with more media d higher dirt holding bacity. Toption W, Box 3 must ual Q. elements for this filter supplied with Viton <sup>®</sup> seals. al designation Box 6 applies to using only. on <sup>®</sup> is a registered demark of DuPont Dow stomers. M, F32M, F40M and F48M	Electrical with Thermal Lockout	MS12LC = Low MS16 = Elect MS16LC = Low MS17LC = Elect MS5LCT = Low MS10T = MS1 MS10LCT = Low MS12LT = MS1 MS12LCT = Low MS16LT = Low MS16LCT = Low MS17LCT = Low MS13 = Supp MS14 = Supp	current MS12 rical w/ weather-packed sealed cor current MS16 rical w/ 4 pin Brad Harrison male co (see above) w/ thermal lockout current MS5T 0 (see above) w/ thermal lockout current MS10T 2 (see above) w/ thermal lockout current MS12T 6 (see above) w/ thermal lockout current MS17T of (see above) w/ thermal lockout current MS16T current MS17T blied w/ threaded connector & light blied w/ 5 pin Brad Harrison connector	tor & light (male end)				
ML are deep-pleated ments with more media d higher dirt holding bacity. r option W, Box 3 must ual Q. elements for this filter supplied with Viton® seals. al designation 30x 6 applies to using only. on® is a registered demark of DuPont Dow stomers.	Electrical with Thermal Lockout Electrical	MS12LC = Low MS16 = Elect MS16LC = Low MS17LC = Elect MS5T = MS5 MS5LCT = Low MS10LT = MS1 MS10LCT = Low MS12LT = MS1 MS16LCT = Low MS16LCT = Low MS17LCT = Low MS13 = Supp MS13 = Supp MS13 = Supp MS13DCT = MS1 MS13DCT = MS1	current MS12 rical w/ weather-packed sealed cor current MS16 rical w/ 4 pin Brad Harrison male co (see above) w/ thermal lockout current MS5T 0 (see above) w/ thermal lockout current MS10T 2 (see above) w/ thermal lockout current MS12T 6 (see above) w/ thermal lockout current MS17T olied w/ threaded connector & light blied w/ 5 pin Brad Harrison connect 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



TOOL

 $\odot$ IO

PULP & PAPER

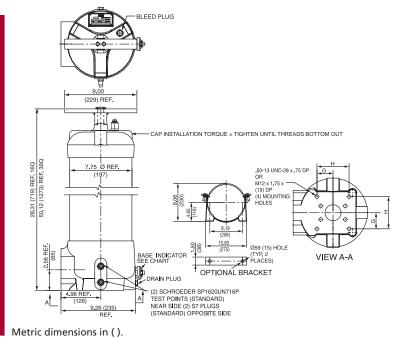
STEEL MAKING

MOBILE VEHICLES

500 gpm <u>1900 L/mi</u> 1500 psi	GH M GHHF
100 bar	RLT
	KF5
	SRLT
	К9
	<b>2K9</b>
	<b>3K9</b>
Viton® is a registered trademark of DuPont Dow Elastomers.	QF5
Applications	3QF5
	QFD2
	QFD5
	QF15
	QLF15
	SSQLF15

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:	4900 psi (340 bar), per NFPA T2.6.1 Specific				
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) 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) 39Q 33.80" (859 mm)				

### **QLF15** Base-Ported Filter



DIMENSIONAL DATA											
PORT SIZE	DIM G	DIM H									
1½" (38)	2.00 (51)	4.00 (102)									
2"(51)	2.00 (51)	4.00 (102)									
2½"(64)	2.00 (51)	4.00 (102)									
3"(76)	2.00 (51)	4.00 (102)									

Element Performance				io Per ISO 4572/NFP rticle counter (APC) calib	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
Information	Elen	nent	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
	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
		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/C	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	Elen	nent	DHC (gm	)	Eleme	nt	DHC (gm)	Element	DHC (gm)
Capacity	<b>Z1</b> 276			CLQFZ	21	307	PMLZ1	307	
		Z3/AS3V	283		CLQFZ	<u>7</u> 3	315	PMLZ3/PMLAS3V	315
	16Q	Z5/AS5V	351		CLQFZ	25	364	PMLZ5/PMLAS5V	364
		Z10/AS10V	280		CLQFZ	10	306	PMLZ10/PMLAS10V	330
		Z25	254		CLQFZ	25	278	PMLZ25	299
		Z1	974		CLQFZ	Z1	1259	PMLZ1	1485
		Z3/AS3V	1001		CLQFZ	<u>7</u> 3	1293	PMLZ3/PMLAS3V	1525
	39Q	Z5/AS5V	954		CLQFZ	25	1302	PMLZ5/PMLAS5V	1235
		Z10/AS10V	940		CLQFZ	10	1214	PMLZ10/PMLAS10V	1432
		Z25	853		CLQFZ	25	1102	PMLZ25	1299
			t Collapse Rating: Flow Direction:		nd QPML: 1 side In	150 psic	l (10 bar), QCL(	QF: 100 psid (7 bar)	
		Element Nominal		16Q		6.0" (1	50 mm) 0 D x	16.85" (430 mm) long	
		Element Norman	ement Nominal Dimensions.						
							,	16.00" (405 mm) long	
				39Q				38.70" (985 mm) long	
							,	40.01" (1016 mm) long	
				39Q	PML:	U.U (I	50 MM) U.D. X	37.80" (960 mm) long	
2	14 SC	HROEDER INDU	ISTRIES						

### Base-Ported Filter QLF15

**QFD2** 

QFD5

QLF15

SSQLF15

Pressure

Based on

Flow Rate

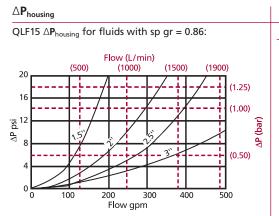
and Viscosity

Information

Drop

		Type Fluid	Approp	oriate Schroeder N	/ledia						Fluid	GH
Petr	oleum B	ased Fluids	All E me	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 based fluid and 3"						oleum	Element	KF5
		16 & 39QZ1		16QZ1		39QZ1			, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		- Selection	
		16 & 39QZ3		16Q		<u></u>	39QZ3	3			- Based on	
		16 & 39QZ5	5	16QZ5			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	16QCLQFZ3 39QCLQFZ3				_			
1500 psi	Media <sup>®</sup>	16 & 39QCI		16QCLQ		FZ5 39QCLQFZ5			_	2K9		
(100 bar)	IVICUIU	16 & 39QCI	_QFZ10	16QCL0	QFZ10		3	39QC	LQFZ10		_	
		16 & 39QCI	_QFZ25	16	QCLQFZ2	5		3	39QCLQFZ25		_	
		16 & 39QPN	VILZ1	16QPMLZ1		39QPI	VILZ1					3K9
		16 & 39QPN	-	16QPMI	-		39QPMLZ	-				
		16 & 39QPN			16QPMLZ5		39QPMLZ					
		16 & 39QPN		16QPMLZ10				39QF	MLZ10			QF5
		16 & 39QPN	VILZ25		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]

$\Delta \mathbf{P}_{element}$					
$\triangle P_{element}$ = flow x element $\triangle P$ factor x viscosity factor					
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 Model Number Selection	How to Build a Valid Model Number for a Schroeder QLF15: BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9 QLF15- Example: NOTE: One option per box BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9 QLF15- 16- Q-Z- 3- P48- D5C = QLF1516QZ3P48D5C							
	BOX 1	BOX 2	BOX 3		BOX 4		BOX 5	
	Filter Series	Element Length (in)	Element Style		Media Type		Micron Rating	
	QLF15	16		Z = Ex	cellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)	1 =	1 µ Z-Media®	
	QLF15	39	QCLQF	AS = Anti-Stat Pleat media (synthetic)		$3 = 3 \mu AS$ and Z-Media <sup>®</sup>		
			QPML W = W media (water removal)		5 = 5 $\mu$ AS and Z-Media <sup>®</sup>			
							10 μ AS and Z-Media®	
					25 = 25 µ Z-Media®			
	BOX 6 Housing Seal		BOX 7			BOX 8 Bypass		
	Mate		Porting			Setting		
	Omit = Bun V = Vito	n® P P S B B B B B	24 = 1½" NP 32 = 2" NPTF 40 = 2½" NP 48 = 3" NPTF 32 = SAE-32 24 = ISO 228 32 = ISO 228 40 = ISO 228 48 = ISO 228	G-1½" G-2 G-2½"	F24 = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61 F32 = 2" SAE 4-bolt flange Code 61 F40 = $2\frac{1}{2}$ " SAE 4-bolt flange Code 61 F48 = 3" SAE 4-bolt flange Code 61 F24M = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61 F32M = 2" SAE 4-bolt flange Code 61 F40M = $2\frac{1}{2}$ " SAE 4-bolt flange Code 61 F48M = 3" SAE 4-bolt flange Code 61		Omit = 30 psi cracking 15 = 15 psi cracking 40 = 40 psi cracking 50 = 50 psi cracking 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 Visual pop-up D5 in cap			
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout D8 in cap			
Electrical	MS5LC = MS10LC = MS10LC = MS12 = MS12LC = MS16 = MS16LC =	Electrical w/ 12 in. 18 gauge 4-conductor cable Low current MS5 Electrical w/ DIN connector (male end only) Low current MS10 Electrical w/ 12 ft. 4-conductor wire Electrical w/ 5 pin Brad Harrison connector (male end only) Low current MS12 Electrical w/ weather-packed sealed connector Low current MS16 Electrical w/ 4 pin Brad Harrison male connector			
Electrical with Thermal Lockout	MS5LCT = MS10T = MS10LCT = MS12LT = MS12LCT = MS16LT =	MS5 (see above) w/ thermal lockout Low current MS5T MS10 (see above) w/ thermal lockout Low current MS10T MS12 (see above) w/ thermal lockout Low current MS12T MS16 (see above) w/ thermal lockout Low current MS16T Low current MS17T			
Electrical Visual		Supplied w/ threaded connector & light Supplied w/ 5 pin Brad Harrison connector & light (male end)			
Electrical Visual with Thermal Lockout	MS13DCLCT = MS14DCT =	MS13 (see above), direct current, w/ thermal lockout Low current MS13DCT MS14 (see above), direct current, w/ thermal lockout Low current MS14DCT			

BOX 9

#### to Build a Valid Madel Number for a Schroeder OLE1E

# Stainless Steel Base-Ported Filter SSQLF15

		500 gpm <i>1900 L/min</i>	GH
at the	Features and Benefits		GHHF
1 A 198	<ul><li>In-line version also available</li><li>Element changeout from the top minimizes oil spillage</li></ul>	1500 psi	
E.4	<ul> <li>Offered with standard Q and QPML deep-pleated coreless elements in 16" and 39" lengths with Viton<sup>®</sup> seals as the standard</li> </ul>	100 bar	RLT KF5
100	<ul> <li>Offered in pipe, SAE straight thread, and flange porting</li> </ul>		КГЭ
	<ul> <li>Integral inlet and outlet test points are standard on all models</li> </ul>		SRLT
	<ul> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>		
100	<ul> <li>All stainless steel provides compatibility with water-based fluids</li> </ul>		K9
			<b>2K9</b>
			<b>3K9</b>
Model No. of filter in photograph is S	SQLF1539QZ5F4850D5.	Viton <sup>®</sup> is a registered trademark of DuPont 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) 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) 39Q 33.80" (859 mm)	



# **SSQLF15** Stainless Steel Base-Ported Filter

	ULET 9559 4.96 (126) 9.4.9 (240)		JPPLIED	OPTIONAL ALARM OR ELECTRIC SWITCH		ED TOR 20 F	PASS VALVE PECTION IG PTIONAL
2 2 3 3	DIMENSIO PORT SIZE '/- " (38) " (51) '/- " (64) " (76) " (76) " (4 bolt port only) etric dimensions in	DAL DATA           DIM A         DIM B           2.00 (51)         4.00 (10)           2.00 (51)         4.00 (10)           2.00 (51)         4.00 (10)           2.00 (51)         4.00 (10)           2.00 (51)         4.00 (10)           2.50 (64)         5.00 (12)	2) 2) 2) 2) 7)	tio Per ISO 4572/N	OR M12 x 1. MOUNTING	28 x .75 DEEP HOLES (4) PLACE	
Elo	ement		Using automated p $\beta_x \ge 75$	particle counter (APC) ca $\beta > 100$	librated per ISO 4402 $\beta_X \ge 200$		ated per ISO 11171 $\beta_x(c) \ge 1000$
Ele			~	β <sub>X</sub> ≥ 100		~	
	Z1/PMLZ1		<1.0	<1.0	<1.0	<4.0	4.2
	Z3/PMLZ3/PML/	AS3V/AS3V	<1.0	<1.0	<2.0	<4.0	4.8

Performance			Using automated particle counter (APC) calibrated per ISO 4402				
Information	Elen	nent	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/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)		
		Flo	w Direction:	Outside In			
		Element Nominal	Dimensions:	16Q:		D. x 16.85" (430 mm) long	
				16QPML:		D. x 16.00" (405 mm) long	
				39Q: 39QPML:		D. x 38.70" (985 mm) long D. x 37.80" (960 mm) long	
				JULIVIL.	0.0 (100 11111) 0.1	7. X 37.00 (300 mm) long	

**218 SCHROEDER INDUSTRIES** 

Element

# Stainless Steel Base-Ported Filter SSQLF1

	Ту	pe Fluid	Appropria	ite Schroeder N	/ledia						Fluid	GH
Petrole	um Base	ed Fluids	All E media	a (cellulose), Z-M	edia <sup>®</sup> and A	SP® med	ia (synthetic	<u>_</u> )			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)					
Р	hospha	te Esters	All Z-Media	a® (synthetic) wi	th H (EPR) sea	al design	ation and a	all ASF	e media (syntheti	c)		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	16QZ25 & 39QZ25						
1500 psi	Z- Media®	16 & 390	QPMLZ1	16QPMLZ	<u>'1</u>	39QPM						
(100 bar)	IVIEUIA	16 & 390	QPMLZ3	16QPMLZ3/P	MLAS3V/AS	3V P	39QPMLZ MLAS3V/AS	S3V				2K9
		16 & 390	QPMLZ5	16QPMLZ5/P	MLAS5V/AS	5V P	39QPMLZ MLAS5V/AS	-				21/0
		16 & 390	QPMLZ10	16QPMLZ10/	PMLAS10V/	AS10V	39QPMLZ	Z10/PI	MLAS10V/AS10V			<b>3K9</b>
		16 & 390	QPMLZ25		16QPMLZ2	25			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:	$\Delta P_{element}$ = flow x element $\Delta P$ 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 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 Model Number Selection	How to Build a Valid BOX 1 BOX 2 SSQLF15 Example: NOTE: One option BOX 1 BOX 2 BOX SSQLF15 - 16 - Q	BOX 3 BOX per box (3 BOX 4 BO)	A BOX 5	chroeder SSQLF15: BOX 6 BOX 7 BOX 8 BOX 9 OX 7 BOX 8 BOX 9 P48 - D9C =SSQLF1516QZ3P48D9C
	BOX 1 BO	OX 2	BOX 3	BOX 4
	Filter Ele		Element Style	Media Type
	SSOLE15	16	Q QCLQF QPML	Z = Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) AS = Anti-Stat Pleat media (synthetic) M = M media (reusable metal) W = W media (water removal)
				150PSV = 150 μ nominalt synthetic media with plastic outer wrap
	BOX 5		BOX 6 Housing Seal	BOX 7
	Micron Rating		Material	Porting
	$1 = 1 \mu Z$ -Media <sup>®</sup> $3 = 3 \mu AS and Z$ -Medi	a®	Omit = Buna N H = EPR	P24 = 1 <sup>1</sup> / <sub>2</sub> " NPTF P32 = 2" NPTF
	5 = 5 μ AS and Z-Medi 10 = 10 μ AS and Z-Med		V = Viton®	P40 = 2 <sup>1</sup> / <sub>2</sub> " NPTF P48 = 3" NPTF
	25 = 25 μ M and Z-Med 60 = 60 μ M media 150 = 150 μ M-media or	ia® L 150 PSV		S32 = SAE-32
	W = water removal mec	lia		B24 = ISO 228 G-1½" B32 = ISO 228 G-2" B40 = ISO 228 G-2½" B48 = ISO 228 G-3"
				F24 = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61 F32 = 2" SAE 4-bolt flange Code 61 F40 = $2\frac{1}{2}$ " SAE 4-bolt flange Code 61 F48 = 3" SAE 4-bolt flange Code 61 F24M = $1\frac{1}{2}$ " SAE 4-bolt flange Code 61 F32M = $2\frac{1}{2}$ " SAE 4-bolt flange Code 61 F40M = $2\frac{1}{2}$ " SAE 4-bolt flange Code 61 F48M = 3" SAE 4-bolt flange Code 61
ement part ombination nd 5 plus				
	BOX 8			BOX 9
V i0PSV, M25, Box 3 must	BOX 8 Bypass Setting			BOX 9 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 Setting	Dirt Alarm <sup>®</sup> Options				
Omit = 30 psi cracking		Omit = None			
50 = 50 psi cracking X = Blocked bypass	Visual	DPG = Standard differential pressure gauge D9 = Visual pop-up in base (stainless steel) 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 psi (bar)	Flow gpm (L/ min)	Element 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, 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 IRF



	<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>	IOO gpm 380 L/min 100 psi 7 bar KF3 KF3 KL3 LF1-2" MLF1 RLD GRTB MTA
Model No. of filter in photograph is IR	F1K710520Y2	ZT
	11121032012.	- 21
INDUSTRIAL AUTOMOTIVE MANUFACTURING	MACHINE TOOL	Applications KFT RT RTI
		LRT
		ART
STEEL MINING MAKING TECHNOLOGY	AGRICULTURE MOBILE VEHICLES	BFT
		QT
		КТК
		LTK
		MRT
Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids	Filter
Max. Operating Pressure:	100 psi (7 bar)	Housing Specifications for Tank
Min. Yield Pressure: Rated Fatigue Pressure:	400 psi (28 bar), per NFPA T2.6.1 90 psi (6 bar), per NFPA T2.6.1-2005	IUI Idik-
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Mounted Filters
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 48 psi (3.3 bar)	PAF1
Porting Head: Element Case:	Sand Cast Aluminum Steel	
Weight of IRF-1K:	13.5 lbs. (6.12 kg)	MAF1

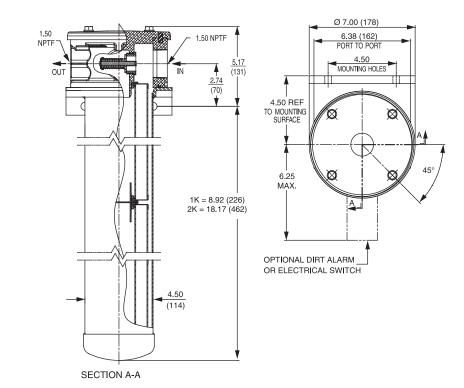
Weight of IRF-1K: Weight of IRF-2K:

Element Change Clearance:

13.5 lbs. (6.12 kg) 17.0 lbs. (7.71 kg)

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/NFP article counter (APC) ca		o per ISO 16889 ted per ISO 11171	
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	KK3	108	27КЗ	162								
K10	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

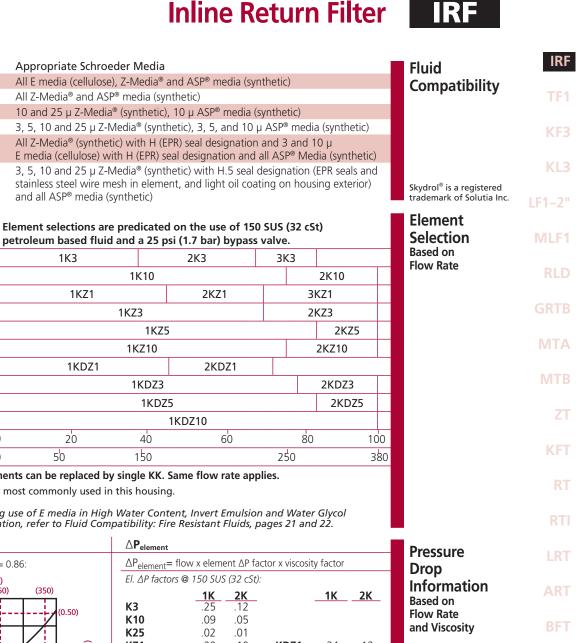
Element Collapse Rating: 150 psid (10 bar) for standard elements

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

### Inline Return Filter

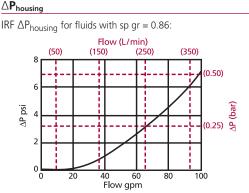


50 Double stacking of K-size elements can be replaced by single KK. Same flow rate applies.

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

þ

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

Е

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 K10 K25 KZ1 KZ3/KAS3	1K .25 .09 .02 .20 .10	2K .12 .05 .01 .10 .05	KDZ1 KDZ3	<b>1K</b> .24 .12	<b>2K</b> .12 .06	Ba Flo	sed on ow Rate d Visco		
KZ5/KAS5 KZ10/KAS10 KZ25	.08 .05 .04 <b>1K</b>	.04 .03 .04 <b>2K</b>	KDZ5 KDZ10 KDZ25	.10 .06 .04	.05 .03 .02				
KZW1 KZW3 KZW5 KZW10 KZW25 If working in ur by 54.9.	.43 .32 .28 .23 .14	.16 .14 .12 .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 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 Series	Number of Ele	and Size 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 ' = 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)	(a) S20 = S	S16 = SAE-16		
		Z, ZW and DZ media) Z, ZW and DZ media)		S20 = SAE-20 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 sympto		opduit		
(Standard)		connector	electrical switch with co			
	Visual	$Y2R = \frac{Back-mour}{of standard}$	ted gauge mounted on l location	opposite side		
Located @ Port C		Electrical sv ESR = of standard	vitch mounted on oppo	site side		
(Optional)	Electrical		electrical switch with co	onduit		
		·				
ements		Port Configuratio	n			
ents en ts.		D (Stand	lard)			
element part dentical to ixes 2, 3, 4, stacking ents can be igle KK	(Inlet) A					
ered		C (Optio	N			

### 226 SCHROEDER INDUSTRIES

Return Line Filter **TF1** 

	<b>30 apm</b>	

0 0		30 gpm
	Features and Benefits	
- In the second	<ul> <li>Offered in pipe, SAE straight thread, flange and ISO 228 porting</li> </ul>	300 psi KF3
	<ul> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>	20 bar
	Available with No-Element indicator	KL3
	<ul> <li>Available with NPTF inlet and outlet female test ports</li> </ul>	LF1-2"
	<ul> <li>Available with magnet inserts</li> </ul>	MLF1
	Available with housing drain plug	
		RLD
		GRTB
		МТА
		МТВ
Model No. of filter in photograph is 1	F11AZ10SD5.	ZT
		Applications KFT
		RT
INDUSTRIAL AUTOMOTIVE MANUFACTURING	MACHINE RAILROAD TOOL	RTI
		LRT
		ART
STEEL PULP & PAPER MAKING	AGRICULTURE MOBILE VEHICLES	BFT
		QT
		КТК
		N I N
		LTK
		MRT
Flow Rating:	Up to 30 gpm (120 L/min) for 150 SUS (32 cSt) fluids	Filter
Max. Operating Pressure:	300 psi (20 bar)	Housing Specifications for Tank
Min. Yield Pressure:	1200 psi (80 bar), per NFPA T2.6.1	
Rated Fatigue Pressure:	270 psi (19 bar), per NFPA T2.6.1-2005	Mounted
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Filters
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 51 psi (4 bar)	PAF1

Porting Head: Element Case:

Weight of TF1-1A: Weight of TF1-2A:

Element Change Clearance:

Cast Aluminum

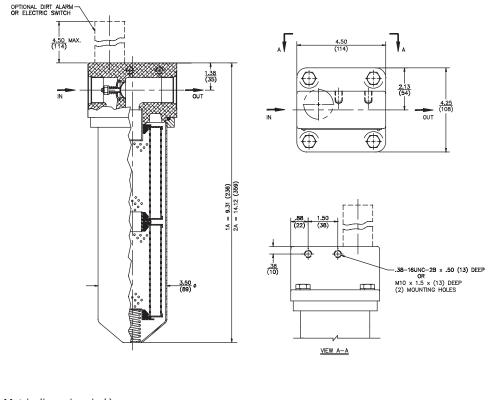
5.1 lbs. (2.3 kg) 6.3 lbs. (2.9 kg)

3.50" (90 mm)

Steel

MAF1





Metric dimensions in ( ).

Element Performance			tio Per ISO 4572/NF article counter (APC) calib	Filtration Ratio per ISO 16889 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	nt 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
22	8 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)						
	Invert Emulsions		10 and 25 µ Z-Media <sup>®</sup> (s		<b>,</b>		_		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 stainless steel wire mesh	dia® (synthetic n in element, a	c) with H.5 seal and light oil coa	designation (EF ating on housin	PR seals and g exterior)	Skydrol <sup>®</sup> is a registered trademark of Solutia Inc	LF1-2"
Pressure	Ele Series	ement Part No.	Element selections are based fluid and a 30 p	•		150 SUS (32 c	St) petroleum	Element Selection	MLF1
	_	A3	1A3		2A3			Based on Flow Rate	
	E Media	A10	1A10			2A10		now hate	RLD
	Wiedła	A25		1A	425				
To 200 pci		AZ1	1AZ1			2AZ1			GRTB
300 psi (20 bar)	_	AZ3	1AZ3			2AZ3			
. ,	Z- 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 g use of E media in High 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> Flow (L/min	)	ΔP <sub>element</sub>	= flow x element ors @ 150 SUS (3.		ity factor	Drop Information	RTI
<sup>10</sup>	(25)	(50) (75	5) (100)	A3 A10	1A 53 36	<u>2A</u> .27 .18		Based on Flow Rate and Viscosity	LRT
isd 6			(0.50)	A25 AZ1 AZ3	.05 .70 .50	.03 .35 .25			ART
4			(0.25)	AZ5 AZ10 AZ25	.32 .25 .14	.16 .13 .07			BFT
0	10	Flow gpm	20 30	factor by	g in units of ba 54.9. <i>factor:</i> Divide v				QT
		now gpin		Viscosity		iscosity by 190	505 (52 (51).		КТК
sp gr = spe 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 D SUS (44 cSt) f		TF12AZ3PD		ccessories for Tank- Mounted Filters
				$\Delta P_{housing}$ $\Delta P_{element}$	= 4.5 psi [.3	0 bar] (200÷150) = 6	.7 psi		PAF1
				$\Delta P_{total}$	•	÷54.9) x (44÷32 = 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								
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								
	TF1	- 1 -	A3 P - D5 -	= TF11A3PD	5				
	L								
	BOX 1	BOX 2	BOX 3	BOX 4	BOX 5				
	Filter Series	Number of Elements	Element Part Number	Seal Material	Magnet 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 Options		Dirt Alarm <sup>®</sup> Options	Additional Options
P = 1 " NPTF		Omit = None	Omit = None
<sup>S</sup> = SAE-16 <sup>B</sup> = ISO 228 G-1"	Visual	D = Pointer D5 = Visual pop-up	L = Two ¼" NPTF inlet
10 = 10 psi bypass setting 15 = 15 psi bypass	Visual with Thermal Lockout	D8 = Visual w/ thermal lockout	and outlet female test ports
setting 20 = 20 psi bypass setting		MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only)	N = No-Element indicator
25 = 25 psi bypass setting 30 = 30 psi bypass setting	Electrical	MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector	G440 = ½" drain on bottom of housing
40 = 40 psi bypass setting 60 = 60 psi bypass setting 75 = 75 psi bypass		(male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16	or nousing
setting		MS16LC = Electrical w/ 4 pin Brad Harrison male connector	
	Electrical with Thermal Lockout Electrical Visual	MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS16T MS17LCT = Low current MS17T MS = Cam operated switch w/ ½" conduit female connection MS13 = Supplied w/ threaded connector & light MS14 = Supplied w/ 5 pin Brad Harrison connector	
	Electrical Visual with Thermal Lockout	& light (male end) MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout 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**

100 gpm

300 psi 20 bar

380 Ľ/min

KF3



#### **Features and Benefits** Meets HF4 automotive standard Offered in pipe, SAE straight thread, flange and ISO 228 porting Various Dirt Alarm<sup>®</sup> options Available with No-Element indicator

- Available with NPTF inlet and outlet female test ports
- Available with magnet inserts

- Available with housing drain plug
- Takes the standard "K" element in K, KK or 27K lengths
- Allows consolidation of inventoried replacement elements by using K-size elements
- WKF3 model for water service available refer to Section 7 of this catalog
- Also available with DirtCatcher<sup>®</sup> elements (KD & KKD)
- Available with Patented GeoSeal<sup>®</sup> Elements. See Section 8 – GeoSeal Filters (page 344) for details.

Model No. of filter in photograph is KF31K10S.







STEEL MAKING



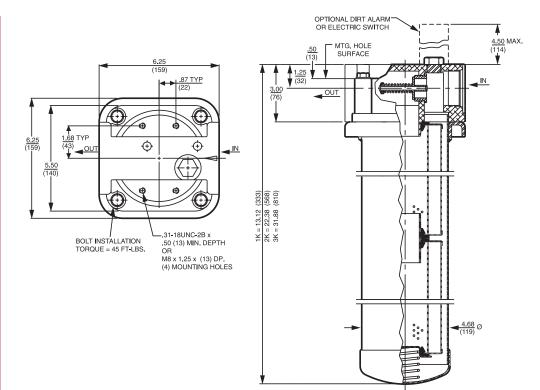
VEHICLES

Applications	KFT
	RT
	RTI
	LRT
	ART
	BFT
	QT
	КТК
	LTK

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) Full Flow: 51 psi (4 bar)	Filters
Porting Head: Element Case:	Die Cast Aluminum Steel	PAF1
Weight of KF3-1K: Weight of KF3-2K: Weight of KF3-3K:	10.5 lbs. (4.8 kg) 14.2 lbs. (6.4 kg) 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 Performance		Using auton	o Per ISO 4572/I nated particle co brated per ISO 4	ounter (APC)		o per ISO 16889 Ited 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	Nomi	nal 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		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			KF3				
	Water G	l <b>ycols</b> 3, 5,	10 and 25 µ Z-Media	® (synthetic), 3, 5			KI J				
Pho	osphate E		-Media <sup>®</sup> (synthetic) w dia (cellulose) with H					thetic)			KL3
	Sky	remo	10 and 25 µ Z-Media oval) with H.5 seal desi light oil coating on ho	gnation (EPR seals		Skydrol <sup>®</sup> is a register trademark of Solutia					
Pressure	Ele Series	ement Part No.	Element selections		Element 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 (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	(=)	0 50	150		250			380		KFT
Same flow r	ate applie	s.	e elements can be rep ost commonly used in		a z/k eler	ients, re	spectiver	y.			RT
			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 Drop	
KF3 ∆P <sub>housing</sub>	·		= 0.86:	$\Delta P_{element} = flow$			k viscosity	factor		Information	LRT
(50)		ow (L/min) ) (250)	(350)	El. ∆P factors @		,				Based on	
8			(0.50)	КЗ	_1K2K .25 .12		-	<u>   1K  </u>	<u>_2K</u>	Flow Rate	ART
6				K10	.09 .05	.03				and Viscosity	DET
is a			(bar)	K25 KZ1	.02 .01	.01 .05	KDZ1	.24	.12		BFT
			ق (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 KZ25	.05 .03	.02 .01	KDZ10 KDZ25	.06 .04	.03 .02		КТК
0	20 4		80 100								KIK
		low gpm		KZW1	_ <b>1K2K</b> .43	_					LTK
sp gr = specif			d on element flow	KZW3	.32 .16						LIIX
			ent Selection chart	KZW5 KZW10 KZW25	.28 .14 .23 .12 .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 Dinii	i, aiviac c	bove re			for Tank-
			n) for KF32KZ5SD5	Viscosity facto	<i>r:</i> Divide vi	cosity b	y 150 SU	5 (32 cS	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 x (.0	04÷54.9) x (4 2 = 6.7 psi	14÷32) = .23 bar]								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 5 BOX 6 BOX			ISD5
BO	X 1	BOX 2	BO	(3		BOX 4
Filt Ser		Number & Size of Elements	Media	Туре	M	licron Rating
K	-3		Omit = E media (cellul	ose)	1 = 1 µ (Z, Z	W and DZ media)
(Se Secti 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 = Vitor	®	M = Magnet	S = SAE-24 F - 1½" SAF4	I-bolt flange Code 61	50 = 50 psi crackin (reg. for HF4)
		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		Additio	nal 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 Lockout	D8 = Visual w	/ thermal lockout		$G426 = \frac{3}{4}$ " drain on b	-
be ingle		MS5 = Electrical	w/ 12 in. 18 gauge 4-cond	uctor cable	$G440 = \frac{1}{2}$ drain on b	oottom of housing
elements, Number		MS5LC = Low curr				
ts must equal		MS10 = Electrical MS10LC = Low curr	w/ DIN connector (male en ent MS10	d only)		
its. ZW media	trical	MS11 = Electrical	w/ 12 ft. 4-conductor wire			
ble in 27K.		MS12 = Electrical MS12LC = Low curr	w/ 5 pin Brad Harrison conne ent MS12	ctor (male end only)		
nt element ers are			w/ weather-packed sealed	connector		
contents		MS16LC = Low curr				
3, 4, and 5.			w/ 4 pin Brad Harrison male above) w/ thermal lockout	e connector		
H, W, V, and iinum parts		MS5LCT = Low curr				
d. H.5 seal	trical	MS10T = MS10 (se MS10LCT = Low curr	ee above) w/ thermal lockou	t		
with T	hermal		en i ivis i o i ee above) w/ thermal lockou	t		
eel wire mesh	kout	MS12LCT = Low curr				
nts, and light g on housing		MS16T = MS16 (se 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 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 e above), direct current, w/ th	ormal lockout		
	COLIT	MS14DCLCT = INS14 (se MS14DCLCT = Low curr				
ig holes.						

# Return Line Filter with Threaded Bowl KL3

$ \begin{array}{ c c c c } \mbox{MTA} & \mbox{MTB} \\ \mbox{Model No. of filter in photograph is KL31K210F24.} & \mbox{MTB} \\ \hline \label{eq:model} \label{eq:model} \mbox{MTD} \\ MULLACTURENCE NOTATION OF THE NOTATIO$		<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 housing drain plug</li> <li>Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 344) for details.</li> </ul>	120 gpm <u>455 L/min</u> 300 psi 20 bar	IRF TF1 KF3 KL3 LF1–2" MLF1 RLD GRTB
$ \begin{array}{c} \begin{tabular}{ c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Model No. of filter in photograp	h is KL31KZ10F24.		
Image: Normal with the state in th				ZT
Image: Normal with the state in th			Applications	KFT
MANUFACTURING       TOOL       VEHICLES       TECHNOLOGY       RTI         MANUFACTURING       TOOL       VEHICLES       TECHNOLOGY       LRT         ART       BFT       ART         BFT       BFT       BFT         Vertice       Vertice       Vertice       Vertice         Vertice       Vertice       Vertice       Vertice         Vertice       Vertice       Vertice       Vertice         Vertice       Vertice       Vertice       Vertice         Max. Operating Pressure:       300 psi (20 bar)       MRT         Max. Operating Pressure:       300 psi (20 bar), per NFPA T2.6.1       MRT         Rated Fatigue Pressure:       300 psi (20 bar), per NFPA T2.6.1-2005       Mounted         Bypass Setting:       Cracking: 30 psi (2 bar)       MRT         Howight of KL3-18LC:       2.00° Ibs.(9.1 kg)       Mounted         Weight of KL3-18LC:       2.000 lbs.(9.1 kg)       PAF1         Weight of KL3-18LC:       2.000 lbs.(9.1 kg)       MAF1			Applications	
ARTBFTDTFlow Rating: E24 and B24 porting Up to 120 gpm (380 L/min) for 150 SUS (32 cSt) fluids for P24, S24, F24 and B24 porting Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids for P32, S32 and B32 portingFilter Housing SpecificationsMax. Operating Pressure: Max. Operating Pressure:300 pi (20 bar) pen NFPA T2.6.1ITKMin. Yield Pressure: Bypass Setting: Cracking: 30 pi (20 bar), per NFPA T2.6.1-2005MRTMemer Case: Bypass Setting: Full Flow: 68 pi (4.7 bar)Accessories for Tank- Mounted FillFlow: 68 pi (4.7 bar)Meight of KL3-18LC: Weight of KL3-18LC: Weight of KL3-18LC: Weight of KL3-18LC: Musift and S2 police20.00 lbs. (9.1 kg) MartinWeight of KL3-18LC: Weight of KL3-18LC: Weight of KL3-18LC: Musift and S2 police20.00 lbs. (9.1 kg) MartinWeight of KL3-18LC: Weight of KL3-18LC: Musift and KL3-38LC: Musift and KL3-38LC: Musift and KL3-38LC: Musift and KL3-38LC: 				RTI
ARTBFTCTFlow Rating: E24 and B24 porting Up to 120 gpm (380 L/min) for 150 SUS (32 cSt) fluids for P24, S24, F24 and B24 porting Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids for P32, S32 and B32 portingFilter Housing SpecificationsMax. Operating Pressure: Max. Operating Pressure:300 pi (20 bar) pen NFPA T2.6.1ITKMin. Yield Pressure: Bypass Setting: Full Flow: Flum Flow: Bypass Setting:300 pi (20 bar), per NFPA T2.6.1-2005MRTMemer Case: Bypass Setting: Flum Flow: Bypass Setting: Cracking: 30 pi (2 bar) Full Flow: Bypass Setting				
Flow Rating:       Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids for P24, S24, F24 and B24 porting       Filter       MTK         Max. Operating Pressure:       300 psi (20 bar)       ITK         Min. Yield Pressure:       300 psi (20 bar), per NFPA T2.6.1       MRT         Rated Fatigue Pressure:       300 psi (20 bar), per NFPA T2.6.1-2005       MRT         Bypass Setting:       Cracking: 30 psi (2 bar)       MRT         Element Case:       Stal Aluminum       Filter         Element Case:       Stel       PAF1         Weight of KL3-18LC:       20.00 lbs. (9.1 kg)       MAF1				LRT
Porting Head: Element Case:Cort 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids for P24, S24, F24 and B24 porting Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids for P32, S32 and B32 portingFilter Housing SpecificationsKTKMax. Operating Pressure:300 psi (20 bar)IIIIIIIMax. Operating Pressure:300 psi (20 bar)IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				ART
Porting Head: Element Case:Cort 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids for P24, S24, F24 and B24 porting Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids for P32, S32 and B32 portingFilter Housing SpecificationsKTKMax. Operating Pressure:300 psi (20 bar)IIIIIIIMax. Operating Pressure:300 psi (20 bar)IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				
Flow Rating:Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids for P24, S24, F24 and B24 porting Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids for P32, S32 and B32 portingFilter Housing SpecificationsKTKMax. Operating Pressure:300 psi (20 bar)MRTMin. Yield Pressure:300 psi (20 bar), per NFPA T2.6.1MRTRated Fatigue Pressure:300 psi (20 bar), per NFPA T2.6.1-2005MRTBypass Setting:Cracking: 30 psi (20 bar), Full Flow: 68 psi (4.7 bar)Max.Porting Head:Cast Aluminum Element Case:SteelWeight of KL3-18LC:200 bls. (9.1 kg) Weight of KL3-2K:14.55 bls. (6.7 kg) Weight of KL3-3K:MAF1				BEI
Flow Rating:Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids for P24, S24, F24 and B24 porting Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids for P32, S32 and B32 portingFilter Housing SpecificationsMax. Operating Pressure:300 psi (20 bar)MRTMin. Yield Pressure:1000 psi (70 bar), per NFPA T2.6.1MRTRated Fatigue Pressure:300 psi (20 bar), per NFPA T2.6.1-2005Accessories for Tank- Mounted Fill Flow: 68 psi (4.7 bar)MRTPorting Head:Cast Aluminum Element Case:SteelCast Aluminum SteelPAF1Weight of KL3-18LC:20.00 bs. (9.1 kg) Weight of KL3-18L:20.00 bs. (9.1 kg) 2.75 bs. (10.3 kg)MAF1			_	QT
Flow Rating:Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids for P24, S24, F24 and B24 porting Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids for P32, S32 and B32 portingFilter Housing SpecificationsMax. Operating Pressure:300 psi (20 bar)MRTMin. Yield Pressure:1000 psi (70 bar), per NFPA T2.6.1MRTRated Fatigue Pressure:300 psi (20 bar), per NFPA T2.6.1-2005Accessories for Tank- Mounted Fill Flow: 68 psi (4.7 bar)MRTPorting Head:Cast Aluminum Element Case:SteelCast Aluminum SteelPAF1Weight of KL3-18LC:20.00 bs. (9.1 kg) Weight of KL3-18L:20.00 bs. (9.1 kg) 2.75 bs. (10.3 kg)MAF1				VTV
Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids for P32, S32 and B32 portingSpecificationsMax. Operating Pressure:300 psi (20 bar)MRTMin. Yield Pressure:1000 psi (70 bar), per NFPA T2.6.1MRTRated Fatigue Pressure:300 psi (20 bar), per NFPA T2.6.1-2005Accessories for Tank-Temp. Range:-20°F to 225°F (-29°C to 107°C)Mounted Fill Flow: 68 psi (4.7 bar)Bypass Setting:Cracking: 30 psi (2 bar) Full Flow: 68 psi (4.7 bar)MethodsPorting Head:Cast Aluminum Element Case:SteelWeight of KL3-18LC:20.00 lbs. (9.1 kg) Weight of KL3-18K:14.75 lbs. (6.7 kg) 14.75 lbs. (6.7 kg) Weight of KL3-3K:MAF1	Flow Rating:			KIK
And B32 portingMRTMax. Operating Pressure:300 psi (20 bar)MRTMin. Yield Pressure:1000 psi (70 bar), per NFPA T2.6.1AccessoriesRated Fatigue Pressure:300 psi (20 bar), per NFPA T2.6.1-2005AccessoriesTemp. Range:-20°F to 225°F (-29°C to 107°C)For Tank-MountedBypass Setting:Cracking: 30 psi (2 bar) Full Flow: 68 psi (4.7 bar)MountedPorting Head:Cast Aluminum SteelPAF1Weight of KL3-18LC:20.00 lbs. (9.1 kg) Weight of KL3-18LC:20.00 lbs. (9.1 kg) 14.75 lbs. (6.7 kg)MAF1Weight of KL3-3K:18.50 lbs. (8.4 kg) 22.75 lbs. (10.3 kg)MAF1				LTK
Max. Operating Pressure:Soo psi (20 bar)Soo psi (20 bar)AccessoriesMin. Yield Pressure:300 psi (20 bar), per NFPA T2.6.1AccessoriesRated Fatigue Pressure:300 psi (20 bar), per NFPA T2.6.1-2005for Tank-Temp. Range:-20°F to 225°F (-29°C to 107°C)for Tank-Bypass Setting:Cracking: 30 psi (2 bar) Full Flow: 68 psi (4.7 bar)MountedPorting Head:Cast Aluminum SteelPAF1Weight of KL3-18LC:20.00 lbs. (9.1 kg) Weight of KL3-1K:14.75 lbs. (6.7 kg) Weight of KL3-2K:MAF1Weight of KL3-3K:22.75 lbs. (10.3 kg)MAF1		and B32 porting	specifications	MDT
Rated Fatigue Pressure:300 psi (20 bar), per NFPA T2.6.1-2005Accessories for Tank- Mounted FiltersTemp. Range:-20°F to 225°F (-29°C to 107°C)for Tank- Mounted FiltersBypass Setting:Cracking: 30 psi (2 bar) Full Flow: 68 psi (4.7 bar)for Tank- Mounted FiltersPorting Head:Cast Aluminum SteelPAF1Weight of KL3-18LC:20.00 lbs. (9.1 kg) Weight of KL3-18LC:20.00 lbs. (9.1 kg) 14.75 lbs. (6.7 kg)MAF1Weight of KL3-18LC:22.75 lbs. (10.3 kg)MAF1	· -	•		
Temp. Range:-20°F to 225°F (-29°C to 107°C)for Tank-MountedBypass Setting:Cracking: 30 psi (2 bar) Full Flow: 68 psi (4.7 bar)MountedPorting Head:Cast Aluminum SteelPAF1Weight of KL3-18LC:20.00 lbs. (9.1 kg) Weight of KL3-1K:14.75 lbs. (6.7 kg) 14.75 lbs. (6.7 kg)MAF1Weight of KL3-2K:18.50 lbs. (8.4 kg) Weight of KL3-3K:22.75 lbs. (10.3 kg)MAF1			Acce	essories
Bypass Setting:Cracking: 30 psi (2 bar) Full Flow: 68 psi (4.7 bar)Mounted FiltersPorting Head:Cast Aluminum SteelPAF1Weight of KL3-18LC:20.00 lbs. (9.1 kg) 14.75 lbs. (6.7 kg)MAF1Weight of KL3-1X:14.75 lbs. (6.7 kg) 22.75 lbs. (10.3 kg)MAF1	_		fo	or Tank-
Porting Head:Cast AluminumElement Case:SteelWeight of KL3-18LC:20.00 lbs. (9.1 kg)Weight of KL3-18LC:20.00 lbs. (6.7 kg)Weight of KL3-2K:14.75 lbs. (6.7 kg)Weight of KL3-3K:22.75 lbs. (10.3 kg)		Cracking: 30 psi (2 bar)	M	
Element Case:         Steel         PAF1           Weight of KL3-18LC:         20.00 lbs. (9.1 kg)         Meight of KL3-18LC:         14.75 lbs. (6.7 kg)           Weight of KL3-2K:         18.50 lbs. (8.4 kg)         MAF1           Weight of KL3-3K:         22.75 lbs. (10.3 kg)         MAF1				Filters
Weight of KL3-1K:         14.75 lbs. (6.7 kg)         MAF1           Weight of KL3-2K:         18.50 lbs. (8.4 kg)         Weight of KL3-3K:         22.75 lbs. (10.3 kg)				PAF1
Weight of KL3-2K:         18.50 lbs. (8.4 kg)           Weight of KL3-3K:         22.75 lbs. (10.3 kg)				
Weight of KL3-3K: 22.75 lbs. (10.3 kg)				MAF1
Element Change Clearance: 2.50" (64 mm)	Weight of KL3-3K:	22.75 lbs. (10.3 kg)		NACO
	Element Change Clearance:	2.50" (64 mm)		IVIF2



### **KL3** Return Line Filter with Threaded Bowl

	verticed timensions in ().												
Element Performance						Using au	tomated	ISO 4572/NFF particle cour	nter (APC			atio per ISO brated per IS	
Information	Element					α β <sub>x</sub> ≥ 75		d per ISO 440 8 <sub>X</sub> ≥ 100	2 β <sub>X</sub> ≥ 2	00 В <sub>х</sub> (	c) ≥ 200	В <sub>X</sub> (с) 2	≥ 1000
	K3/KK3/27K	3				6.8		7.5	10.0		N/A	N	
	K10/KK10/2	7K10				15.5		16.2	18.0	)	N/A	N	/Α
	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		) .	<4.0	4.8	
	KZ5/KAS5/K	KZ5/K	KAS5/27KZ5/27	KAS5		2.5		3.0	4.0		4.8	6	.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	1.0
	KZW1					N/A		N/A	N/A		<4.0	<4	1.0
	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		6.9	8	.6
	KZW25/KKZ	W25				N/A	A N/A		N/A	15.4		18.5	
	18LC3					6.8		7.5	10.0	)	N/A	N	Ά
	18LC10					15.5		16.2 18.0 N/A			N/A	N	/Α
	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	5	19.0	24	1.0
Dirt Holding		DHC		DHC			DHC		DHC		DHC		DHC
Capacity	Element	(g)	Element	(g)	Element	t	(g)	Element	(g)	Element	(g)	Element	(g)
Capacity	K3	54	KK3	108	27K3		162					18LC3	110
	K10 KZ1	44	KK10 KKZ1	88 224	27K10 27KZ1		132	KZW1	61			18LC10 18LCZ1	88 224
	KZI KZ3/KAS3	112 115	KKZI KKZ3/KKAS3	224 230	27KZ1 27KZ3/2	76453	336 345	KZWI KZW3	61 64	KKZW3	128	18LCZ1 18LCZ3	224
	KZ5/KAS5	119	KKZ5/KKAS5	230	27KZ5/2		357	KZW5	63	KKZW5	126	18LCZ5	238
	KZ10/KAS10	108	KKZ10/KKAS10	238		27KAS10	324	KZW10	57	KKZW10		18LCZ10	216
	KZ25	93	KKZ25	27KZ25		279	KZW25	79	KKZW25		18LCZ25	186	
		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											

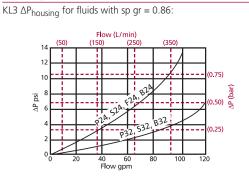
KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long 27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long 18LC: 4.0" (100 mm) O.D. x 18.5" (470 mm) long

### **Return Line Filter with Threaded Bowl** KL

		Type Fluid	Appropriate	Schroeder N	Fluid	IRF					
Pet	roleum Ba	ased Fluids	All E media (	cellulose), Z-M	Compatibility	тга					
	High Wate	er Content	All Z-Media®	and ASP <sup>®</sup> me		TF1					
	Invert	Emulsions	10 and 25 µ	Z-Media® (syn							
	Wa	ter Glycols		25 µ Z-Media		KF3					
		nate Esters		1	eal designation	· ·			· ·		<b>VI2</b>
Durant		ment	petroleum ba	ased fluid, SA	edicated on the	or K-size	eleme	nts, SAE		Element Selection Based on	KL3 LF1–2"
Pressure	Series	Part No. K3			s, and a 30 psi		oypass	valve.		Flow Rate	MLF1
		K10		1K3 2K3 3K3 1K10 2K10 3K1							
	E Media	K10		1K10 2K10 3K10 1K25 2K25							
	LIVICUIU	18LC3			18LC3			LICED			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	20 40 60				100	120		KFT
	TIOW	(L/min)	0 10	100 200 300 400 455							
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:

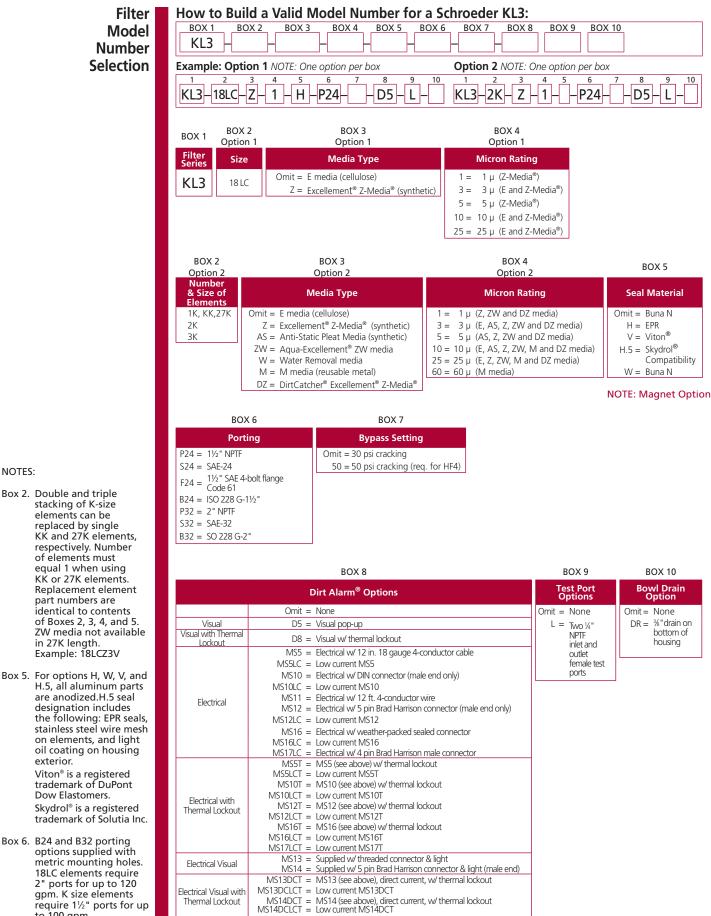
Determine  $\Delta P$  at 60 gpm (225 L/min) for KL32KZ10P24 using 200 SUS (44 cSt) fluid.

#### 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]

$\Delta \mathbf{P}_{element}$ $\Delta P_{element}$ = flow	x eleme	nt ∆P fac	ctor x vis	cosity factor		Pressure Drop
El. ΔP factors @			Information Based on			
K3 K10 K25 KZ1 KZ3/KAS3 K25/KAS5 KZ10/KAS10 KZ25	1K .25 .09 .02 .20 .10 .08 .05 .04	2K .12 .05 .01 .10 .05 .04 .03 .02	3K .08 .03 .01 .05 .03 .02 .02 .02 .01	18LC3 18LC10 18LCZ1 18LCZ3 18LCZ5 18LCZ10 18LCZ25	.12 .05 .10 .05 .04 .03 .02	Flow Rate and Viscosity
KZW1 KZW3 KZW5 KZW10 KZW25 If working in u 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:

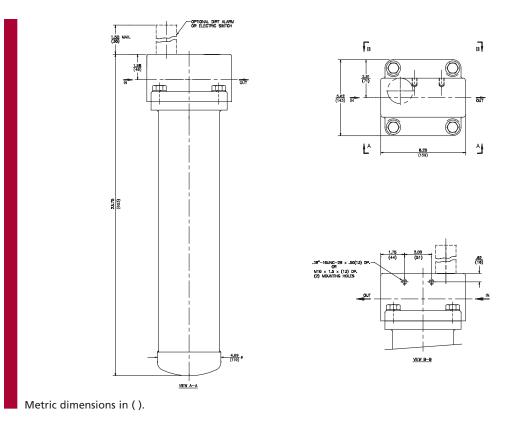
- Box 2. Double and triple
- Box 5. For options H, W, V, and
- to 100 gpm.

# Return Line Filter With 2" Ports LF1

Wodel No. of filter in photograph	<ul> <li>Features and Benefits</li> <li>Offered in pipe, SAE straight thread and ISO 228 porting</li> <li>Available in 18" element lengths only</li> <li>Various Dirt Alarm® options</li> <li>Available with NPTF inlet and outlet female test ports</li> <li>Available with 2" porting with "K" size element</li> <li>Available with housing drain plug</li> <li>WLF1 model for water service also available – refer to Section 7 of this catalog</li> </ul>	120 gpm <u>455 L/min</u> 300 psi 20 bar	IRF TF1 KF3 KL3 KL3 MLF1 RLD GRTB MTA MTB ZT
Industrial         Automotive         Automotive	with the transmission       with the transmission         with transmission       with transmission	Applications	KFT RTI LRT ART BFT QT KTK 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 Acce	ssories r Tank-
Rated Fatigue Pressure:	250 psi (17 bar), per NFPA T2.6.1-2005		ounted
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	IVIO	Filters
Bypass Setting: Porting Head:	Cracking: 30 psi (2.1 bar) Full Flow: 60 psi (4.1 bar) Cast Aluminum		PAF1
Element Case:	Steel		
Available Porting:	2" NPTF, 21/2-12 SAE Straight		MAF1
Weight of LF1-18LC:	17.5 lbs. (7.9 kg)		
Element Change Clearance:	2.0" (55 mm)		MF2



LF1



Element Performance			io Per ISO 4572/NF rticle counter (APC) calib		Filtration Ratio per ISO 16889 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	Z-Media® (syn	thetic)			Compatibility	TF1
High	Water Co	ontent A	All Z-Media (synthetic)						
Invert Emulsions 10 and 25 µ Z-Media® (synthetic)								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 tainless steel wire mesh in					Skydrol <sup>®</sup> is a registered trademark of Solutia Inc.	LF1-2"
Pressure	Ele Series	ment Part No.	Element selections are petroleum based fluid				32 cSt)	Element Selection	MLF1
		18LCZ1	18L0					Based on	RLD
То		18LCZ3		18LCZ	3	I		- Flow Rate	
300 psi	Z- 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 use of E media in High W 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 Drop	RT
(50)	5	w (L/min) (250)	(350)	El. ΔP factors @ 150 SUS (32 cSt): <b>18LCZ1</b> .10 <b>18LCZ3</b> .05 <b>18LCZ5</b> .04				Information Based on	RTI
12			(0.75)					Flow Rate and Viscosity	LRT
isd d⊽ 6			√P (bar)	18LCZ10 18LCZ25	.03 .02				ART
2			(0.25)	If working in units of bars & L/min, divide above factor by 54.9. <i>Viscosity factor:</i> Divide viscosity by 150 SUS (32 cSt).					BFT
0	20 40 Flo	60 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 0S32D5 u	gpm (150 L/min Ising 200 SUS (4	) for 14 cSt) fluid.		ccessories for Tank-
				Solution:					Mounted
				$\Delta P_{housing}$		[.07 bar] 3 x (200÷150) =	: 1.6 psi		Filters
					= 1.0 + 1	.03÷54.9) x (44 .6 = 2.6 psi	÷32) = .11 bar]		PAF1
					or = [.07 + .	11 = .18 bar]			MAF1
									MF2

## **Return Line Filter With 2" Ports**

Filter Model Number Selection	BOX 1	BOX 2	BOX	nay contain more than one option           BOX 4         BOX 5         BOX 6         BOX 7	.F1: LF118LC3I	P32D5
	BOX 1 Filter Series	BOX 2 Length of Element (in)	t	BOX 3 Element Size and Media 3 = LC size 3 µ E media (cellulose)	BOX Seal Mat Omit = Buna	terial
		10	LCZ LCZ LCZ LCZ1	0 = LC size 10 μ E media (cellulose) 1 = LC size 1 μ Excellement <sup>®</sup> Z-Media <sup>™</sup> (synthetic) 3 = LC size 3 μ Excellement Z-Media (synthetic) 5 = LC size 5 μ Excellement Z-Media (synthetic) 0 = LC size 10 μ Excellement Z-Media (synthetic) 5 = LC size 25 μ Excellement Z-Media (synthetic)	H = EPR V = Vito H.5 = Skyc Corr	
	BO> Port P32 = 2	ing		BOX 6 <b>Dirt Alarm<sup>®</sup> Options</b> Omit = None		BOX 7 Additional Op Omit = None

NOTES:
Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. 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 and outlet female test ports
B32 = ISO 228 G-2"		D5 = Visual pop-up	G426 = <sup>3</sup> / <sub>4</sub> " drain on bottom of housing
	Visual with Thermal Lockout	D8 = Visual w/ thermal lockout	G440 = ½" drain on bottom of housing
	Electrical	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 MS11 = Electrical w/ 12 ft. 4-conductor wire 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	
	Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS16LCT = Low current MS16T	
	Electrical Visual	MS = Cam operated switch w/ ½" conduit female connection MS13 = Supplied w/ threaded connector & light MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)	
	Electrical Visual with Thermal Lockout	MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT	

# Top-Ported Return Line Filter MLF1



# Features and BenefitsEquipped 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<sup>®</sup> options

- Available with NPTF inlet and outlet female test ports
- Available with housing drain plugs
- Available with Patented GeoSeal<sup>®</sup> Elements. See Section 8 – GeoSeal Filters (page 345) for details.

Model No. of filter in photograph is MLF14K10PD.



AUTOMOTIVE



MACHINE TOOL



MAKING



MOBILE VEHICLES



Applications	KFT
	RT
	RTI
	LRT
	ART
	BFT
	QT
	КТК
	ITV

200 gpm 760 L/min

300 psi 20 bar

KF3

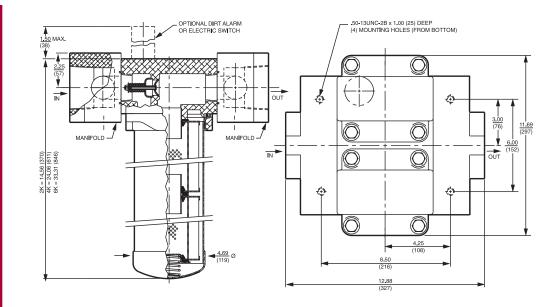
MLF1

LTK

Flow Rating	Up to 200 gpm (760 L/min) for 150 SUS (32 cSt) fluids	Filter MRT
Max. Operating Pressure:		Housing
	1000 psi (70 bar), per NFPA T2.6.1	Specifications Accessories
Rated Fatigue Pressure:	250 psi (17 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: 25 psi (2 bar) Full Flow: 60 psi (4 bar)	Filters
Porting Head: Element Case:	Anodized Cast Aluminum Steel	PAF1
Weight of MLF1-2K: Weight of MLF1-4K: Weight of MLF1-6K:	50.0 lbs. (23.0 kg)	MAF1
Element Change Clearance:	2.0" (55 mm)	MF2



# MLF1 Top-Ported Return Line Filter



Metric dimensions in ( ).

Element Performance			t <b>io Per ISO 4572/NI</b> article counter (APC) cali	Filtration Ratio per ISO 16889 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				
	Flow Direction:			Outside In				
	Element Nominal Dimensions:			KK: 3.9" (	99 mm) O.D. x 9. 99 mm) O.D. x 18 99 mm) O.D. x 2	8.0" (460 mm	n) long	

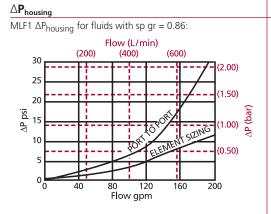
# Top-Ported Return Line Filter MLF1

	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 Skydrol <sup>®</sup> is a registered trademark of Solutia Inc.

	Elei	nent	Element se	elections are pre	Element					
Pressure	Series	Part No.		d and a 25 psi (1					Selection	
	_	K3		4K3			6K3		Based on	
	E Media	K10		4K10			6K10	Flow Rate		
	IVICUIU	K25			4K25					
To		KZ1		4KZ1		6	iKZ1			
300 psi (20 bar)	_	KZ3	2KZ3	4	KZ3		6KZ3			
( ,	Z- 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 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 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 may 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 ze of	Media Type	Micron Rating					
	Ele	ments 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 DZ = Dirtcatcher <sup>®</sup> with Excellement <sup>®</sup> Z-Media <sup>®</sup>	$10 = 10 \mu$ AS, E, M, Z, ZW, and DZ media $25 = 25 \mu$ 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 $V = Viton^{(8)}$		M = Magnet inserts	= 2½" SAE 4-bolt flange Code 61					
	H.5 = Skydrol® Ci	ompatibility	BOX 8	BOX 9					
			Additional Options						
		Omit =	Dirt Alarm <sup>®</sup> Options None	Omit = None					
	Visual	D =	Pointer	L = Two ¼" NPTF inlet and outlet female test ports					
		D5 =	Visual pop-up	$G426 = \frac{3}{4}$ " drain on bottom of housing					
	Visual with Thermal Lockout		Visual w/ thermal lockout	$G440 = \frac{1}{2}$ " drain on bottom of housing					
NOTES:		MS5LC = MS10 =	Electrical w/ 12 in. 18 gauge 4-conductor cable Low current MS5 Electrical w/ DIN connector (male end only)						
Box 2. Double and triple stacking of K-size			Low current MS10 Electrical w/ 12 ft. 4-conductor wire						
elements can be replaced by KK and 27K	Electrical		Electrical w/ 5 pin Brad Harrison connector (male end only)						
elements, respectively. Number of elements			Low current MS12						
must equal 2 when using			Electrical w/ weather-packed sealed connector 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 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 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



MACHINE TOOL



PULP & PAPER



POWER

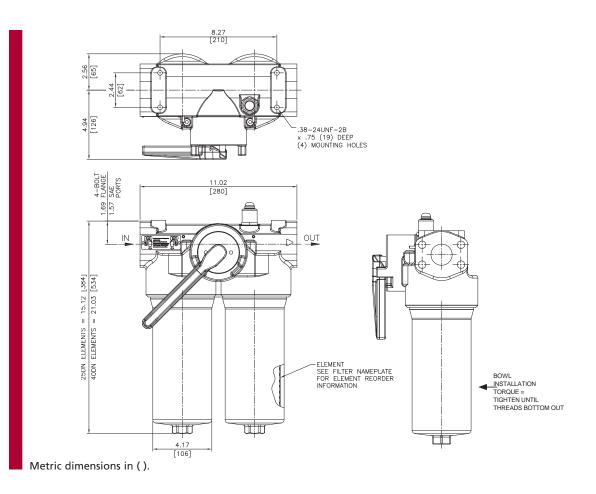
100 gpm	IRF
100 gpm <u>380 L/min</u>	TF1
350 psi	KF3
24 bar	KL3
	LF1-2"
	MLF1
	RLD
	GRTB
	MTA
	МТВ
	ZT
Applications	KFT
	RT
	RTI
	LRT
	ART
	BFT
	QT
	КТК

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) Optional: 43 psi (3.0 bar)	Filters
Porting Head: Element Case:	Aluminum Aluminum	PAF1
Weight of RLD-25DN: Weight of RLD-40DN:	26 lbs. (11.8 kg) 29 lbs. (13.0 kg)	MAF1
Element Change Clearance:	25DN: 3.5" (89 mm) 40DN: 3.5" (89 mm)	MF2

**Medium Pressure Filter** 

RLD



Element Performance			io Per ISO 4572/NF rticle counter (APC) calib	Filtration Ratio per ISO 16889 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: Flow Direction: Element Nominal Dimensions:		290 psid (20 bar)		
			Outside In		
			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	All Z-Media® (synthetic)					Compatibility	TF1	
	High Wa	ater Content 🛛 🗚	ll Z-Media® (synt	Z-Media <sup>®</sup> (synthetic)						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 Based on	RLD
		25DNZ3 & 40DNZ	23	25DNZ3	40DNZ3				Flow Rate	
To 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 Information RTI
Flow (L/min) (100) (200) (300)	El. ΔP factors @ 150 SUS (32 cSt):	Information RTI Based on
30.0	<b>25DNZ3</b> .28 <b>40DNZ3</b> .18	Flow Rate LRT and Viscosity
22.5	<b>25DNZ6</b> .18 <b>40DNZ6</b> .11 <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 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** D)

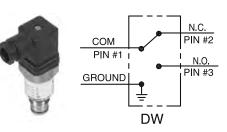
R

Filter Model Number Selection	BOX 1 RLD	RLD						
	BOX 1	BOX 2	BOX 3	BOX 4				
	Filter Series	Length of 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	VIM = 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

	Return Line 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 380 L/min	IRF TF1
	<ul> <li>Cost optimized for in-tank applications</li> </ul>	100 psi	– KF3
	<ul> <li>Plastic bowl and cap lower cost and minimize weight</li> <li>UV resistant cap</li> </ul>	7 bar	
101 10	<ul> <li>Same day shipment model available</li> </ul>		KL3
- Ser la			LF1-2"
			MLF1
			RLD
10 m 1 m			GRTB
			ΜΤΑ
			МТВ
Nodel No. of filter in photograph is	GRTB1KBGZ10S.		ZT
		Applications	KFT
			RT
AGRICULTURE CONSTRUCTION	MOBILE VEHICLES		RTI
			LRT
			ART
			BFT
			QT
			КТК
			LTK
		Filter	MRT
	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids	Housing	
Max. Operating Pressure: Min. Yield Pressure:		Specifications	Accessories
	145 psi (10 bar), Per NFPA T2.6.1-2005		for Tank-
	-20°F to 200°F (-29°C to 93°C)		Mounted Filters
	Cracking: 25 psi (1.7 bar)		1 11(C13
	Full Flow: 42 psi (2.9 bar)	NOTES:	PAF1
Cap & Bowl: Porting Head:	Nylon Aluminum	The GRTB is a	

Porting Head: Aluminum Weight of GRTB-1K: 5.2 lbs (2.36 kg)

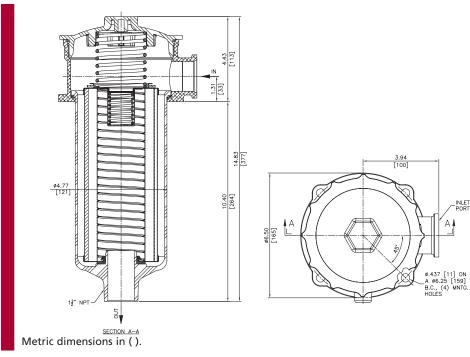
Element Change Clearance: 12" (305 mm)



	NOTES:	PAF1
	The GRTB is a basic filter. For more complex	MAF1
	applications, use the standard RT filter.	MF2



### **GRTB** Tank-Mounted **Return Line Filter**



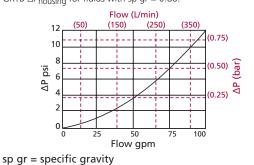
Element Performance		Filtration Ratio	Per ISO 4572/NFI cle counter (APC) calibi	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$
	KBG10	15.5	16.2	18.0	N/A	N/A
	KBGZ1	<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	
	Eler	nent 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

**252 SCHROEDER INDUSTRIES** 

#### Tank-Mounted **GRTB Return Line Filter**

									IDE
	Type Fluid Appropriate Schroede			der Media	r Media			Fluid	IRF
Petrol	eum Ba	sed Fluids	All E media (cellulose)			2)		Compatibility	TF1
	<b>Invert Emulsions</b> 10 and 25 µ Z-Media				dia (synthetic)				
									KF3
									KL3
									RLJ
									LF1-2"
									54154
			I						MLF1
Pressure	Ele Series	ement Part No.	Element selections ar petroleum based flui					Element Selection	RLD
Tressure	E	KBG10	1KBG10		bar) bypass var			Based on	
	Media	KBG25		1KBG25				- Flow Rate	GRTB
Return	Z- Media®	KBGZ1	1KBGZ1						ΜΤΑ
Line -Tank-		KBGZ3		1KBGZ3					
Mounted		KBGZ5		1KBGZ5					MTB
		KBGZ10		1KBGZ10					
		KBGZ25		1KBGZ25				_	ZT
	Flow	gpm (L/min)	40 0 50 150	60	250	30	100 380	-	KFT
Shown abov	/e are th	X · · · /	most commonly used in	this housing.	1		1		
Note: Conta	ct factor	ry regarding	, use of E media in High 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: Flow (L/min)				$\Delta P_{element} = flow x element \Delta P factor x viscosity factor$			Drop Information	ART	
1	2 (50)		(250) (350) (-1) (0.75)	El. ∆P factors @ 1				Based on	BFT
1	0				<b>1K</b> .09			Flow Rate and Viscosity	DIT
psi	6		(par)		.02 .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 = [284 x (.05÷54.9) x (44÷32) = .36 bar] = 7.25 + 5.0 = 12.25 psi or = [.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> .09	Based on Flow Rate and Viscosity	BFT
KBG25 KBGZ1	.02 .20		QT
KBGZ3 KBGZ5	.10 .08		КТК
KBGZ10 KBGZ25	.05 .04		LTK
If working in units of bars & L/min, divide above factor by 54.9. <i>Viscosity factor</i> : Divide viscosity by 150 SUS (32 cSt).			MRT
			Accessories for Tank- Mounted 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 switch with conduit connections

# 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>	15 gpm <u>55 L/min</u> т 100 psi к 7 bar к LF1- ML	.F1 LD
Model No. of filter in photograph is M	TA3TAZ10P8.	ГМ	
		M"	
			ZT
		, pp. co.co.co	RT
INDUSTRIAL AUTOMOTIVE	MOBILE		
MANUFACTURING	VEHICLES		RTI
		L	RT
		A	RT
PULP & PAPER AGRICULTURE		В	FT
		C	от
			ТК
		-	
			TK
		MI	RT
Flow Rating:	Up to 15 gpm (55 L/min) for 150 SUS (32 cSt) fluids	Filter Accessor	
Max. Operating Pressure:	100 psi (7 bar)	Housing Accessor Specifications for Tar	
Min. Yield Pressure: Rated Fatigue Pressure:	269 psi (18 bar), per NFPA T2.6.1 Contact factory	Mount	
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Filte	ers
Bypass Setting:	Cracking: 25 psi (2 bar) Full Flow: 48 psi (3.3 bar)	PA	F1
Porting Head & Cap: Element Case:	Die Cast Aluminum Glass Filled Nylon	МА	F1

Weight of MTA-3:

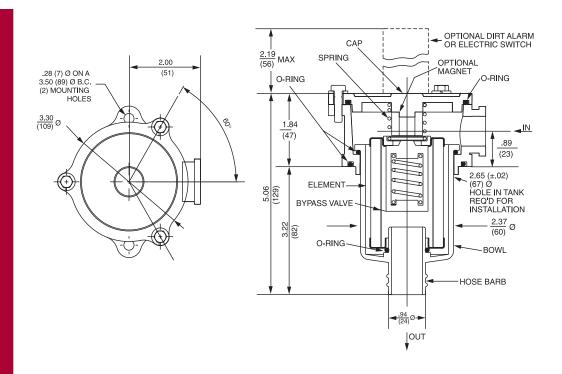
Element Change Clearance:

1.0 lbs. (0.5 kg)

3.0" (76 mm)

**SCHROEDER INDUSTRIES 255** 

### **MTA** MiniMiser<sup>™</sup> Tank-Mounted Filter



Metric dimensions in ().

Element Performance			tio Per ISO 4572/N article counter (APC) cali	Filtration Ratio per ISO 16889 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: 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 Series	Element 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
	Low pressure tank-mounted filter	100 psi	KF3
	<ul> <li>Compact size minimizes space requirements</li> <li>Minimizer is cost-effective alternative</li> </ul>	7 bar	KL3
	to spin-on filters		RLJ
	<ul> <li>Special filter element design provides aftermarket benefits</li> </ul>		LF1-2"
			MLF1
			RLD
			GRTB
			MTA
Model No. of filter in photograp	h is MTR5TR75P16		МТВ
			ZT
		Applications	KFT
		Applications	KF I
			RT
INDUSTRIAL AUTOMOTIVE MANUFACTURIN	MOBILE G VEHICLES		RTI
			LRT
			ART
PULP & PAPER AGRICULTURE			BFT
			QT
			КТК
			LTK
Flow Rating:	Up to 25 gpm (95 L/min) for 150 SUS (32 cSt) fluids–MTB-3 Up to 35 gpm (135 L/min) for 150 SUS (32 cSt) fluids–MTB-5	Filter Housing	MRT
Max. Operating Pressure:	100 psi (7 bar)	Specifications Act	cessories
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)		<b>Filters</b>
Bypass Setting:	Cracking: 25 psi (2 bar) Full Flow: 51 psi (3.5 bar)		DA 54
			PAF1

Porting Head & Cap:<br/>Element Case:Die Cast Aluminum<br/>Glass Filled NylonWeight of MTB-3:1.8 lbs. (0.8 kg)

2.1 lbs. (1.0 kg)

3.0" (76 mm) MTB-3 5.0" (127 mm) MTB-5

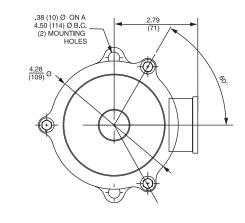
Weight of MTB-5:

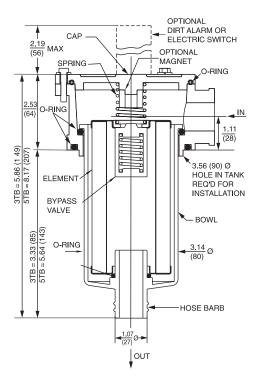
Element Change Clearance:

1*7*411

MAF1

## **MTB** MiniMiser<sup>™</sup> Tank-Mounted Filter





Element Performance			tio Per ISO 4572/N article counter (APC) cal	Filtration Ratio per ISO 16889 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 5TB: 3.0" (76 mm) O.D. x 5.0" (127 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 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 Series	Element 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 $\mu$ 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"					

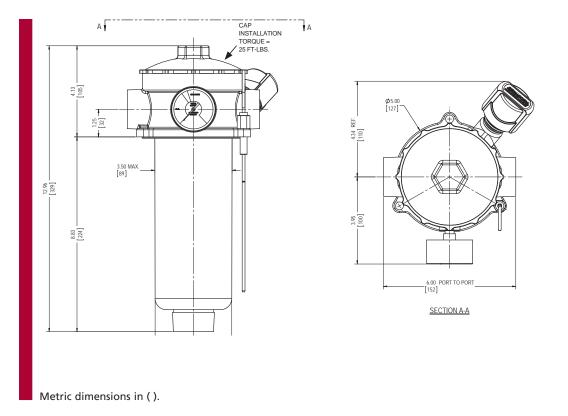
NOTE:

Box 2. Replacement element part numbers are a combination of Boxes 2 and 3. *Example*: 3TB10

## Tank-Mounted Filter **ZT**

		40 gpm	IRF
		150 L/min	TF1
	Features and Benefits		
	<ul><li>Low pressure tank-mounted filter</li><li>Available with dual inlet porting</li></ul>	100 psi	KF3
	<ul> <li>Offered in pipe, SAE straight thread and ISO 228 porting</li> </ul>	7 bar	KL3
	<ul> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>		
the second se	Optional PAB1 breather		LF1-2"
	<ul> <li>Optional dipstick</li> </ul>		MLF1
	<ul> <li>Available with Patented GeoSeal<sup>®</sup> Elements.</li> <li>See Section 8 – GeoSeal Filters (page 346)</li> </ul>		
	for details.		RLD
			GRTB
			ΜΤΑ
			МТВ
Model No. of filter in photogr	aph is ZT8ZZ10PPESAB.		
			ZT
		Applications	KFT
			RT
INDUSTRIAL AUTOMOTIV MANUFACTUR			RTI
MANOTACIÓN			
			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: Min. Yield Pressure:	100 psi (7 bar) 300 psi (21 bar), per NFPA T2.6.1		essories or Tank-
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA 12.6.1 90 psi (6 bar), per NFPA 12.6.1-R1-2005		/lounted
Temp. Range:	-20°F to 225°F (-29°C to 107°C)		Filters
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 39 psi (2.7 bar)		PAF1
Cap & Bowl:	Nylon		N / A F 4
Porting Head: Weight of ZT-8Z:	Aluminum		MAF1
Element Change Clearance:	3.3 lbs. (1.49 kg) 10.0" (254 mm)		MF2
ge clearance			

# **Tank-Mounted Filter**



Element Performance			tio Per ISO 4572/N article counter (APC) cali	Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171		
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$	
	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 Holding	Elemer	nt DHC (gm)	
Capacity	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
	Elen	nent Nominal Dimensions:	3.2" (81 mm) O.D. x 9.25" (235 mm) long

ZT

# 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
	W	ater Glycols	3, 5, 10 and 25 $\mu$ Z-N	ledia® (synthe	etic)				KI J
	Phosp	ohate Esters	All Z-Media <sup>®</sup> (synthet	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 trademark of Solutia	ed
Pressure	E Series	lement Part No.	Element selections petroleum based flu				2 cSt)	Element Selection	MLF1
		8Z3 paper		8Z3 (cellu	lose media)			Based on Flow Rate	
	E 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- Mounted	Z-	8ZZ5		8	ZZ5				вата
mounted	Z- 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 t commonly used in th	c housing	100		150		21
			,	5					KFT
			of E media in High W 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 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 8ZZ3	.37 .21				
<sup>₩</sup> 4			△P (bar)	8225 8225	.13				BFT
			(0.25) <	8ZZ10	.11				
2	+			8ZZ25	.08				ОТ
_اه									
0	10	20 Flow gpm	30 40	lf working ii 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	$= [/6 \times (.3/\div)]$ = 1.0 + 9.8 =	54.9) x (44÷32) 10 8 nsi	) = 0.7 pař]		
				$\Delta P_{total}$	= 1.0 + 9.8 = or	10.0 bi			MAF1
					= [.07 + .7 =	.77 bar]			

**SCHROEDER INDUSTRIES 265** 

MF2

### **Tank-Mounted Filter**

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>

$\begin{bmatrix} BOX T \\ ZT \\ - \end{bmatrix} = \begin{bmatrix} BOX 2 \\ BOX 3 \\ ZT \\ - \end{bmatrix} = ZT8Z10SY2$						
BOX 1	BOX 2	BOX 3	BOX 4			
Filter Series	Element Length (in)	Element Size and Media	Seal Material			
ZT	8	Z3 = Z size 3 µ E media (cellulose)	Omit = Buna N			
21	0	Z10 = Z size 10 μ E media (cellulose)	H = EPR			

Z25 = Z size 25  $\mu$  E media (cellulose)

$$\begin{split} &ZZ1 = \text{Z size 1 } \mu \text{ Excellement}^{\textcircled{\text{R}}} \text{ Z-Media}^{\textcircled{\text{R}}} \text{ (synthetic)} \\ &ZZ3 = \text{Z size 3 } \mu \text{ Excellement}^{\textcircled{\text{R}}} \text{ Z-Media}^{\textcircled{\text{R}}} \text{ (synthetic)} \\ &ZZ5 = \text{Z size 5 } \mu \text{ Excellement}^{\textcircled{\text{R}}} \text{ Z-Media}^{\textcircled{\text{R}}} \text{ (synthetic)} \\ &ZZ10 = \text{Z size 10 } \mu \text{ Excellement}^{\textcircled{\text{R}}} \text{ Z-Media}^{\textcircled{\text{R}}} \text{ (synthetic)} \\ &ZZ25 = \text{Z size 25 } \mu \text{ Excellement}^{\textcircled{\text{R}}} \text{ Z-Media}^{\textcircled{\text{R}}} \text{ (synthetic)} \end{split}$$

BOX 5			BOX 6	
Inlet Porting			Dirt Alarm <sup>®</sup> Options	
ſ	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" BB = Dual ISO 228 G-1"			ES = Electric switch	
		Electrical	ES1 = Heavy-duty electric switch with 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 $^{\mathbb{R}}$ .

#### Tank-Mounted Filter KFT

D	

Features and Benefits ■ Low pressure tank-mounted filter	100 gpm	IRF
Meets HF4 automotive standard	380 L/min	TF1
<ul> <li>Multiple inlet/outlet porting options</li> </ul>	100 psi	KF3
Top, side or bottom mounting	7 bar	IXI J
<ul> <li>Optional check valve prevents reservoir siphoning</li> </ul>	7 Dai	KL3
<ul> <li>Can also be used in return line application (contact factory)</li> </ul>		LF1-2"
<ul> <li>Double stacking of K-size element can be replaced by single KK element</li> </ul>		MLF1
<ul> <li>Allows consolidation of inventoried replacement elements by using K-size elements</li> </ul>		RLD
Also available with DirtCatcher <sup>®</sup> elements		
(KD and KKD)		GRTB
		ΜΤΑ
		IVITA
		MTB

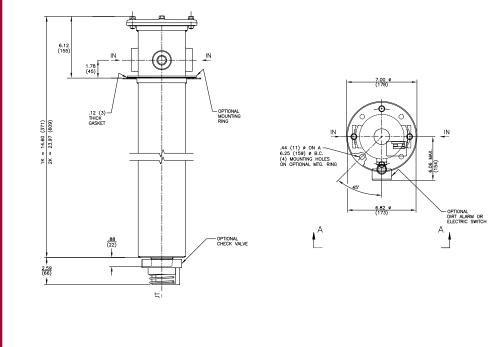
Model No. of filter in photograph is KFT1K10P24P24NB



Applications	KFT
	RT
	RTI
	LRT
	ART
	BFT
	QT
	КТК
	LTK

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) Full Flow: 48 psi (3.3 bar)	Filters
Porting Head: Porting Cap: Element Case:	Steel Die Cast Aluminum (standard); Steel (optional) Steel	PAF1
Weight of KFT-1K: Weight of KFT-2K:	10.0 lbs. (4.5 kg) 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 Performance			io Per ISO 4572/N article counter (APC) cal	Filtration Ratio per ISO 16889 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

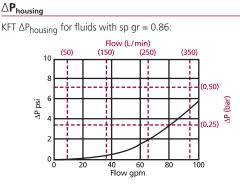
Dirt Holding	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
Capacity	К3	54	ККЗ	108				
	К10	44	KK10	88				
	KZ1	112	KKZ1	224	KDZ1	89	KKDZ1	188
	KZ3/KAS3	115	KKZ3/KKAS3	230	KDZ3	71	KKDZ3	150
	KZ5/KAS5	119	KKZ5/KKAS5	238	KDZ5	100	KKDZ5	210
	KZ10/KAS10	108	KKZ10/KKAS10	216	KDZ10	80	KKDZ10	168
	KZ25	93	KKZ25	186	KDZ25	81	KKDZ25	171
			t Collapse Rating: Flow Direction:	Outside In				
26	58 SCHROEDER I		ninal Dimensions:	K: 3.9" (99 mm, 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 llulose) with H (EPR) seal desig		nedia (synthet	tic) and I		KL3
(synthetic) and W med	edia <sup>®</sup> (synthetic) with H.5 seal lia (water removal) with H.5 se sh in element, and light oil coa	al desigr	nation (EPR se	als and	Skydrol <sup>®</sup> is a registered 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 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 re	eplaced by single KK element,	respecti	vely.			RT
nost commonly used in use of E media in High	this housing. 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 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 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 K	FT:			
Model 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							
Selection	BOX 1 BOX 2 BOX	3 BC	DX 4 BOX		BOX 7	BOX 8	BOX 9 BOX			
	KFT – 1K – Z – 10 – S24 S24 N – Y2 – G820 = KFT1KZ105 24NY2G82									
								2411120020		
	BOX 1 BOX 2	2		BOX	3			BOX 4		
	Filter Element Si Series Lengt	ze anc h	1	Media	Туре		Ele	ement Part Number		
	KFT 1 K, KK	<	Omit	= E media (cellulose)	)		1 = 1 µ	Z, ZW, and DZ media		
	2 K			= Excellement <sup>®</sup> Z-N				AS,E, Z, ZW, and DZ media		
				= Anti-Static Pleat N = Agua-Excellement	-			AS, Z, ZW, and DZ media		
				= Dirtcatcher <sup>®</sup> with				μ AS, E, M, Z, ZW, and DZ media μ E, M, Z, ZW, and DZ media		
	2011		5.01							
	BOX 5 Seal Material		BO	X 6 Specification o	f all 4 ports Porting	s is requii	red	Inlet Porting Location		
	Omit = Buna N	Port	1 (Standard)	Port 2 (Optional)	Port 3 (Opt	tional)	Port 4 (Optional)			
	H = EPR	N	= None	N = None	N = No	one	N = None	Port #1		
	V = Viton®						P2 = $1/_8$ " NPTF	Port #3 ( View ) Port #4 or Y2/ES/ES1		
	H.5 = Skydrol <sup>®</sup> Compatibility				P8 = 1/2		P8 = ½" NPTF			
			= 34" NPTF = 1" NPTF	$P12 = \frac{3}{4}$ " NPTF P16 = 1" NPTF	$P12 = \frac{34}{10}$ P16 = 1''		$P12 = \frac{34''}{NPTF}$ $P16 = 1'' NPTF$	Port #2		
			= 1 INPTF = 1¼" NPTF				$P10 = 1 \text{ NPTF}$ $P20 = 1\frac{1}{4}\text{ NPTF}$			
			= 1½" NPTF				$P24 = 1\frac{1}{2}$ " NPTF			
			= 2" NPTF	P32 = 2'' NPTF	P32 = 2"		P32 = 2'' NPTF			
		S8	= SAE-8	S8 = SAE-8	S8 = SA	.E-8	S8 = SAE-8			
		S12	= SAE-12	S12 = SAE-12	S12 = SA	E-12	S12 = SAE-12			
			= SAE-16	S16 = SAE-16	S16 = SA		S16 = SAE-16			
			= SAE-20	S20 = SAE-20	S20 = SA		S20 = SAE-20			
NOTES:	2017	524	= SAE-24	S24 = SAE-24	S24 = SA	E-24	S24 = SAE-24			
Box 2. Number of elements	BOX 7		Option	BOX 8 nal Mounting			BOX 9			
must equal 1 when using KK elements.	Outlet Porting Optio	ns		Flange		Quuit	Dirt Alarm <sup>®</sup> O	ptions		
Box 3. Replacement element	Omit = $1\frac{1}{2}$ " NPT male C = Check valve		Omit = B =	= Flange with 4 holes		Omit = Y2 =		olor gauge (located in Port 4)		
part numbers are identical to contents of Boxes 2, 3 and 4. K specifies one 9" element; KK specifies	D = Diffuser			= Flange with no holes	Visual			tri-color gauge in cap		
	CD = Check valve & diff	user		no noies		Y5 -	Back-mounted ga			
one 18" element. Example: KKZ10	T = 13" Tube extensi						Electric switch (loc	5 1		
· · · ·	A = Non-threaded out				Electrical	ES1 =	Heavy-duty electri	c switch with conduit		
Box 5. H.5 seal designation includes the							connector (located	d in port 4)		
following: EPR seals, 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 a registered trademark	Omit = None									
of DuPont Dow Elastomers.	G2293 = Cork gasket G820 = Steel cap									
Elastomers.										

Box 7. See also "Accessories for Tank-Mounted Filters," page 307.

### Tank-Mounted Filter RT



	Features and Benefits	100 gpm	IRF
	<ul> <li>Low pressure tank-mounted filter with up to 3 inlet ports</li> </ul>		rF1
	Meets HF4 automotive standard	100 pci	
	Top, side or bottom mounting		(F3
	<ul> <li>Optional check valve prevents reservoir siphoning</li> </ul>	7 bar	(L3
	<ul> <li>RTW model allows filter to be welded to tank, instead of being bolted</li> </ul>	LF1-	-2"
	<ul> <li>Double and triple stacking of K-size element can be replaced by single KK or 27K-size element</li> </ul>	MI	_F1
	<ul> <li>Also available with new DirtCatcher<sup>®</sup> elements (KDZ and KKDZ)</li> </ul>	R	LD
	<ul> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>		
	<ul> <li>Allows consolidation of inventoried replacement elements by using K-size elements</li> </ul>	GR	TB
·	<ul> <li>Available with Patented GeoSeal<sup>®</sup> Elements. See Section 8 – GeoSeal Filters (page 345) for details.</li> </ul>	м	ΤΑ
	for details.	M	ITB
Model No. of filter in photograph is	RT1K10S24NP16CY2.	•	ZT
		Applications	(FT
			RT
INDUSTRIAL AUTOMOTIVE MANUFACTURING	MOBILE VEHICLES		RTI
		L. L.	.RT



STEEL MAKING

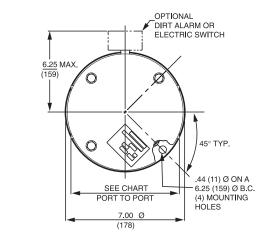




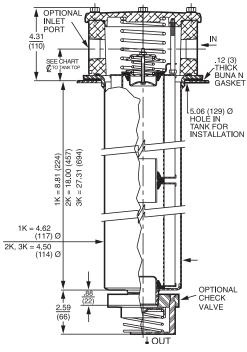
	•	LTK
		MRT
Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids	Filter
Max. Operating Pressure:	100 psi (7 bar)	Housing Accessories
Min. Yield Pressure:	400 psi (28 bar), per NFPA T2.6.1	Specifications for Tank-
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA T2.6.1-2005	Mounted
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Filters
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 48 psi (3.3 bar)	PAF1
Porting Head & Cap: Element Case:	Die Cast Aluminum Steel	
Weight of RT-1K: Weight of RT-2K:	11.4 lbs. (5.2 kg) 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
		_

**KTK** 

### **Tank-Mounted Filter**



	1½" Ports 4-Bolt Flange Only	2" Ports	All Other 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 Performance								A T3.10.8 ated per ISO	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171					
Information	Elemen	t			β <sub>x</sub> ≥ 75	β <sub>x</sub> ≥ 100			$\beta_x \ge 200$		$\beta_x(c) \ge 200$		$\beta_x(c) \ge 1000$	
	K3/KK3/27K       K         K10/KK10/27K10       K         KZ1/KKZ1/27KZ1       K         KZ3/KKZ3/27KZ3/       K         KAS3/KKAS3/27KAS3       K         KZ5/KK25/27KZ5/       K         KAS5/KKAS5/27KAS5       K			6.8		7.5		10.0		N/A		N/A		
				15.5		16.2		18.0		N/A		N/A		
				<1.0		<1.0		<1.0		<4.0		4.2		
				<1.0		<1.0		<2.0		<4.0		4.8		
				2.5		3.0		4.0		4.8		6.3		
	KZ10/KK KAS10/K				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 KZW5/KKZW5			N/A		N/A		N/A		4.0		4.8		
				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	1	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/ 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
			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:	Outside In         See RTI, page 275 for inside out flow version.           K:         3.9" (99 mm) O.D. x 9.0" (230 mm) long           K:         3.9" (99 mm) O.D. x 9.0" (260 mm) long								

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 (	cellulose), Z	Z-Media <sup>®</sup> and AS	P® me	dia (syr	nthetio	Compatibility	TF1			
Hig	gh Wate	r Content	All Z-Media®	and all AS	P <sup>®</sup> media (synthetic)								
	Invert l	Emulsions			and 10 µ ASP® m		,						KF3
	<b>Water Glycols</b> 3, 5, 10 and 25 μ Z-M												
	Phosphate Esters All Z-Media® (synthetic E media (cellulose) wit										netic)		KL3
	Skydrol <sup>®</sup> 3, 5, 10 and 25 µ Z-M (water removal) with I mesh in element, and ASP <sup>®</sup> media (synthetic				5 seal designatio	n (EPR	seals a	and st	Skydrol <sup>®</sup> is a registered trademark of Solutia Inc.	LF1–2" MLF1			
		ement			predicated on					)		Element	RLD
Pressure	Series	Part No. K3	petroleum b 1K3	ased fluid	and a 25 psi (1. 2K3 <sup>†</sup>		) bypa	ss val	<b>ve.</b> 3K3 <sup>+</sup>			Selection 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 -Tank-		KZ1	1	KZ1	11/20		2KZ	. I ' 	2472†				
Mounted	Z-	KZ3			1KZ3				2KZ3 <sup>†</sup>	75+			MTB
	Media®	KZ5			1KZ5				ZK	Z5†			
		KZ10			1KZ10								ZT
		KZ25			1KZ25					10			KFT
	Flow gpm 0 40 (L/min) 0 50 150				60	250		5	30	10 38	-		
Note: Conta Application	act factor	y regarding	most commonl 1 use of E media tion, refer to Fl	- a in High V	Vater Content, In atibility: Fire Resis	vert E stant F	mulsio luids, p	n and bages	Water G 21 and 2	lycol 2.		Pressure	RTI LRT
$\Delta \mathbf{P}_{\text{housing}}$	f fluitala	, ith an and			△P <sub>element</sub>							Drop	
RT $\Delta P_{housing}$	IOF HUIDS	Flow (L/min)			$\Delta P_{\text{element}} = \text{flow x element } \Delta P \text{ factor x viscosity factor}$						Information	ART	
<sup>10</sup> Г	(50)	(150) (25			El. $\Delta P$ factors @ 150 SUS (32 cSt):					417	214	Based on Flow Rate	BFT
8 -				))	K3	.25	.12	.08			<u>2K</u>	and Viscosity	DIT
P psi				∆P (bar)	K10 K25	.09 .02	.05 .01	.03 .01					QT
2			(0.25	) <	KZ1 KZ3/KAS3	.20 .10	.10 .05	.05 .03	KDZ1 KDZ3	.24 .12	.12 .06		КТК
o م	20	40 60 Flow gpm	80 100		KZ5/KAS5 KZ10/KAS10 KZ25	.08 .05 .04	.04 .03 .02	.02 .02 .01	KDZ5 KDZ10 KDZ25	.10 .06 04	.05 .03 .02		LTK
0	ments sho	ould be based	d on element flo ent Selection cha			1K	2K						MRT
$\triangle \mathbf{P}_{\text{filter}} = \triangle$					KZW1	.43						A.c.	occorioc
Exercise:	- nousing	- element			KZW3 KZW5	.32 .28	.16 .14						essories or Tank-
	Determine ∆P at 80 gpm (300 L/min) for RT1KZ10P24NN using 200 SUS (44 cSt) fluid.			KZW10 KZW25	.23 .14	.12 .07						lounted	
Solution:	- 3 0 pc	i [.20 bar]			If working in u factor by 54.9	units o		& L/m	in, divide	abov	e		Filters
$\Delta P_{housing}$ $\Delta P_{element}$			50) = 5.3 psi		Viscosity facto		de visc	osity l	oy 150 SU	S (32	cSt).		PAF1
$\Delta P_{total}$	= [300 x (.05÷54.9) x (44÷32) = .38 bar]												MAF1

# Tank-Mounted Filter

Filter Model Number Selection	How to Build a Valid Model Number for a Schroeder RT: BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9 RT							
	BOX 1 BOX 2 Filter Series RT RT RTW 1K KK, 27K 2K 3K	Z = AS = ZW = DZ = W =	E media (c Excelleme Anti-Static Aqua-Exce	nt <sup>®</sup> Z-Medi Pleat Medi Ilement <sup>™</sup> Z r <sup>®</sup> with Exco water remo	a <sup>®</sup> (syntl a (synth W media ellemen val)	etic) a t <sup>®</sup> Z-Media <sup>®</sup>	<mark>Element F</mark> 1 = 1 μ Ζ, ΖΨ, an 3 = 3 μ AS,Ε, Ζ, Ζ 5 = 5 μ AS, Ζ, ΖΨ	W, and DZ media I, and DZ media I, Z, ZW, and DZ media ZW, and DZ media
	BOX 5 Seal Material Omit = Buna N H = EPR W = Buna N	P16 = 1"	Port A		G Spec	ification of all 3 Inlet Portin N = None P16 = 1" NPTF	B ports is required 19 Port B	Port C N = None P2 = ½" NPTF
TW allows filter to be welded to tank instead of bolted. Number of elements must equal 1 when using KK or 27K elements.	H.5 = Skydrol® Compatibility	F24 = 1½ F32 = 2"	2" NPTF NPTF AE-16 AE-20 AE-24 AE-32 4" SAE 4-bo 2" SAE 4-bo 3 SAE 4-bo	olt flange Co t flange Coc	ode 61	F24 = 1½" SAE F32 = 2" SAE 4	F 4-bolt flange Code 61 4-bolt flange Code 61 1-bolt flange Code 61	P16 = 1" NPTF S16 = SAE-16 Inlet Porting Location
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.	B24 = BOX 7 Outlet Porting Options Omit = 1½" NPT male $C = Check valve$ $D = Diffuser$ $CD = Check valve & diffuser$ $T = 13" Tube extension$ $A = Non-threaded outlet$		Located @ Port D Located in cap	2" Visual Electrical Visual Visual	Y2 : ES : ES3 : Y2C : Y5 :	Dirt Alarr = None = Back-mounted = Electric switch = Bettom-mounted = Back-mounted	DX 8 n <sup>®</sup> Options tri-color gauge with DIN connector ted tri-color gauge	C side of standard location
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 9 tional Op	Located @ Port C	Electrical	ESR :	= Electric switch r	nounted on opposite side ctric switch mounted on c	of standard location
If using Port B, Port A & B must always be the same type and size. Example: (A) P20 (B) P20 (C) P16 See also "Accessories for Tank-Mounted Filters," page 307.	G347 = 100 % gauge point G820 = Stamped cap N = No-Element indicat M = Metric thread for S. flange mounting ho 30 = 30 psi bypass settin 40 = 40 psi bypass settin 50 = 50 psi bypass settin	or AE 4-bolt bles (specif Ig 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 (

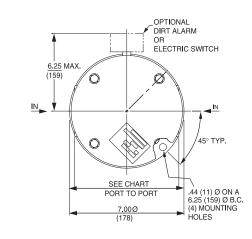
Box 7. S р

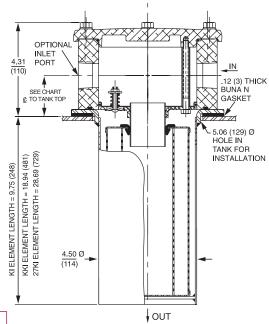
# Tank-Mounted Filter (Inside Out Flow) RTI

$ \begin{array}{c} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	RF F1 F3 L3 F1 LD TB TA TB ZT
Flow Rating: Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids	RT RT RT RT FT
Max. Operating Pressure:100 psi (7 bar)Housing MRMin. Yield Pressure:400 psi (28 bar), per NFPA T2.6.1AccessorieRated Fatigue Pressure:Contact factoryAccessorieTemp. Range:-20°F to 225°F (-29°C to 107°C)for TamBypass Setting:Cracking: 25 psi (2 bar) Full Flow: 62 psi (4.3 bar)MountePorting Head & Cap: Element Case:Die Cast Aluminum SteelMounteWeight of RTI-KLi:11.4 lbs. (5.2 kg) Weight of RTI-KKi:Mit. Hement = 9.0 (229 mm) KKI Element = 18.0 (457 mm) 27KI Element = 72.0 (686 mm)MR	TK RT ies nk- ted ers .F1 .F1

RTI

### Tank-Mounted Filter (Inside Out Flow)





	1¼", 1½" Standard Ports	1 <sup>1</sup> / <sub>2</sub> " Ports 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 Performance			io Per ISO 4572/N rticle counter (APC) ca			o per ISO 16889 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) Inside Out KI: 3.9" (99 mm KKI: 3.9" (99 mm 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	All E media (cellulose), Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synthetic)				
	High V	Vater Conte	nt All Z-Media <sup>®</sup> and ASP <sup>®</sup> media (synt	hetic)		TF1		
	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 all ASP <sup>®</sup> media (synthetic)	R) seal designation and	d	KL3		
		Skydro	(EPR seals and stainless steel wire r	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) and all ASP <sup>®</sup> media (synthetic)				
						trademark of Šolutia Inc. 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 Based on		
Return Line -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	MTB		
			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 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 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 = [.20 + .38 = .58 bar]	MAF1

### Tank-Mounted Filter (Inside Out Flow)

Filter	How to	o Build a	a Valid Model N	lumber for	a Schroeder RTI:		
Model Number	BOX RTI		OX 2 BOX 3	BOX 4	BOX 5 BOX 6	]	
Selection	Example	NOTE: On	nly box 6 may contain r				
	BOX RTI		ох 2 вох 3 IZ10 – -	BOX 4	BOX 5 BOX 6	= RT	IKIZ10S20S20NY2
	BOX 1			L	BOX 2		
	Filter Series	Filter Element 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)
		KIZ10KKIZ1027KIZ10= 10 µ Excellement® 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 C			
	BOX 4 Specification of all 3 ports is required						
				Inlet F	Porting		
			Port A		Port B		Port C
		1" NPTF		N = N			N = None
		1¼" NPTF 1½" NPTF			P16 = 1" NPTF P20 = 1¼" NPTF		P2 = <sup>1</sup> / <sub>8</sub> " NPTF 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 = $1\frac{1}{2}$ " SAE 4-bolt flange Code		
identical to contents 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 are anodized. H.5 seal			Omit = None				= None
designation includes the following: EPR seals, stainless steel wire mesh	Located	Visual	Y2 = Back-mount		ige	G547 = Two ½" gauge ports M = Metric thread for SAE	
on elements, and light oil coating on housing	@ Port D	Electrical	ES = Electric swite Heavy-duty				4-bolt flange mounting holes (specify after each
exterior. Skydrol <sup>®</sup> is a registered trademark			ES1 = Heavy-duty electric switch with conduit connector				port designation)
of Solutia Inc.	Located in cap	Visual	Y2C = Bottom-mo		, <u> </u>		
lox 4. If using Port B, Port A & B must always be			Y5 = Back-mount Y2B = Back-mount				
the same type and size. Example: (A) P20 (B) P20 (C) P16	Located	Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location				

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



RAILROAD



MAKING





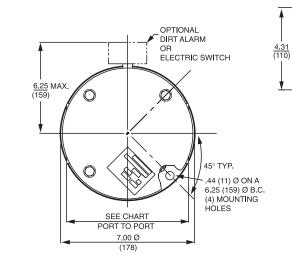
RT	
RTI	
LRT	
ART	
BFT	
QT	
КТК	
LTK	

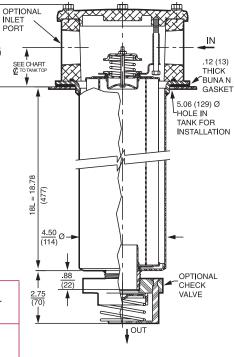
Flow Rating:	Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids	Filter
Max. Operating Pressure:	100 psi (7 bar)	Housing Accessories
Min. Yield Pressure:	400 psi (28 bar), per NFPA T2.6.1	Specifications Mounted
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA T2.6.1-2005	Filters
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Thters
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 34 psi (2.3 bar)	PAF1
Porting Head & Cap: Element Case:	Die Cast Aluminum 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 4-Bolt Flange Only	2" Ports	All Other 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 Performance			tio Per ISO 4572/N article counter (APC) cali	Filtration Ratio per ISO 16889 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 Collapse Rating:					
Flow Direction:			Outside In			
	Element Nominal	Dimensions:	4.0" (100 mm) O.D. x 18.5" (470 mm) long			

#### 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 trademark of Solutia Inc. LF1–2"

Series	Part No. 18LZ1						•		Selection				
	18171	1			a 25 psi (1.7 ba	ar) bypass va	lve.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.					
	IOLZI			18	3LZ1			See BFT	Based on 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 (L/min)	18LZ25           Flow         gpm         0           (L/min)         0	18LZ25 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				

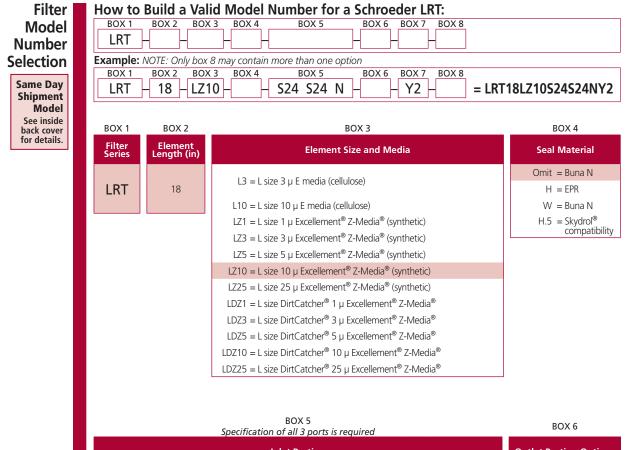
Shown above are the elements most commonly used in this housing.

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.

						КГ	
∆ <b>P</b> <sub>housing</sub>	$\Delta \mathbf{P}_{element}$				Pressure		
RT $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:	$\Delta P_{element}$	$\Delta P_{element} = flow x element \Delta P factor x viscosity factor Drop$					
Flow (L/min)	El. ΔP facto	ors @ 150 SUS (3	2 cSt):		Information		
10 (100) (300) (500)		18L		18L	Based on Flow Rate	RT	
	18LZ1	.10	18LDZ1	.12	and Viscosity		
8	18LZ3	.05	18LDZ3	.06		LR	
	हि 18LZ5	.04	18LDZ5	.05		AR	
	(lag dy dy dy dy 18LZ5 18LZ10	.03	18LDZ10	.03		An	
2 (0.25)	18LZ25	.02	18LDZ25	.02		BF	
0 40 80 120 160 Flow gpm	If working factor by	) in units of ba 54.9.		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 00 SUS (44 cSt) fluid	4	A	ccessorie	
	LITTOLZS	1 2412 U3119 2	00 505 (44 CSt) Huit	J.		for Tan	
	Solution					Mounte	
						Filte	
	ΔP <sub>element</sub>	= 120 x .04 or	$x (200 \div 150) = 6.4$	osi			
		•	4∸54 9) x (44∸32) =	45 harl		PAF	

otes	$\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$			
	Exercise:			
	Determine $\Delta P$ at 120 gpm (455 L/min) for LRT18LZ5P24Y2 using 200 SUS (44 cSt) fluid.	Access 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 = [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**



Inlet Porting 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 extension			
P24 = 1½" NPTF	P24 = 1½" NPTF	S16 = SAE-16	A = Non-threaded 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 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 G820 = Stamped cap		
		Port D	Electrical	ES1 = Heavy-duty electric switch with conduit connector	M = Metric thread for SAE 4-bolt flange mounting holes (specify after each		
e		Located	Visual	Y2C = Bottom-mounted tri-color gauge	flange mounting holes (specify after each 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 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**

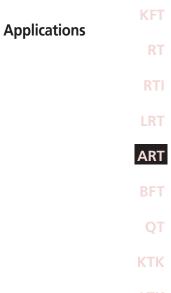
	Features and Benefits	225 gpm 850 L/min	IRF TF1	
1 -1	<ul> <li>Compact, lightweight, low pressure tank mounted filter ideal for mobile applications</li> </ul>	145 psi	KF3	
	<ul> <li>Lightweight plastic bowl</li> </ul>	10 bar	KL3	
	<ul> <li>ART aluminum alloy is designed to be water tolerant - anodization is not required for use with water based fluids (HWCF).</li> </ul>		LF1-2"	
	<ul> <li>Special filter element design provides aftermarket benefits.</li> </ul>		MLF1	
	<ul> <li>Various Dirt Alarm<sup>®</sup> options</li> </ul>		RLD	
			КТ	
			ΜΤΑ	
			МТВ	
ter in photograph is ART85Z10	IF43.		ZT	

Model No. of filte





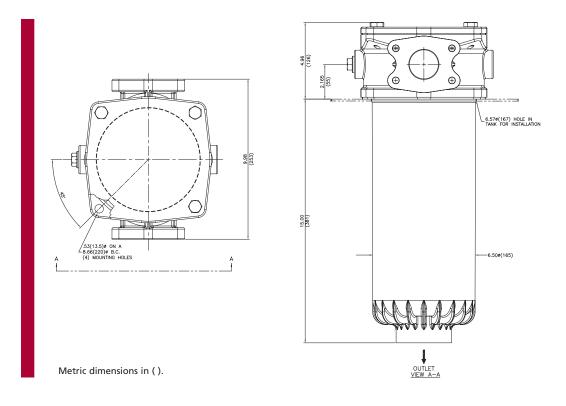




LTK

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) Full Flow: 69 psi (4.75 bar)	Filters
Porting Head & Cap: Element Case:	Aluminum Plastic	PAF1
Weight of ART:	15 lbs. (7 kg)	MAF1
Element Change Clearance:	16.39" (340 mm)	





Element Performance		Filtration Ratio per ISO 16889 Using APC calibrated 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 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

## Tank-Mounted Filter **ART**

		Гуре Fluid	Appropriate Schr	oeder Media						Fluid	IRF
Petro	leum Ba	sed Fluids	All Z-Media <sup>®</sup> (synth	ietic)						Compatibility	TF1
Hi	gh Wate	r Content	All Z-Media® (synth	ietic)							161
											KF3
	Ele	ment	Element selections a	are predicated o	n the use	of 150 SL	JS (32 cSt	) petroleu	m	Element	KL3
Pressure	Series	Part No.	based fluid and a 43							Selection Based on	LF1-2"
		85Z1	852	1						Flow Rate	LI 1-2
Return		85Z3		85Z3							MLF1
Line Tank-	Z- Media	85Z5		8	5Z5						
Mounted		85Z10			85Z10						RLD
		85Z25			85Z25						
		gpm	0 25 50	75 100	125	150	175	200	225		KT
	Flow	(L/min)	0 95 190	285 380	475	570	665	760	850		
			s most commonly use								MTA
option.			t flow is available up 1	o 300 gpm whe	n using A	RT filter v	vithout ch	ieck valve			MATO
See hous	ing press	ure drop gr	aph below.								MTB
			ng use of E Media in H ation, refer to Fluid C								77
Аррпсацо	IIS. FOI III	oreinioni	alion, refer to Fiuld C	ompationity. Fire	e Resistan	n riulas, p	ayes 21 a	nu 22.			ZT
										•	KFT
											RT
∆ <b>P</b> <sub>housing</sub>				$\Delta \mathbf{P}_{element}$						Pressure	
ART $\Delta P_{hous}$	<sub>ing</sub> for flu	ids with sp	gr = 0.86:	∆P <sub>element</sub>	= flow x e	element ∆	P factor x	viscosity f	actor	Drop	RTI
	5	Flow (L/m	in)	El. ΔP fac	tors @ 15	50 SUS (32	cSt):			Information Based on	
4	(212.5		(637.5)		z					Flow Rate	LRT
3.5				85Z1	.22					and Viscosity	
3	-++-	++-+-	(0.21)	€ 85Z3	.12						ART
·			(0.21)	85Z5 85Z10	.1 .08						
₫ 1.5				35210 85Z25	.08						BFT
1		++-	(0.07)			of bars &	L/min, di	vide abov	e		
0.5				factor by							QT
•	25 50		150 175 200 225	Viscosity	factor: Di	vide visco	sity by 15	0 SUS (32	cSt).		1/11/
n ar – cha	cific ara	Flow gp	m								КТК
sp gr = spe	_	-									LTK
Sizing of e chart abov		should be	based on element f	low informatio	n provide	ed in the	Element	Selectior	ו		LIK
											MRT
Notes						$h_{pg} + \Delta \mathbf{P}_{ele}$	ment				
				Exercise		160 gpm (	600 L /mir	)			Accessories
						2 using 1			d.		for Tank-
							- ( -	,			Mounted
				Solution		9 psi [.17	harl				Filters
				∆P <sub>housing</sub> ∆P <sub>elemen</sub>	,	50 x 0.1 x		) = 18.67	psi		
				- elemen	or				·		PAF1
					= [6	00 x (0.1÷	·54.9) x (3	88÷32) = 1	1.30 bar]		

 $\Delta P_{\text{total}}$ 

**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	e: NOTE: One	option per box		
BOX 1		BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 - F - 43 - Y2	= ART85Z10F43Y2	2
BOX 1		BOX 2	BOX 3	
Filter Series		Element Size and Media	Seal Material	
ADT	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				
N.C. 1	Y2 = Back-mounted tri-color gauge				
Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location				
	ES = Electric switch (normally open)				
Electrical	ESR = Electric switch mounted on opposite side of 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 (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**

- Call	Features and Benefits	300 gpm 1135 L/min TF1
	Low pressure tank-mounted filter	100 рзі кғз
Card and	Designed for high return line flows	7 bar
	Dual inlet porting	<b>/ Ddl</b> KL3
and the second se	Top, side or bottom mounting	
	<ul> <li>Optional check valve prevents reservoir siphoning</li> </ul>	LF1-2"
	<ul> <li>Special filter element design provides aftermarket benefits</li> </ul>	MLF1
	<ul> <li>Also available with DirtCatcher<sup>®</sup> element (BBD)</li> </ul>	RLD
	Cast iron head available	GRTB
		МТА
		МТВ
Model No. of filter in photograph is B	FT1BBZ5F.	ZT

INDUSTRIAL

MOBILE VEHICLES





STEEL MAKING



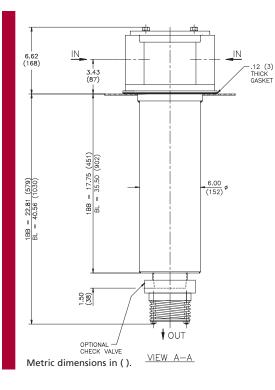


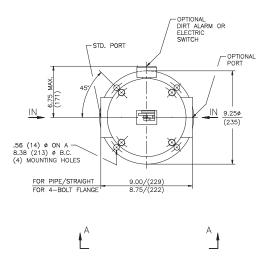
Applications	KFT
	RT
	RTI
	LRT
	ART
	BFT
	QT
	КТК
	LTK

**MRT** 

Flow Rating:	Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids	Filter
Max. Operating Pressure:	100 psi (7 bar)	Housing Accessori
Min. Yield Pressure:	250 psi (17 bar), per NFPA T2.6.1	Specifications for Tan Mount
Rated Fatigue Pressure:	Contact factory, per NFPA T2.6.1	Filte
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Titte
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 52 psi (3.6 bar)	PA
Porting Head & Cap: Element Case:	Aluminum Steel	MA
Weight of BFT-1BB:	36.7 lbs. (16.6 kg)	
Element Change Clearance:	14.75" (375 mm)	MI

# BFT Tank-Mounted Filter





Element Performance		Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402		Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$
	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 Nom	nal Dimensions:	BB: 5.0" (125 mm) O.D. x 18.0" (460 mm) long BL: 5.0" (125 mm) O.D. x 36.0" (920 mm) long				

# 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	:)						
	Phospha		All Z-Media <sup>®</sup> (synthet			0					KL3
			3, 5, 10 and 25 $\mu$ Z-N stainless steel wire m							Skydrol <sup>®</sup> is a register trademark of Solutia	ed <sup>Inc.</sup> LF1-2"
		ement	Element selections							Element 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 Media	BB10	BB10							Flow Rate	RLD
	Ivieula	BB25			3B25						
Return Line		BBZ/BLZ1		BBZ1*			BLZ				GRTB
Tank- Mounted	Z-	BBZ/BLZ3 BBZ/BLZ5		BBZ3*			1	BLZ3			
Mounted	Media®	BBZ/BLZ5			5 / BLZ5 0 / BLZ1						ΜΤΑ
		BBZ/BLZ10			5 / BLZ1						
			0 100	150	200	5	250		300		MTB
	Flow	gpm (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 below. 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 and Viscosity	ENT
8				BB10 BB25	.03 .01	.01 .01					ART
Ĭ			(0.50)	BBZ1	.07	.04	BBDZ1	.08			
AP 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 & L/min, div	ide above			
		/	d on element flow in	factor by 54 Viscosity fac	l.9. ctor: Divi	of bars ide visc	BBDZ25 & L/min, div	ide above SUS (32 c	5t).		KTK LTK
		/	d on element flow in	factor by 54 Viscosity fac	i.9. ctor: Divi ided in t	of bars ide visc he Eler	BBDZ25 & L/min, div osity by 150 ment Selecti	ide above SUS (32 c	5t).		
Sizing of el		/	d on element flow in	factor by 54 Viscosity factor formation proving $\Delta P_{\text{filter}} = 2$ <b>Exercise:</b>	I.9. ctor: Divi ided in t \ <b>P<sub>housing</sub></b>	of bars ide visc he Eler <b>+</b> ∆ <b>P</b>	BBDZ25 & L/min, div osity by 150 nent Selecti	ide above SUS (32 c on chart a	5t).		LTK MRT
Sizing of el		/	d on element flow in	factor by 54 Viscosity fac formation prov $\Delta P_{filter} = 2$ <b>Exercise:</b> Determine	ided in t <b>ΔP</b> at 16	of bars ide visc he Eler <b>+</b> ∆ <b>P</b> ,	BBDZ25 & L/min, div osity by 150 ment Selecti	ide above SUS (32 c on chart a	St). bove.	1	LTK
Sizing of el		/	d on element flow in	factor by 54 Viscosity fac formation prov $\Delta P_{filter} = 2$ <b>Exercise:</b> Determine	ided in t <b>ΔP</b> at 16	of bars ide visc he Eler <b>+</b> ∆ <b>P</b> ,	BBDZ25 & L/min, div osity by 150 nent Selecti element	ide above SUS (32 c on chart a	St). bove.	1	LTK MRT Accessories for Tank- Mounted
Sizing of el		/	d on element flow in	factor by 54 Viscosity fac formation provi Δ <b>P</b> <sub>filter</sub> = Δ <b>Exercise:</b> Determine for BFT1BB	i.9. itor: Divi ided in t $\Delta P$ at 16 Z3PCY2 = 2.5 = 160	of bars ide visc he Eler + Δ <b>P</b> 50 gpm using psi [.2	BBDZ25 & L/min, div osity by 150 nent Selecti element (600 L/min) 200 SUS (44	SUS (32 c on chart a cSt) fluid.	St). bove.		LTK MRT Accessories for Tank-
Sizing of el		/	d on element flow in	factor by 54 Viscosity factor formation provided $\Delta P_{filter} = 2$ <b>Exercise:</b> Determine for BFT1BB <b>Solution:</b> $\Delta P_{housing}$ $\Delta P_{element}$	i.9. ided in t $\Delta P$ at 16 Z3PCY2 = 2.5 = 16C or = [600	of bars ide visc he Eler + Δ <b>P</b> 50 gpm using psi [.24 ) x .05 0 x (.05	BBDZ25 & L/min, div osity by 150 ment Selecti element (600 L/min) 200 SUS (44 0 bar] x (200÷150) 5÷54.9) x (44	ide above SUS (32 c on chart a cSt) fluid. = 10.7 ps	5t). Ibove.	1	LTK MRT Accessories for Tank- Mounted
Sizing of el		/	d on element flow in	factor by 54 Viscosity fac formation provi ΔP <sub>filter</sub> = Δ Exercise: Determine for BFT1BB <u>Solution:</u> ΔP <sub>housing</sub>	i.9. ided in t $\Delta P$ at 16 Z3PCY2 = 2.5 = 160 or = [600 = 2.5 or	of bars ide visc he Eler $+ \Delta P_{0}$ 0 gpm using ) x .05 0 x (.05 + 10.7	BBDZ25 & L/min, div osity by 150 ment Selecti element (600 L/min) 200 SUS (44 0 bar] x (200÷150)	ide above SUS (32 c on chart a cSt) fluid. = 10.7 ps	5t). Ibove.	1	LTK MRT Accessories for Tank- Mounted Filters

#### Tank-Mounted Filter

Filter Model Number	How to BOX 1 BFT –	o Build a Va			nber BOX 6	for a Schroeder KF3: BOX 7 BOX 8 BOX 9 BOX 10		
Selection	Example BOX 1	bx 10 may co BOX 4		re than BOX 6	one option BOX 7 BOX 8 BOX 9 BOX 10			
	BOX 1 BOX 2 BOX 3 BOX 4 B				BUX 6		B10PY2	
	BOX 1 BOX 2			BOX 3				BOX 4
	Filter Series	Number of Elements			Elen	nent Size and Media		Seal Material
			BB Length	BL Length				Omit = Buna N
	BFT	1	BB3	Length	= 10	μ E media (cellulose)		H = EPR
			BB10			μ E media (cellulose)		W = Buna N 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> (synthetic)			
			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		<ul> <li>= BB size DirtCatcher<sup>®</sup> 3 μ Excellement<sup>®</sup> Z-Media<sup>®</sup></li> <li>= BB size DirtCatcher<sup>®</sup> 5 μ Excellement<sup>®</sup> Z-Media<sup>®</sup></li> </ul>			
			BBDZ5					
			BBDZ10		= BB s	ize DirtCatcher <sup>®</sup> 10 μ Excellement <sup>®</sup>	<sup>®</sup> Z-Media®	
		_	BBDZ25		= BB s	ize DirtCatcher <sup>®</sup> 25 μ Excellement <sup>®</sup>	<sup>®</sup> Z-Media <sup>®</sup>	201/2
	BOX 5 Porting					BOX 6 Bypass Setting	C	BOX 7 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.

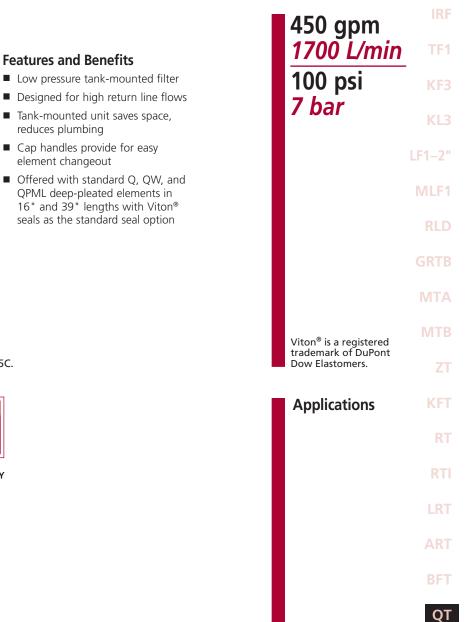
Н

- 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 of standard location	G1476 = Three-terminal electric switch M = Metric thread for SAE 4-bolt flange mounting holes (specify after each
	ES = Electric switch	port designation) 40 = 40 psi bypass setting
Electrical	ESR = Electric switch mounted on opposite side of 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



- КТК
  - LTK

Flow Rating:	Up to 450 gpm (1700 L/min) for 150 SUS (32 cSt) fluids	Filter MRT
Max. Operating Pressure:	100 psi (7 bar)	Housing
Min. Yield Pressure:	300 psi (21 bar), per NFPA T2.6.1	Specifications Accessories
Rated Fatigue Pressure:	100 psi (7 bar), per NFPA T2.6.1-R1-2005	for Tank-
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Mounted
Bypass Setting:	Cracking: 30 psi (2.1 bar) Full Flow: 55 psi (3.8 bar)	Filters
Porting Head: Element Case:	Steel Steel	PAF1
Min. Weight of QT-16Q: Min. Weight of QT-39Q:	100.0 lbs. (46 kg) 158.0 lbs. (72 kg)	MAF1
Element Change Clearance:	16Q 12.0" (305 mm) 39Q 33.8" (859 mm)	MF2

Model No. of filter in photograph is QT39QZ10P48D5C.

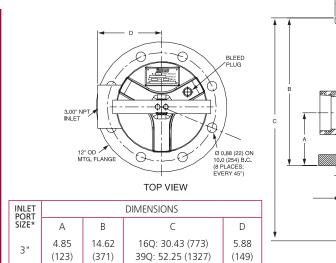






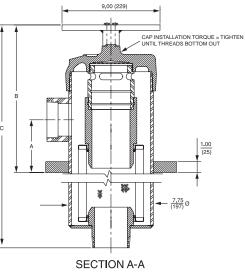
TECHNOLOGY

#### 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 counter (APC) calil	PA T3.10.8.8 prated per ISO 4402		o per ISO 16889 ted per ISO 11171
Performance	Liement			$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \ge 1000$
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 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 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)

CapacityZ1276PMLZ1307Z3/AS3V283PMLZ3/PMLAS3V31516QZ5/AS5V351PMLZ5/PMLAS5V364Z10/AS10V280PMLZ10/PMLAS10V330Z25254PMLZ25299Z3/AS3V1001PMLZ3/PMLAS3V152539QZ5/AS5V954PMLZ5/PMLAS5V1235Z10/AS10V940PMLZ10/PMLAS10V1432Z55853PMLZ251299	DHC (gm)		Element	DHC (gm)	ent	Eleme	Dirt Holding
16Q       Z5/AS5V       351       PMLZ5/PMLAS5V       364         Z10/AS10V       280       PMLZ10/PMLAS10V       330         Z25       254       PMLZ25       299         Z1       974       PMLZ1       1485         Z3/AS3V       1001       PMLZ3/PMLAS3V       1525         Z9Q       Z5/AS5V       954       PMLZ5/PMLAS5V       1235         Z10/AS10V       940       PMLZ10/PMLAS10V       1432	307	PMLZ1		276	Z1		Capacity
Xint         Xint <th< th=""><th>315</th><th colspan="2">PMLZ3/PMLAS3V</th><th>283</th><th>Z3/AS3V</th><th></th><th></th></th<>	315	PMLZ3/PMLAS3V		283	Z3/AS3V		
Z25         254         PMLZ25         299           X1         974         PMLZ1         1485           Z3/AS3V         1001         PMLZ3/PMLAS3V         1525           Z90         Z5/AS5V         954         PMLZ5/PMLAS5V         1235           Z10/AS10V         940         PMLZ10/PMLAS10V         1432	364	PMLZ5/PMLAS5V		351	Z5/AS5V	16Q	
Z1         974         PMLZ1         1485           Z3/AS3V         1001         PMLZ3/PMLAS3V         1525           Z9Q         Z5/AS5V         954         PMLZ5/PMLAS5V         1235           Z10/AS10V         940         PMLZ10/PMLAS10V         1432	330	PMLZ10/PMLAS10V		280	Z10/AS10V		
Z3/AS3V       1001       PMLZ3/PMLAS3V       1525         Z9Q       Z5/AS5V       954       PMLZ5/PMLAS5V       1235         Z10/AS10V       940       PMLZ10/PMLAS10V       1432	299	PMLZ25		254	Z25		
39Q         Z5/AS5V         954         PMLZ5/PMLAS5V         1235           Z10/AS10V         940         PMLZ10/PMLAS10V         1432	1485		PMLZ1	974	Z1		
<b>Z10/AS10V</b> 940 <b>PMLZ10/PMLAS10V</b> 1432	1525	PMLZ3/PMLAS3V		1001	Z3/AS3V		
	1235	/ILAS5V	PMLZ5/PN	954	Z5/AS5V	39Q	
<b>Z25</b> 853 <b>PMLZ25</b> 1299	1432	MLAS10V	PMLZ10/P	940	Z10/AS10V		
	1299		PMLZ25	853	Z25		
Element Collapse Rating: Q and QPML: 150 psid (10 bar)	(10 bar)	ML: 150 psid	Q and QP	Collapse Rating:	Element C		
Flow Direction: Outside In			Outside In	Flow Direction:			
Element Nominal Dimensions:         16Q:         6.0" (150 mm) O.D. x 16.85" (430 mm) long           16QPML:         6.0" (150 mm) O.D. x 16.00" (405 mm) long           39Q:         6.0" (150 mm) O.D. x 38.70" (985 mm) long           39QPML:         6.0" (150 mm) O.D. x 37.80" (960 mm) long	nm) O.D. x 16.00" (405 mm) long nm) O.D. x 38.70" (985 mm) long	6.0" (150 n 6.0" (150 n	16QPML: 39Q:	Element Nominal Dimensions:			

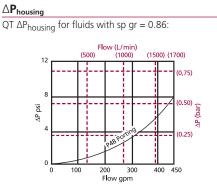
#### 292 SCHROEDER INDUSTRIES

OT

## Tank-Mounted Filter



Phosphate Esters A A Element Part No.	ll Z-Media <sup>®</sup> and ASP <sup>®</sup> <mark>0 and 25 μ Z-Media<sup>®</sup></mark> , 5, 10 and 25 μ Z-Me	<sup>9</sup> media (synth and 10 μ ASP edia <sup>®</sup> and all <i>A</i> c) with H (EPR	etic) <sup>®</sup> media (syr ASP <sup>®</sup> media	nthetic) (synthetic)			Compatibility	TF KF KL
Invert Emulsions 1 Water Glycols 3 Phosphate Esters A Element Part No.	0 and 25 µ Z-Media <sup>®</sup> , 5, 10 and 25 µ Z-Me II Z-Media <sup>®</sup> (synthetic .SP <sup>®</sup> media (synthetic) Element selection	and 10 µ ASP edia <sup>®</sup> and all <i>A</i> c) with H (EPR	<sup>®</sup> media (syı ASP <sup>®</sup> media	(synthetic)	11			KF:
Water Glycols 3 Phosphate Esters A A Element Part No.	, 5, 10 and 25 μ Z-Me II Z-Media® (synthetic SP® media (synthetic) Element selection	edia <sup>®</sup> and all A c) with H (EPR	ASP <sup>®</sup> media	(synthetic)	11			
Phosphate Esters A A Element Part No.	II Z-Media <sup>®</sup> (synthetic) SP <sup>®</sup> media (synthetic)	c) with H (EPR		· ,	II			KL
A Element 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 Flow Rate	10121
16 & 39QZ3	16QZ3		390	QZ3			FIOW Rate	RLI
16 & 39QZ5	16QZ5		390	QZ5				
16 & 39QZ10	1	16QZ10		390	QZ10			GRT
16 & 39QZ25		& 39QZ25						
<sup>®</sup> 16 & 39QPMLZ1	16QPMLZ1		39QPMLZ1					MT
16 & 39QPMLZ3	16QPMLZ3		39QPMLZ3					
16 & 39QPMLZ5	16QPMLZ5		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       500       1000         0       500       1000	16 & 39QZ5       16QZ5       39Q         16 & 39QZ10       16QZ10       16QZ25 & 39QZ25         16 & 39QZ25       16QZ25 & 39QZ25       16QZ25 & 39QZ25         16 & 39QPMLZ1       16QPMLZ1       39QPML         16 & 39QPMLZ3       16QPMLZ3       39QPML         16 & 39QPMLZ5       16QPMLZ5       16QPMLZ5         16 & 39QPMLZ10       16QPMLZ10       16QPMLZ25         16 & 39QPMLZ25       16QPMLZ25       300         16 & 39QPMLZ25       16QPMLZ25       300         16 & 39QPMLZ25       16QPMLZ25       1000         the elements most commonly used in this housing.       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       16QPMLZ5       39QPMLZ5         16 & 39QPMLZ5       16QPMLZ10       39QPMLZ5         16 & 39QPMLZ5       16QPMLZ10       39QPMLZ10         16 & 39QPMLZ25       16QPMLZ10       39QPMLZ25         gpm       0       150       200       300       400       450         (L/min)       0       500       1000       1500       1700         the elements most commonly used in this housing.       the second of th	$\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 <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/ 16OPMLAS5V	.05	39QPMLZ5/	.02
16OPMLZ10/	.05	39QPMLAS5V 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 Information	LRT
Based on Flow Rate	ART
and Viscosity	BFT
	QT
	КТК
	LTK
	MRT
	Accessories

Accessories for Tank Mounted Filters

PAF1

MAF1

## **QT** Tank-Mounted Filter

Filter Model Number Selection	How to Build a Valid Model Number for a Schroeder QT: $\begin{array}{c ccccccccccccccccccccccccccccccccccc$						
	Filter Series Length (in) El QT 16 39	QCLQF V	BOX 4 Media Type Z = Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) V = W media (water removal) S = Anti-Static Pleat Media (synthetic)	BOX 5 Micron Rating 1 = 1 $\mu$ Z-Media <sup>®</sup> 3 = 3 $\mu$ AS and Z-Media <sup>®</sup> 5 = 5 $\mu$ AS and Z-Media <sup>®</sup> 10 = 10 $\mu$ AS and Z-Media <sup>®</sup> 25 = 25 $\mu$ Z-Media <sup>®</sup>	BOX 6 Housing Seal Material Omit = Buna N H = EPR 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 Thermal Lockout	D8C = Visual w/ thermal lockout in cap				
	Bypass Setting Omit = 30 psi cracking 15 = 15 psi cracking 40 = 40 psi cracking 50 = 50 psi cracking X = Blocked bypass	Electrical	MS5LCC = Low current   MS10C = Electrical w/ I MS10LCC = Low current   MS11C = Electrical w/ '	DIN connector (male end only) in ca MS10 in cap 12 ft. 4-conductor wire in cap 5 pin Brad Harrison connector (male	p		
	BOX 9 Outlet Porting		MS16LCC = Low current				
blacement element t numbers are a nbination of Boxes 8, 4 and 5, plus the ter V. <i>Example</i> : 221V	Omit = 3" NPT Male       nent     C = Check valve       a     D = Diffuser       the     CD = Check valve and		MS17LCC = Electrical w/ 4 pin Brad Harrison male connector in cap MS5T = MS5 (see above) w/ thermal lockout in cap MS5LCT = Low current MS5T in cap MS10TC = MS10 (see above) w/ thermal lockout in cap MS10LCTC = Low current MS10T in cap MS10LCTC = MS12 (see above) w/ thermal lockout				
_QF element are not ilable in ASP® media.		Thermal Lockout	MS12LCTC = Low current	MS12T in cap			
edia elements are available for the filter housing.			MS161C = MS16 (see at MS16LCTC = Low current MS17LCTC = Low current				
itact factory more information. Option W, Box		Electrical Visual		threaded connector & light in cap 5 pin Brad Harrison connector & ligl 1 cap	nt		
ust equal Q. on <sup>®</sup> is a registered demark of DuPont v Elastomers. elements for this er are supplied n Viton <sup>®</sup> seals. Seal		Electrical Visual vith Thermal 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

(	<ul><li>Features and Benefits</li><li>Special tank-mounted filter kit</li></ul>	100 gpm <u>380 L/min</u> тг1 100 psi кгз	
	<ul> <li>Includes: cap assembly, weld ring assembly, element and bushing</li> </ul>	7 bar	
	<ul> <li>Available with standard K, KK or 27K-size elements</li> </ul>		
	<ul> <li>Bypass valve in cap assembly</li> </ul>	LF1-2"	
		MLF1	
	, ,	RLD	
		GRTB	
		МТА	
odel No. of filter in photograph	is KTK-KKZ10.	МТВ	
		ZT	
		Applications KFT	
		RT	
MOBILE VEHICLES		RTI	
		LRT	
		ART	
		BFT	
		QT	
		ктк	
		LTK	
		MRT	
	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 Filters	
Rated Fatigue Pressure:			
	-20°F to 225°F (-29°C to 107°C)	PAF1	
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 40 psi (2.8 bar)		

MAF1

IVIAT I

 Porting Cap:
 Die Cast Aluminum

 Weld Ring:
 Steel

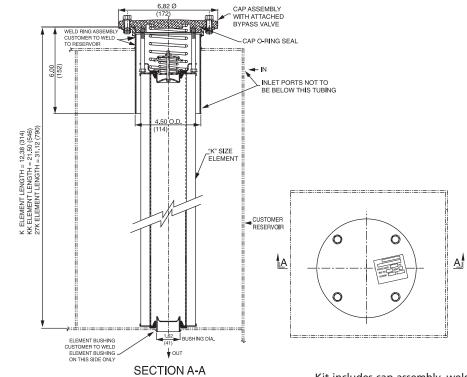
 Element Change Clearance:
 8.0" (205 mm) for K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

Full Flow: 40 psi (2.8 bar)

Мо

1

## **KTK** Tank-Mounted Filter Kit



Metric dimensions in ( ).

Kit includes cap assembly, weld ring assembly, element, and bushing.

Element Performance			tio Per ISO 4572/N article counter (APC) cal		Filtration Ratio	o per ISO 16889 ted 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 Capacity	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (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> and ASP <sup>®</sup> media (synthetic)				Compatibility	
-	All Z-Media <sup>®</sup> and all ASP <sup>®</sup> media (s					
		0 and 25 $\mu$ Z-Media® and 10 $\mu$ ASP® media (synthetic)				
-	3, 5, 10 and 25 $\mu$ Z-Media® and all		-		KF3	
	All Z-Media <sup>®</sup> (synthetic) with H (EF 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 (EPR seals and stainless steel wire r 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 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 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 - <b>Z3</b>	BOX 4 BOX 5 
BOX 1 B	OX 2	BOX 3
	ement 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 cap
W = Buna N		
H.5 = Skydrol <sup>®</sup> Compatibility		

NOTES:

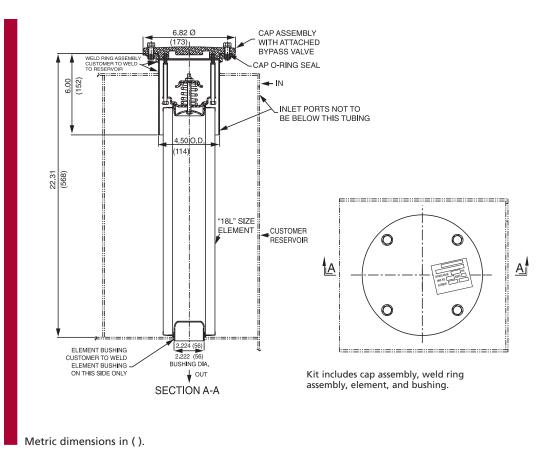
- Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, and 4.
- Box 4. For options H and W, cap is anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Skydrol<sup>®</sup> is a registered trademark of Solutia Inc.

## Tank-Mounted Filter Kit

Model No. of filter in photograph		150 gpm 570 L/min 100 psi 7 bar	IRF TF1 KF3 KL3 LF1–2" MLF1 RLD GRTB MTA MTB ZT
MOBILE         BURNE		Applications	KFT RT RTI LRT ART BFT QT KTK LTK MRT
Flow Rating: Max. Operating Pressure: Min. Yield Pressure: Bated Fatigue Pressure:	Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids 100 psi (7 bar) exclusive of tank design Contact factory	Housing	ccessories for Tank- Mounted Filters

max. operating riessare.	roo psi (7 bai) exclusive of tank design		Mounted
Min. Yield Pressure:	Contact factory	Specifications	Filters
 Rated Fatigue Pressure:	Contact factory		There
Temp. Range:	-20°F to 225°F (-29°C to 107°C)		PAF1
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 47 psi (3.2 bar)		
Porting Cap: Weld Ring:	Die Cast Aluminum Steel		MAF1
Element Change Clearance:	17.0" (435 mm)		MF2

## LTK Tank-Mounted Filter Kit



Element Performance			tio Per ISO 4572/NI article counter (APC) cali	Filtration Ratio per ISO 16889 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	
	Element 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 Information RT
	18L	Based on Flow Rate RTI 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 by 54.9.	QT
	Viscosity factor: Divide viscosity by 150 SUS (32 cSt).	ктк
		LTK
Notes		MRT
		Accessories for Tank- Mounted 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 Series	Length of Element (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 µ 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® Z-Media® (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

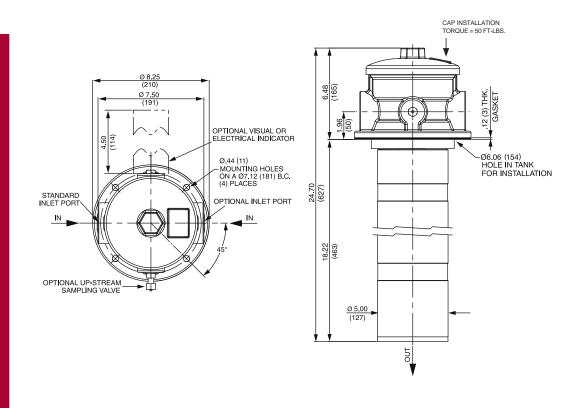
Model No. of filter in		<ul> <li>Features and Benefits</li> <li>Medium pressure tank mounted filter ideal for applications with high pressure surge in the return line</li> <li>Two possible inlet porting locations</li> <li>Various Dirt Alarm® options available</li> <li>Also available with DirtCatcher® element</li> <li>Optional sampling fitting available upon request</li> </ul>	150 gpm <u>570 L/min</u> 900 psi 62 bar	IRF TF1 KF3 KL3 LF1-2" MLF1 RLD GRTB MTA MTB
			Applications	KFT
INDUSTRIAL	MOBILE VEHICLES			RTI
				LRT
<b>P</b>				ART
STEEL MAKING	AGRICULTURE			BFT
				QT
				KTK
				LTK
			-	MRT

MRT
-----

Flow Rating:	Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids		Accessories
Max. Operating Pressure:	900 psi (62 bar)	Housing	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: Element Case:	Cast Aluminum (Anodized) 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



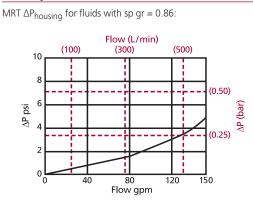
Metric dimensions in ( ).

Element Performance			tio Per ISO 4572/N article counter (APC) cal	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		
Information	Element	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \ge 1000$
	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
	Petroleum Based Fluids All E media (cellulos				<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	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 Flow Rate	MLF1
Return		18LZ3/18LDZ3		18L	Z3/18LDZ3				now nate	
Line	Z-Media®	18LZ5/18LDZ5		18L	Z5/18LDZ5					RLD
Tank- 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		
If working in units of bars & L/min, divide above factor by 54.9.					
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.

Notes	∆P <sub>filter</sub> =	$\triangle \mathbf{P}_{filter} = \triangle \mathbf{P}_{housing} + \triangle \mathbf{P}_{element}$		
notes	Exercise	::		
		ne $\Delta P$ at 120 gpm (455 L/min) for Z5S24S24D5 using 200 SUS (44 cSt) fluid.		
	Solution	1:		
	$\Delta P_{housing}$ $\Delta P_{element}$			
	ΔP <sub>total</sub>	= 3.0 + 6.4 = 9.4 psi or = [.21 + .23 = .44 bar]		

QT KTK LTK MRT

		Accessories for Tank- Mounted Filters
ir]		PAF1
		MAF1

Based on

Flow Rate

and Viscosity

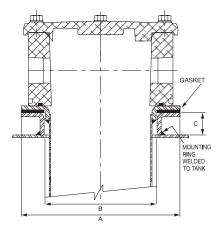
## MRT Medium Pressure In-Tank Filter

ber Example: NOTE: One option per box	DX 4 BOX 5	BOX 6 BOX 7	
	БОХ 4 ВОХ 5 - S24 S24 -	$\frac{BOX 6}{-} = \mathbf{N}$	RT18LZ10S24S24
BOX 1BOX 2	BOX 3		BOX 4
Filter Element 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 :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 ® 0
Inlet Porting			<sup>®</sup> Options
Port A         Port B           S = S24         S = S24         Inlet Porting	Location Visual	Omit = None 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 MS10LC = Low curr	w/ DIN connector (male end only) ent MS10
C Sampling Valv		MS10 = Electrical MS10LC = Low curr MS11 = Electrical	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire
	re (Optional)	MS10 = Electrical MS10LC = Low curr MS11 = Electrical	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector
	re (Optional)	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12
	re (Optional)	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16 = Electrical	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector
	re (Optional)	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16 = Electrical MS16LC = Low curr	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connecto ent MS16
	re (Optional)	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16 = Electrical MS16LC = Low curr MS16LC = Low curr MS17LC = Electrical	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector ent MS16
	re (Optional)	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16 = Electrical MS16LC = Low curr MS17LC = Electrical MS5T = MS5 (see MS5LCT = Low curr	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T
	re (Optional)	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16LC = Low curr MS16LC = Electrical MS5T = MS5 (see MS5LCT = Low curr MS10T = MS10 (se	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T e above) w/ thermal lockout
	Electrical Electrical Electrical with	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16LC = Low curr MS16LC = Electrical MS5T = MS5 (see MS5LCT = Low curr MS10T = MS10 (se MS10LCT = Low curr	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T re above) w/ thermal lockout ent MS10T
	Electrical Electrical Electrical with Thermal	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16LC = Low curr MS16LC = Electrical MS5T = MS5 (see MS5LCT = Low curr MS10T = MS10 (se MS10LCT = Low curr	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T ie above) w/ thermal lockout ent MS10T e above) w/ thermal lockout
	Electrical Electrical Electrical with	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16LC = Low curr MS16LC = Electrical MS51CT = Low curr MS10T = MS10 (se MS10LCT = Low curr MS10T = MS10 (se MS10LCT = Low curr MS12T = MS12 (se MS12LCT = Low curr	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T ie above) w/ thermal lockout ent MS10T e above) w/ thermal lockout
	Electrical Electrical Electrical with Thermal	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16 = Electrical MS16LC = Low curr MS17LC = Electrical MS5T = MS5 (see MS5LCT = Low curr MS10LCT = Low curr MS10LCT = Low curr MS12LCT = Low curr MS12LCT = Low curr MS16T = MS16 (se MS16LCT = Low curr	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector above) w/ weather-packed sealed connector above) w/ thermal lockout ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T e above) w/ thermal lockout ent MS10T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS12T
	Electrical Electrical Electrical with Thermal	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16LC = Low curr MS16LC = Low curr MS17LC = Electrical MS5T = MS5 (see MS5LCT = Low curr MS10LT = Low curr MS10LCT = Low curr MS12LCT = Low curr MS16LC = Low curr MS16LCT = Low curr	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector above) w/ weather-packed sealed connector above) w/ thermal lockout ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T e above) w/ thermal lockout ent MS10T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS17T
Sampling Valv	Electrical Electrical Electrical with Thermal Lockout Electrical	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16 = Electrical MS16LC = Low curr MS17LC = Electrical MS5T = MS5 (see MS5LCT = Low curr MS10T = MS10 (se MS10LCT = Low curr MS12T = MS12 (se MS12LCT = Low curr MS16T = MS16 (se MS16LCT = Low curr MS16T = Low curr MS16LCT = Low curr MS17LCT = Low curr MS13 = Supplied MS14 = Supplied	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector above) w/ weather-packed sealed connector above) w/ thermal lockout ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T e above) w/ thermal lockout ent MS10T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS16T ent MS17T w/ threaded connector & light w/ 5 pin Brad Harrison connector
	e (Optional) Electrical Electrical with Thermal Lockout Electrical Visual	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16 = Electrical MS16LC = Low curr MS17LC = Electrical MS5T = MS5 (see MS5LCT = Low curr MS10T = MS10 (se MS10LCT = Low curr MS12T = MS12 (se MS12LCT = Low curr MS16T = MS16 (se MS16LCT = Low curr MS16T = MS16 (se MS16LCT = Low curr MS16LCT = Low curr MS17LCT = Low curr MS13 = Supplied MS14 = Supplied	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector above) w/ weather-packed sealed connector above) w/ thermal lockout ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T e above) w/ thermal lockout ent MS10T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS12T w/ threaded connector & light w/ 5 pin Brad Harrison connector nale end)
Sampling Valv	re (Optional) Electrical Electrical with Thermal Lockout Electrical Visual Electrical	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16 = Electrical MS16LC = Low curr MS17LC = Electrical MS5T = MS5 (see MS5LCT = Low curr MS10T = MS10 (se MS10LCT = Low curr MS12LCT = Low curr MS12LCT = Low curr MS16T = MS16 (se MS16LCT = Low curr MS16LCT = Low curr MS17LCT = Low curr MS13 = Supplied & light (r MS13DCT = MS13 (see	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector above) w/ weather-packed sealed connector ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T e above) w/ thermal lockout ent MS10T e above) w/ thermal lockout ent MS10T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS16T ent MS17T w/ threaded connector & light w/ 5 pin Brad Harrison connector nale end) above), direct current, w/ thermal lockout
BOX 7	e (Optional) Electrical Electrical with Thermal Lockout Electrical Visual	MS10 = Electrical MS10LC = Low curr MS11 = Electrical MS12 = Electrical (male en MS12LC = Low curr MS16 = Electrical MS16LC = Low curr MS17LC = Electrical MS5T = MS5 (see MS5LCT = Low curr MS10T = MS10 (se MS10LCT = Low curr MS12T = MS12 (se MS12LCT = Low curr MS16T = MS16 (se MS16LCT = Low curr MS16LCT = Low curr MS13 = Supplied MS14 = Supplied & light (r MS13DCT = MS13 (see MS13DCLCT = Low curr	w/ DIN connector (male end only) ent MS10 w/ 12 ft. 4-conductor wire w/ 5 pin Brad Harrison connector d only) ent MS12 w/ weather-packed sealed connector above) w/ weather-packed sealed connector ent MS16 w/ 4 pin Brad Harrison male connector above) w/ thermal lockout ent MS5T e above) w/ thermal lockout ent MS10T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS12T e above) w/ thermal lockout ent MS16T ent MS17T w/ threaded connector & light w/ 5 pin Brad Harrison connector nale end) 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	Part				RT, RTI and LRT Models
Number	Number	Α	В	с	
ST, RT, RTI, LRT	A-LFT-813	7.00 (178)	5.00 (127)	1.00 (25)	
ST, RT, RTI, LRT High Version	A-LFT-1448	7.00 (178)	5.00 (127)	1.50 (38)	
ZT	A-LFT-1295	6.25 (159)	3.62 (92)	.88 (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 Number	Part 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 Number	Part 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% " 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 Valve Diffuser Combination for KFT and RT Models	MRT Accessories for Tank- Mounted Filters
	PAF1
	MAF1
	MF2

Mounting

for ST, ZT,

Diffuser

for KFT, RT and

**LRT Models** 

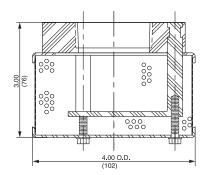
Check Valve

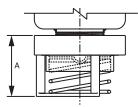
for ST, KFT,

RT, LRT and

**BFT Models** 

Ring

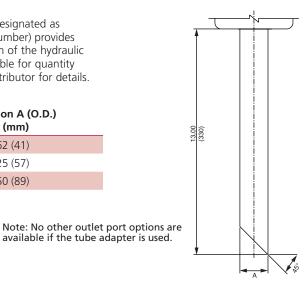




### **Accessories for Tank-Mounted Filters**

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 Number	Dimension A (O.D.) 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!

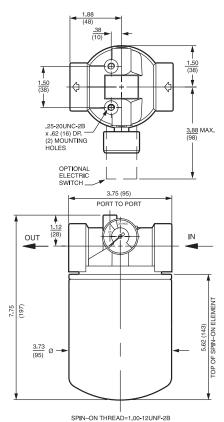
# Spin-On Filter PAF1

INDUSTRIAL MOBILE AUTOMOTIVE MACHINE	Wodel No. of filter in photograph is		20 gpm 75 <i>L/min</i> 100 psi 7 bar	IRF TF1 KF3 KL3 LF1-2" MLF1 RLD GRTB MTA MTB ZT
STELL   STELL   ARI   ARI   DUP & PAPER     PUP & PAPER     BF1   Q1   KTK   LTK     BF1   Q1   KTK   LTK    Filter	STEEL MAKING	AUTOMOTIVE MANUFACTURINGMACHINE TOLDULP & PAPER	Filter	KFT RT RTI LRT ART BFT QT KTK LTK MRT

Flow Rating	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids	ritter
Max. Operating Pressure	100 psi (7 bar)	Housing Accessories
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)	Titters
Bypass Setting	Cracking: 30 psi (2 bar) Full Flow: 36 psi (2 bar)	PAF1
Porting Head & Cap 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 Performance			tio Per ISO 4572/N article counter (APC) cali			o per ISO 16889 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 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

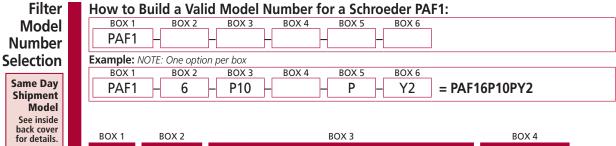
	Ту	ype Fluid	Appropriate Schroeder Media			Fluid	IRF
Pet	roleum Bas	ed Fluids	10 µ E media (cellulose) and 25 µ Z-Me	dia® (synthetic)		Compatibility	TEA
I	ligh Water	Content	10, 25 μ Z-Media <sup>®</sup> (synthetic)				TF1
	Invert E	mulsions	10, 25 μ Z-Media <sup>®</sup> (synthetic)				KF3
	Wate	er Glycols	10, 25 μ Z-Media <sup>®</sup> (synthetic)				KFJ
							KL3
	Elem	ent				Element	LF1–2"
Pressure	Series	Part No.	Element selections are predicated or petroleum based fluid and a 30 psi	-	2 cSt)	Selection Based on	MLF1
То	E Media	P10	P10			Flow Rate	ם ופ
100 psi	E Media Z-	P10 PZ10	P10 PZ25			Flow Rate	RLD
						Flow Rate	
100 psi	Z- Media®	PZ10	PZ25		20	Flow Rate	RLD GRTB
100 psi	Z-	PZ10 PZ25	PZ25 PZ25			Flow Rate	
100 psi (7 bar)	Z- Media® Flow	PZ10 PZ25 gpm (L/min)	PZ25 PZ10 D 10		20 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.	$\Delta \mathbf{P}_{\text{filter}} = \Delta \mathbf{P}_{\text{housing}} + \Delta \mathbf{P}_{\text{element}}$ 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 MRT Accessorie
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.	LTK MRT Accessorie 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 MRT Accessorie for Tank Mounted
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.	LTK MRT Accessorie for Tank
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. 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	LTK MRT Accessories for Tank Mounted 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. 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 MRT Accessorie for Tank Mounted
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. 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	LTK MRT Accessories for Tank Mounted Filter





BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Element 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

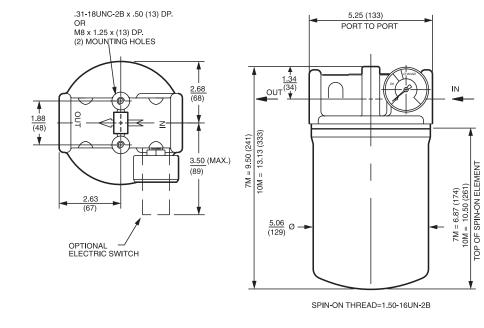
				<b>50 gpm</b>	IRF
Entitos	10	Featur	es and Benefits	190 L/min	TF1
(Standy)	H	■ Spin-	On with full ported die cast aluminum for minimal pressure drop	100 psi	KF3
	-	Offer ISO 2	ed in pipe, SAE straight thread and 228 porting	7 bar	KL3
		■ Spin-	On thread = 1.50-16UN-2B		
		Visua	al gauge or electrical switch dirt alarms		LF1-2"
		■ Smal	l profile for use in limited space		
		Avail	able in 7" and 10" element lengths		MLF1
		Avail test	able with NPTF inlet and outlet female ports		RLD
					GRTB
					ΜΤΑ
					МТВ
Model No. of filt	ter in photograph	is MAF17M10S.			ZT
ii i			244 C	Applications	KFT
			10 <sup>100</sup>		RT
INDUSTRIAL	MOBILE VEHICLES	AUTOMOTIVE MANUFACTURING	MACHINE TOOL		RTI
	JT I				LRT
P					ART
STEEL	AGRICULTURE	PULP & PAPER			BFT

MAKING

ART	
BFT	
QT	
КТК	
LTK	

		MRT
Flow Rating:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids	Filter
Max. Operating Pressure:	100 psi (7 bar)	Housing Accessories
Min. Yield Pressure:	200 psi (10 bar), per NFPA T2.6.1	Specifications for Tank-
Rated Fatigue Pressure:	Contact factory	Mounted
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Filters
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 48 psi (3 bar)	PAF1
Porting Head & Cap: Element Case:	Die Cast Aluminum Steel	
Weight of MAF1-7M: Weight of MAF1-10M:	4.2 lbs. (1.9 kg) 5.0 lbs. (2.3 kg)	MAF1
Element Change Clearance:	2.50" (65 mm)	MF2





Installation instructions included on element.

Metric dimensions in ( ).

Element Performance			tio Per ISO 4572/ article counter (APC) c	Filtration Ratio per ISO 16889 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	All E media (cellulose) and Z-Media <sup>®</sup> (synthetic)					Compatibility	TF1	
High Water Content			3 and	d 10 µ Z-Media	a® (synthet	.ic)					IFI
Invert Emulsions			10 µ	Z-Media <sup>®</sup> (syn	thetic)						KF3
Water Glycols		3 and	d 10 µ Z-Media	a® (synthet	.ic)					KI J	
											KL3
									_		LF1-2"
Element		Eleme	ent selections	s are pred	icated or	n the us	e of 150 SUS	(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 Flow Rate	
To 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
MAF1 $\Delta P_{\text{housing}}$ 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) (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 by 54.9.	
	Viscosity factor: Divide viscosity by 150 SUS (32 cSt).	
0 10 20 30 40 50 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> Determine ΔP at 25 gpm (95 L/min) for MAF17M3P using 200 SUS (44 cSt) fluid.	Accessories 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

low 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 Series	Element Length (in)		
	MAF1	7	M3 = M size 3 µ E media (cellulose)	Omit = Buna N
10 IVIAF I		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.

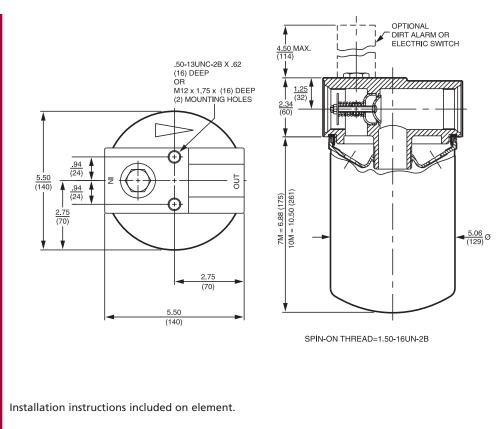
Spin-On Filter MF2

Model No. of filter in photograph is	for minimal Offered in p and ISO 228 Spin-On thr Various Dirt Available in	h full ported cast iron head pressure drop pipe, SAE straight thread	60 gpm <u>230 L/min</u> 150 psi 10 bar	IRF TF1 KF3 KL3 LF1–2" MLF1 RLD GRTB MTA MTB
				ZT
	MANUFACTURING	ACHINE TOOL	Applications	KFT RT RTI LRT ART BFT QT KTK LTK

Flow Rating: Max. Operating Pressure: Min. Yield Pressure:	Up to 60 gpm (230 L/min) for 150 SUS (32 cSt) fluids 150 psi (10 bar) 250 psi (17 bar), per NFPA T2.6.1	Filter Housing Specifications Mounted
Rated Fatigue Pressure:	Contact factory	Mounted Filters
Temp. Range:	-20°F to 225°F (-29°C to 107°C)	Thters
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 48 psi (3 bar)	PAF1
Porting Head: Element Case:	Cast Iron 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 Performance			o Per ISO 4572/NF ticle counter (APC) calib	Filtration Ratio per ISO 16889 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	leum Bas	ed Fluids	All E media (cellulose)	) and Z-Media® (s	ynthetic)				Compatibility	TE4
Hig	gh Water	Content	3 and 10 µ Z-Media®	3 and 10 μ Z-Media® (synthetic)					TF1	
	Invert E	mulsions	10 µ Z-Media <sup>®</sup> (synth	etic)						KF3
	Wate	er 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 Flow Rate	MLF1
To 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 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 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> 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 = [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

HOM TO RUI	id a valid	IModel	Number to	or a Schr	oeder MI	-2:
BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
MF2 -		-			_	
Example: Opti	on 1 NOTE:	One option <sub>l</sub>	per box			
Example: Opti	BOX 2	One option   BOX 3	per box BOX 4	BOX 5	BOX 6	

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Element Length (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 µ Excellement® Z-Media® (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 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 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 psi (bar)	Flow gpm (L/min)	Element 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.





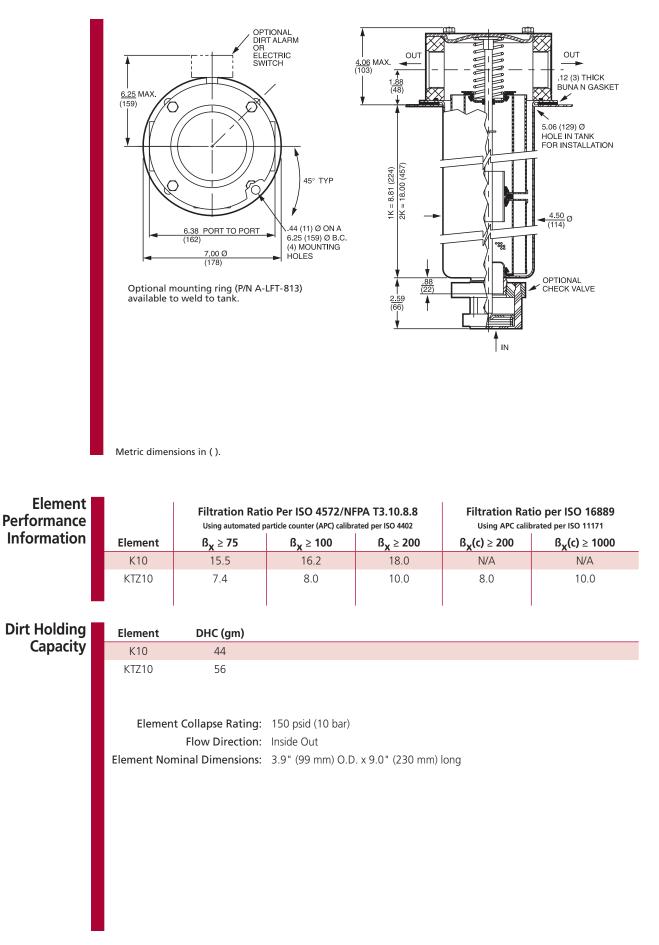
#### Applications

20 gpm 75 L/min ST

**KF3-SKB** 

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	I: Die Cast Aluminum	
Cap	: Steel	
Element Case	: Steel	
Weight of ST-1k	: 11.1 lbs. (5.0 kg)	
Weight of ST-28	: 14.7 lbs. (6.7 kg)	
Element Change Clearance	e: 7.25" (185 mm) for 1K; 17.50" (445 mm) for KK	





# Tank-Mounted Suction Filter ST

	Type Fluid Appropriate 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® (synthetic)							
	Invert Emulsions 10 µ Z-Media <sup>®</sup> (synthetic)							<b>TF-SKB</b>
Water Glycols 10 µ Z-M				μ Z-Media <sup>®</sup> (synthetic)	I Z-Media® (synthetic)			
	<b>Phosphate Esters</b> 10 μ Z-Media <sup>®</sup> (synthetic) with H (EPR) seal designation and 10 μ E media (cellulose) with H (EPR) seal designation					media		KF3-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)					g exterior)	Skydrol <sup>®</sup> is a registered trademark of Solutia Inc.		
								<b>BFT-SKB</b>
	Element Element selections are predicated on the use of 150 SUS (32 cSt)						Element	
Pressure Series Par		Part No.	petroleum based fluid.			Selection		
Hvo	drostatic E Me	edia K	(10	1K10	2K10†		Based on	
Ś	uction	K	25	1K25	2K25†		Flow Rate	
S	ervice 7-Me	odia® K	T710	1KT710	2KT710+			

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

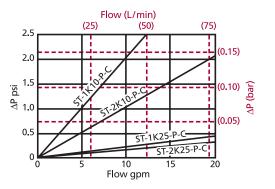
gpm

(L/min)

0

0

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: BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8									
Model Number										
Selection	Example: NOTE: Only box 8 may contain more than one option									
	BOX 1	BOX 2								
	ST ST	- 1	– K25 –	K25 – – P – – Y – <b>– ST1</b> K						
	BOX 1	BOX 2		BOX 4						
	Filter Series	Number of Elements		Element	Part Number	Seal Material				
	ст	1	K10 = K size 10 µ E m	K10 = K size 10 μ E media (cellulose)						
	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 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	al 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**

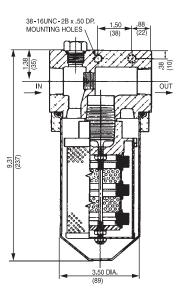
In addition to offering our magnetic suction strainer (SKB) as a stand alone product, we also offer the SKB enclosed in a housing, so that it can be used either in-line (TF-SKB or KF3-SKB) or as a reservoir-mounted filter (BFT-SKB). Flow rates and available porting vary—refer to the specifications for 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)



ST
TF-SKB
KF3-SKB

### 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		
TF-SKB	Omit = Buna N	P = 1" NPTF		Omit =	None
IL-2KR			Visual	Y =	Vacuum guage
			Electrical	VS =	Electrical Vacuum Switch
				VS1 =	Heavy-Duty Vacuum Switch

### Filter Model Number Selection

NOTE: Box 1. Element replacement part number: SKB-1.

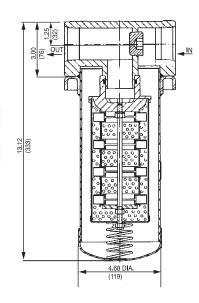
### **In-Line Magnetic Suction Separators** KF3-SKB

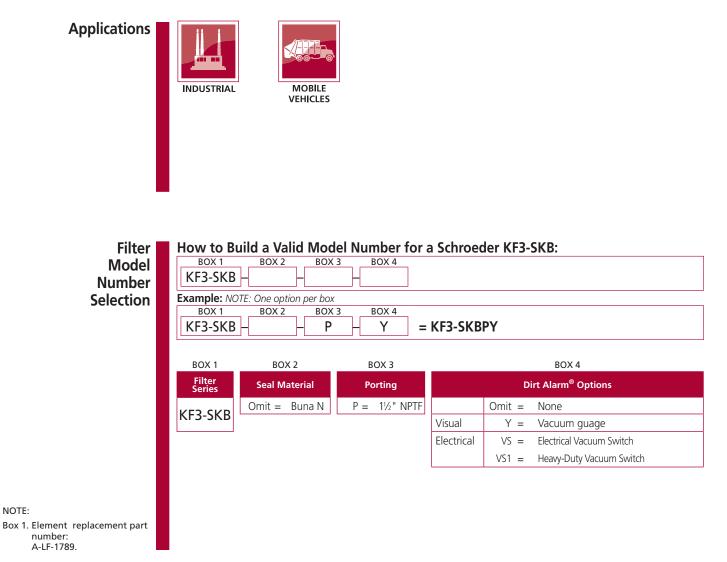
### **Features and Benefits**

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)





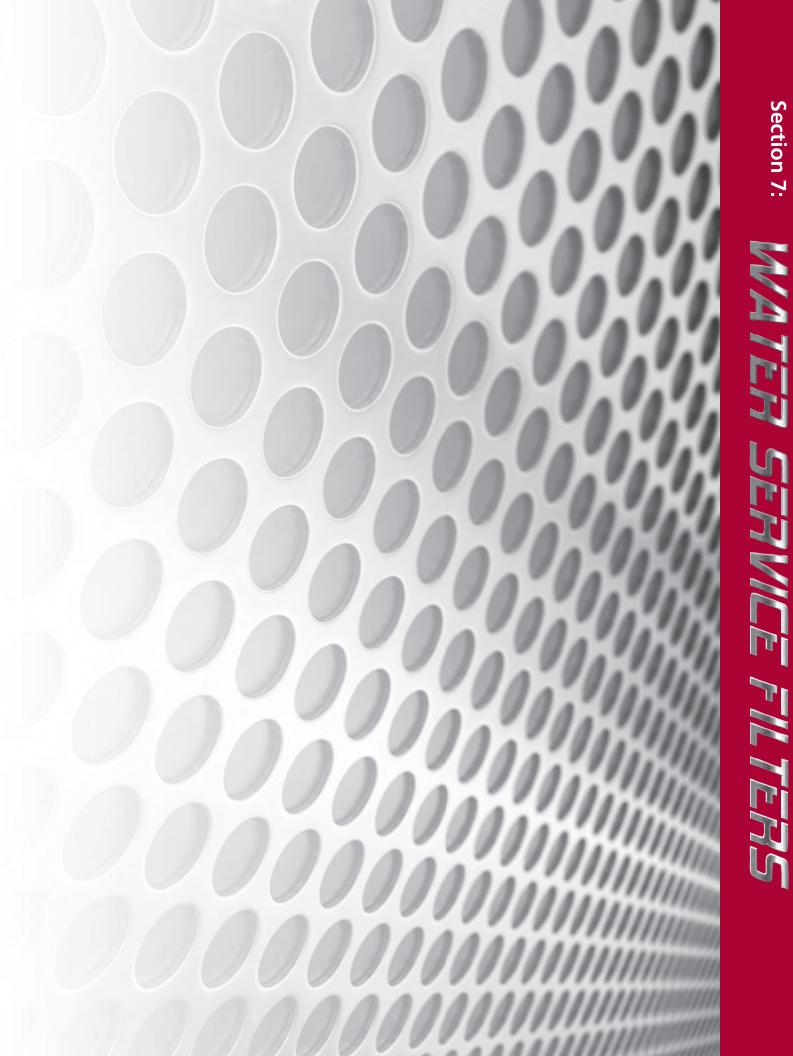
NOTE:

## Tank-Mounted Magnetic Suction Separators BFT-SKB

### **Features and Benefits** Protects components downstream by capturing potentially harmful ferrous particles 6.87 (175) DIA. HOLE IN TANK KF3-SKB 125) 25 6.00 O.D. **BFT-SKB Specifications** Flow Rating: 75 gpm (285 L/min) Element Replacement with check valve: A-SKB-3-76 Part Number: without check valve: SKB-3 Element Change Clearance: 13.5" (345 mm) Weight of BFT-SKB: 32.0 lbs (14.5 kg) Applications MOBILE INDUSTRIAL VEHICLES $\triangle \mathbf{P}_{\mathsf{filter}} = \triangle \mathbf{P}_{\mathsf{housing}} + \triangle \mathbf{P}_{\mathsf{element}}$ Pressure Drop Note: Plotted curves shown in graph below include both housing and elements as indicated for fluids with sp gr = 0.86. Information Flow (L/min) Based on (300)(500)100 0.50 Flow Rate (0.03) and Viscosity 0.40 .is 0.30 d 0.20 ∆P (bar (0.02) 0.10 (0.003) 0.00 160 40 80 0 120 Flow gpm sp gr = specific gravity

# **BFT-SKB** Tank-Mounted Magnetic Suction Separators

ber BFT-SKB		3 BOX 4 BOX 5	
BOX 1	TE: One option per BOX 2 BOX		
BFT-SKB		– Y = BFT-SKBPY	
	507.2	201/2	5.4
BOX 1 Filter	BOX 2	BOX 3	Box 4
Filter 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 Visual	mit = None 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 gpm (L/min)	Pressure psi (bar)	Element 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 WLF11KM260P32D
WRLT	See chart on page 334 for available model numbers
WKF5	WKF51KM25P24DG2085 = (WKF5-3006) (G2085 designates stainless steel name plate)
WKFN5	WKFN51KMXX25P24DG2085 = (WKFN5-3005) (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
*Patant No. 6 942	279 for filtor cap coal

\*Patent No. 6,843,378 for filter cap seal.



STEEL

MAKING



PULP & PAPER

AUTOMOTIVE MANUFACTURING





AGRICULTURE



MINING TECHNOLOGY



MOBILE VEHICLES



GENERATION



### Applications

WKF:

**WKC50** 

WLF1

WKF5

WKFN5

WKL3

### 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.

Filter Model

Box 6. D9 indicator is the recommended option.

#### How to Build a Valid Model Number for a Schroeder WRIT:

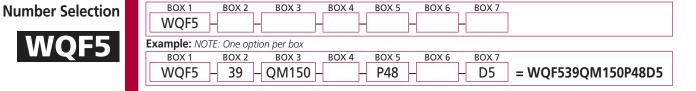
How to Build a Valid Model Number for a Schröeder WKLI:									
BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 WRLT									
VVILLI									
Example: NOT	Example: NOTE: One option per box								
BOX 1	BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6								
WRLT – 9 – VM150 – P20 – D9 <b>= WRLT9VM150P20D9</b>									
BOX 1	BOX 2		BOX 3	BOX 4					
Filter Series			Element Size and Media	Seal Material					
WRLT	9		/60 = V size 60 μ M media (reusable metal) 150 = V size 150 μ M media (reusable metal)	Omit = Buna N H = EPR					
			$260 = V$ size $260 \mu$ M media (reusable metal)	V = Viton®					
BOX 5	BOX 5 BOX 6								
Porting Options			Dirt Alarm <sup>®</sup> Options						
P20 = 1 <sup>1</sup> / <sub>4</sub> " NP	TF		Omit = None						
S20 = SAE-20		sual	D5 = Visual pop-up						
520 = 5AE 20	VI	suai	D9 = All stainless D5 (Recommended)						

D9 = All stainless D5 (Recommended)

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

#### How to Build a Valid Model Number for a Schroeder WQF15:

MS5LC = Low current MS5



BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Element Length (in)	Element Size and Media	Seal Material
WQF5	39	QM25 = Q 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)	Omit = Buna N H = EPR V = Viton®
		$Q_{1}$ $Q_{1}$ $Q_{1}$ $Q_{1}$ $Q_{2}$ $Q_{2$	$V = VILON^{-1}$

BOX 5	BOX 6		BOX 7
Porting Options	Bypass Setting		Dirt Alarm <sup>®</sup> Options
18 = 3" NPTF	Omit = 40 psi		Omit = None
	cracking	Visual	D5 = Visual pop-up D9 = All stainless D5 (Recommended) D9C = D9 in cap (Recommended)
		Electrical	MS5SS = All stainless MS5 Electrical w/ 12 in. 18 gauge 4-conductor cable MS10SS = All stainless MS10 Electrical w/ DIN connector (male end only)
		Electrical Visual	MS13SS = All stainless MS13 Supplied w/ threaded connector & light

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 Model	BOX 4       BOX 5       BOX 6       BOX 7         -       -       -       -       -		Filter Model Number Selection	<b>WKC50</b>
Example: NOTE: Or	1 1				WLF1
	BOX 2 BOX 3 BOX 3 BOX 3 BOX 3	$- \begin{array}{c c} BOX 4 & BOX 5 & BOX 6 & BOX 7 \\ - \begin{array}{c} - \end{array} \\ - \begin{array}{c} P48 \end{array} \\ - \begin{array}{c} - \end{array} \\ - \begin{array}{c} D5 \end{array} = W$	QF1539QM150P48D5	T	
BOX 1	BOX 2	BOX 3	BOX 4		WKF5
	lement ngth (in)	Element Size and Media	Housing Seal Material		WKFN5
WQF15	39 QM6 QM15	0 = Q size 60 μ M media (reusable metal) 0 = Q size 150 μ M media (reusable metal)	Omit = Buna N H = EPR V = Viton <sup>®</sup>		
BOX 5		BOX 7			WRLT
Porting Options		Dirt Alarm <sup>®</sup> Options			
P48 = 3" NPTF		Omit = None			WQF5
BOX 6	Visual	D5 = Visual pop-up D9 = All stainless D5 (Recommend D9C = D9 in cap (Recommended)	ed)	200	WQF15
Bypass Setting Omit = 30 psi	Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = D8 in cap D8R = D8 opposite standard location			W01545
50 = 50 psi cracking 50 = 50 psi cracking	Electrical	MS5SS = All stainless MS5 Electrical w/ 12 in. 18 gauge 4-o MS10SS = All stainless MS10 Electrical w/ DIN connector (mal			WQLF15 WKF3
	Electrical Visual	MS13SS = All stainless MS13 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 BOX 2 BOX 3	BOX 4       BOX 5       BOX 6         BOX 4       BOX 5       BOX 6		Filter Model Number Selection	WKC5
	One option per box				WL
	BOX 2 BOX 3			8 186 90	
WKF3 –	1 – KM15	0 –	150PD5	P-10-1	WKI
				1100 - 2	
BOX 1	BOX 2	BOX 3	BOX 4		
Filter Series	Number of Elements	Element Size and Media	Housing Seal Material		WKF
	1	KM10 = K size 10 µ M media (reusable metal)	Omit = Buna N		
WKF3	2	KM25 = K size 25 $\mu$ M media (reusable metal) KM60 = K size 60 $\mu$ M media (reusable metal)	H = EPR V = Viton <sup>®</sup>		WR
		KM150 = K size 150 µ M media (reusable metal)	V = VItoli		VVI
		$KM260 = K size 260 \mu M media (reusable metal)$			
BOX 5		BOX 6			WQ
Porting		Dirt Alarm <sup>®</sup> Options			
Options					
$P = 1\frac{1}{2}$ " NPTF		Omit = None D = Pointer	-		WQF
	Visual	D5 = Visual pop-up			
	Visual with	D9 = All stainless D5 (Recommended)	-		WQLF
	Thermal Lockout	D8 = Visual w/ thermal lockout			
		MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable			18/1/
		MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only)			WK
		MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire			
	Electrical	MS12 = Electrical w/ 5 pin Brad Harrison connector			WK
	Liectrica	(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			
	Electrical	MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T			
	with 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 MS = Cam operated switch w/ ½" conduit	_		
	Electrical	female connection			
	Visual	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			
	Electrical Visual	MS13DCLCT = Low current MS13DCT			
	with Thermal Lockout	MS14DCT = MS14 (see above), direct current, w/ thermal lockout			
		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 Electrical P32 = 2" NPTF Supplied w/ threaded connector & light Visual S32 = SAE-32 B32 = ISO 228 G-2"

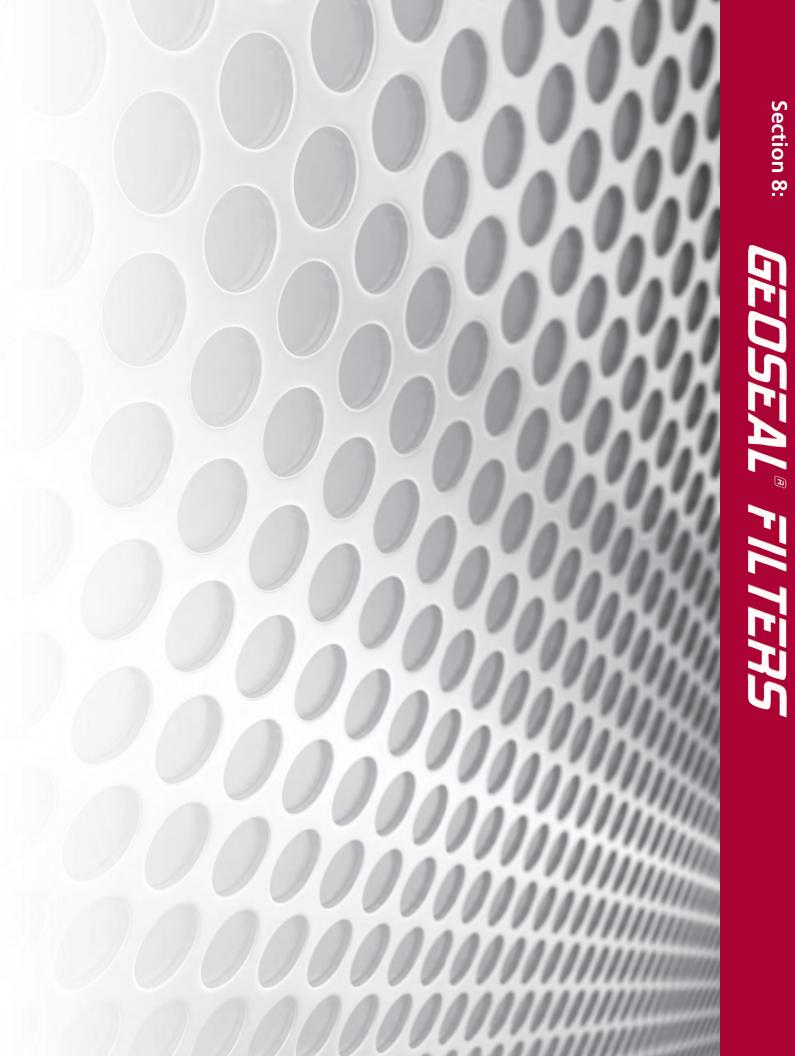
ptions

BOX 7	BOX 8
Test Port Options	Bowl Drain Options
Omit = None	Omit = None
L = Two ¼" NPTF inlet and outlet female test ports	DR = 7/ <sub>16</sub> " -20 drain on bottom of housing

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 vali	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 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 Series	Number of Elements	Media Type	Micron Rating	Seal 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 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 nts of Boxes 2, 3, 4,		DNC	DZ = Dirt Catcher® with Excellement®Z-Media®	DZ media	
combined. Double iple stacking of			W = W Media (water removal)	25= 25 μ E, M, Z, ZW, DZ media	
elements can be 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 using KKG or	Filter Series	Number of Elements	Media Type	Micron Rating	Seal 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 dentical to contents		21/5	AS = Anti-Static Pleat Media		
of Boxes 2, 3, 4, and 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 by single KKG and			Excellement®Z-Media® W = W Media (water removal)		
an be replaced y single KKG and 7KG elements,				DZ media	
an be replaced y single KKG and 7KG elements,			W = W Media (water removal) e 113 for options in boxes 6 through	DZ media $25 = 25 \ \mu E, M, Z, ZW, DZ media$ $60 = 60 \ \mu M media$ n 10.	
an be replaced by single KKG and 7KG elements,			W = W Media (water removal)	DZ media $25 = 25 \ \mu E, M, Z, ZW, DZ media$ $60 = 60 \ \mu M media$ n 10.	
an be replaced y single KKG and 7KG elements, espectively.	Please note:	No-Element Ind	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magneti	DZ media $25 = 25 \mu E, M, Z, ZW, DZ media$ $60 = 60 \mu M media$ in 10. ic Inserts <i>not offered</i> .	
an be replaced y single KKG and 7KG elements, espectively.	Please note:	No-Element Ind	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magneti d Model Number for a Schr	DZ media $25 = 25 \mu E, M, Z, ZW, DZ media$ $60 = 60 \mu M media$ in 10. ic Inserts <i>not offered</i> .	
an be replaced y single KKG and 7KG elements, espectively.	Please note: How to B	No-Element Ind	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magneti d Model Number for a Schr	DZ media $25 = 25 \mu E, M, Z, ZW, DZ media$ $60 = 60 \mu M media$ in 10. ic Inserts <i>not offered</i> . <b>roeder GKC50:</b>	
an be replaced ny single KKG and .7KG elements, espectively.	Please note: How to E BOX 1 GKC50-	No-Element Inc Build a Valid BOX 2 BOX	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magneti d Model Number for a Schr 3 BOX 4 BOX 5 BOX 6	DZ media $25 = 25 \mu E, M, Z, ZW, DZ media$ $60 = 60 \mu M media$ in 10. ic Inserts <i>not offered</i> . <b>roeder GKC50:</b>	
an be replaced y single KKG and 7KG elements, espectively.	Please note: How to E BOX 1 GKC50 Example: N	No-Element Ind	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magneti d Model Number for a Schr 3 BOX 4 BOX 5 BOX 6 	DZ media $25 = 25 \mu E, M, Z, ZW, DZ media$ $60 = 60 \mu M media$ in 10. ic Inserts <i>not offered</i> . <b>roeder GKC50:</b>	
an be replaced y single KKG and 7KG elements, espectively.	Please note: BOX 1 GKC50 Example: <i>N</i> BOX 1	No-Element Inc Build a Valie BOX 2 BOX OTE: One option	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magneti d Model Number for a Schr 3 BOX 4 BOX 5 BOX 6 	DZ media $25 = 25 \mu E, M, Z, ZW, DZ media$ $60 = 60 \mu M media$ n 10. ic Inserts not offered. <b>roeder GKC50:</b> BOX 7 BOX 8 BOX 9 BOX 10 BOX 8 BOX 9 BOX 10	1KGZ25SD
an be replaced y single KKG and 7KG elements, espectively.	Please note: BOX 1 GKC50 Example: <i>N</i> BOX 1	No-Element Ind Build a Valid BOX 2 BOX OTE: One option BOX 2 BOX 3	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magneti d Model Number for a Schr BOX 4 BOX 5 BOX 6 a per box BOX 4 BOX 5 BOX 6 BOX 7	DZ media $25 = 25 \mu E, M, Z, ZW, DZ media$ $60 = 60 \mu M media$ 10. ic Inserts not offered. <b>roeder GKC50:</b> BOX 7 BOX 8 BOX 9 BOX 10 BOX 8 BOX 9 BOX 10	<b>1KGZ25SD</b> BOX 5
an be replaced y single KKG and 7KG elements, espectively.	Please note: BOX 1 GKC50- Example: <i>N</i> BOX 1 GKC50- BOX 1 Filter	No-Element Ind Build a Valid BOX 2 BOX OTE: One optior BOX 2 BOX 3 1KG – Z BOX 2 Number of	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magnetic d Model Number for a Schr BOX 4 BOX 5 BOX 6 BOX 4 BOX 5 BOX 6 BOX 7 - 25 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5	DZ media $25 = 25 \mu E, M, Z, ZW, DZ media$ $60 = 60 \mu M media$ 10. ic Inserts not offered. <b>FOEDER GKC50:</b> BOX 7 BOX 8 BOX 9 BOX 10 BOX 8 BOX 9 BOX 10 - D5 = GKC50 BOX 4	Seal
can be replaced by single KKG and 27KG elements, respectively.	Please note: BOX 1 GKC50 Example: <i>N</i> BOX 1 GKC50 BOX 1	No-Element Ind Build a Valid BOX 2 BOX OTE: One optior BOX 2 BOX 3 1KG – Z BOX 2 Number of Elements	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magnetic d Model Number for a Schr 3 BOX 4 BOX 5 BOX 6 a per box 3 BOX 4 BOX 5 BOX 6 BOX 7 - 25 - 5 - 5 BOX 3 BOX 3 Media Type	DZ media $25 = 25 \ \mu E, M, Z, ZW, DZ media$ $60 = 60 \ \mu M media$ n 10. ic Inserts not offered. roeder GKC50: BOX 7 BOX 8 BOX 9 BOX 10 BOX 8 BOX 9 BOX 10 BOX 8 BOX 9 BOX 10 BOX 4 Micron Rating	BOX 5 Seal Material
tan be replaced by single KKG and 27KG elements, respectively. <b>GKC50</b> er of elements must 1 when using KKG or	Please note: BOX 1 GKC50- Example: <i>N</i> BOX 1 GKC50- BOX 1 Filter	No-Element Ind Build a Valid BOX 2 BOX OTE: One optior BOX 2 BOX 3 1KG – Z BOX 2 Number of	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magnetic d Model Number for a Schr BOX 4 BOX 5 BOX 6 BOX 4 BOX 5 BOX 6 BOX 7 - 25 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5	DZ media $25 = 25 \ \mu E, M, Z, ZW, DZ media$ $60 = 60 \ \mu M media$ 10. ic Inserts not offered. <b>roeder GKC50:</b> BOX 7 BOX 8 BOX 9 BOX 10 BOX 8 BOX 9 BOX 10 <b>D5 BOX 9</b> BOX 10 <b>BOX 4</b> <b>Micron Rating</b> $1 = 1 \ \mu Z, ZW, DZ media$	BOX 5 Seal Material Omit = Buna N
of K-size elements can be replaced by single KKG and 27KG elements, respectively. <b>GKC50</b> <b>BKC50</b> <b>be</b> r of elements must 1 when using KKG or elements.	Please note: How to B BOX 1 GKC50- Example: N BOX 1 GKC50- BOX 1 Filter Series	No-Element Ind Build a Valid BOX 2 BOX OTE: One optior BOX 2 BOX 3 1KG Z Number of Elements 1KG, KKG, 27KG	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magnetic d Model Number for a Schr 3 BOX 4 BOX 5 BOX 6 a per box 8 BOX 4 BOX 5 BOX 6 BOX 7 - 25 - S - S BOX 3 Media Type z = Excellement® Z-Media®	DZ media 25 = 25 $\mu$ E, M, Z, ZW, DZ media 60 = 60 $\mu$ M media 10. ic Inserts not offered. <b>roeder GKC50:</b> BOX 7 BOX 8 BOX 9 BOX 10 BOX 8 BOX 9 BOX 10 BOX 4 <b>BOX 4</b> <b>Micron Rating</b> 1 = 1 $\mu$ Z, ZW, DZ media 3 = 3 $\mu$ AS, E, Z, ZW, DZ media	BOX 5 Seal
tan be replaced by single KKG and 27KG elements, respectively. <b>GKC50</b> er of elements must 1 when using KKG or	Please note: How to B BOX 1 GKC50- Example: N BOX 1 GKC50- BOX 1 Filter Series	No-Element Ind Build a Valid BOX 2 BOX OTE: One optior BOX 2 BOX 3 1KG - Z BOX 2 Number of Elements 1KG, KKG, 27KG 2KG	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magnetic d Model Number for a Schr 3 BOX 4 BOX 5 BOX 6 box 6 box 7 25 - S BOX 4 BOX 5 BOX 6 BOX 7 25 - S BOX 3 Media Type z = Excellement® Z-Media® (Synthetic) AS = Anti-Static Pleat Media (Synthetic)	DZ media 25 = 25 $\mu$ E, M, Z, ZW, DZ media 60 = 60 $\mu$ M media 10. ic Inserts not offered. <b>Coeder GKC50:</b> BOX 7 BOX 8 BOX 9 BOX 10 BOX 8 BOX 9 BOX 10 BOX 4 <b>BOX 8</b> <b>BOX 9</b> <b>BOX 10</b> <b>COEDER</b> <b>BOX 10</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b>COEDER</b> <b></b>	BOX 5 Seal Material Omit = Buna N
tan be replaced by single KKG and 27KG elements, respectively. <b>EKC50</b> er of elements must 1 when using KKG or elements. tement element	Please note: How to B BOX 1 GKC50- Example: N BOX 1 GKC50- BOX 1 Filter Series	No-Element Ind Build a Valid BOX 2 BOX OTE: One optior BOX 2 BOX 3 1KG Z Number of Elements 1KG, KKG, 27KG	W = W Media (water removal) e 113 for options in boxes 6 through dicator, X Blocked Bypass and Magnetic d Model Number for a Schr BOX 4 BOX 5 BOX 6 box 4 BOX 5 BOX 6 box 6 C 25 S BOX 6 BOX 7 C 25 S BOX 6 BOX 7 C 25 S C 25 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 C 25 S C 25 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 C 25 S C 25 BOX 3 C 25 S C 25 C 25 S C 25 C 25 C 25 S C 25 C 25 C 25 C 25 C 25 C 25 C 25 C 25	DZ media 25 = 25 $\mu$ E, M, Z, ZW, DZ media 60 = 60 $\mu$ M media 10. ic Inserts not offered. <b>roeder GKC50:</b> BOX 7 BOX 8 BOX 9 BOX 10 BOX 8 BOX 9 BOX 10 BOX 4 <b>BOX 4</b> <b>Micron Rating</b> 1 = 1 $\mu$ Z, ZW, DZ media 3 = 3 $\mu$ AS, E, Z, ZW, DZ media	BOX 5 Seal Material 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.

#### 340 SCHROEDER INDUSTRIES

#### 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 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 Series	Number of Elements	Media Type	Micron Rating	Seal 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 (Synthetic)	$5 = 5 \mu AS$ , Z, ZW, DZ media		
	6KG	DZ = Dirt Catcher <sup>®</sup> with Excellement <sup>®</sup> Z-Media <sup>®</sup>	10 = 10 μ AS, E, M, Z, ZW, 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 licator, X Blocked Bypass and Magneti			must equal 2 when using KKG or 27KG elements. G2K
					Box 3. 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.
BOX 1		d Model Number for a Sch		BOX 10	GKL Filter Model GMLF
вох 1 GKC65 –	BOX 2 B	OX 3 BOX 4 BOX 5 BO>		BOX 10	GKL Filter Model GMLF Number Selection
вох 1 GKC65 –		OX 3 BOX 4 BOX 5 BOX n per box 3 BOX 4 BOX 5 BOX 6 BOX 7 E			GKL3 Filter Model GMLF <sup>4</sup> Number Selection
BOX 1 GKC65 xample: N BOX 1	BOX 2 B IOTE: One option BOX 2 BOX	OX 3 BOX 4 BOX 5 BOX n per box 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 Filter Model GMLF <sup>4</sup> Number
BOX 1 GKC65 - BOX 1 GKC65 - BOX 1 Filter	BOX 2 B OTE: One option BOX 2 BOX -1KG - Z BOX 2 BOX 2 Number of	OX 3 BOX 4 BOX 5 BOX n per box 3 BOX 4 BOX 5 BOX 6 BOX 7 E - 25 - F - F	x 6         BOX 7         BOX 8         BOX 9           BOX 8         BOX 9         BOX 10           D9         -         -         =         GKC651K0	GZ25FD9 BOX 5 Seal	GKL Filter Model GMLF Number Selection
BOX 1 GKC65 xample: // BOX 1 GKC65 BOX 1 Filter Series	BOX 2 B OTE: One option BOX 2 BOX -1KG - Z BOX 2	OX 3 BOX 4 BOX 5 BOX n per box 3 BOX 4 BOX 5 BOX 6 BOX 7 E - 25 - F - F BOX 3 Media Type Z = Excellement® Z-Media®	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5	GKL Filter Model GMLF Number Selection
BOX 1 GKC65 - xample: // BOX 1 GKC65 - BOX 1 Filter Series	BOX 2 B OTE: One option BOX 2 BOX -1KG - Z BOX 2 BOX 2 Number of Elements	OX 3 BOX 4 BOX 5 BOX n per box 3 BOX 4 BOX 5 BOX 6 BOX 7 E - 25 - F - F	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5 Seal Material	GKL Filter Model GMLF Number Selection
BOX 1 GKC65 - xample: // BOX 1 GKC65 - BOX 1 Filter Series	BOX 2 B OTE: One option BOX 2 BOX -1KG - Z BOX 2 BOX 2 Number of Elements 1KG, KKG,	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5 Seal Material Omit = Buna N	GKL Filter Model GMLF Number Selection
BOX 1 GKC65 - xample: // BOX 1 GKC65 - BOX 1 Filter Series	BOX 2 B OTE: One option BOX 2 BOX - 1KG - Z BOX 2 BOX 2 Number of Elements 1KG, KKG, 27KG	OX 3 BOX 4 BOX 5 BOX a per box 3 BOX 4 BOX 5 BOX 6 BOX 7 E - 25 - F - F BOX 3 Media Type Z = Excellement® Z-Media® (Synthetic) AS = Anti-Static Pleat Media (Synthetic) DZ = Dirt Catcher® with	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5 Seal Material Omit = Buna N	GKL Filter Model GMLF Number Selection
BOX 1 GKC65 - BOX 1 GKC65 - BOX 1 Filter	BOX 2 B OTE: One option BOX 2 BOX -1KG - Z BOX 2 BOX 2 Number of Elements 1KG, KKG, 27KG 2KG	OX 3 BOX 4 BOX 5 BOX a per box 3 BOX 4 BOX 5 BOX 6 BOX 7 E - 25 - F - F BOX 3 Media Type z = Excellement® Z-Media® (Synthetic) AS = Anti-Static Pleat Media (Synthetic) DZ = Dirt Catcher® with Excellement® Z-Media®	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5 Seal Material Omit = Buna N	GKL Filter Model GMLF Number Selection
BOX 1 GKC65 - xample: // BOX 1 GKC65 - BOX 1 Filter Series	BOX 2 B OTE: One option BOX 2 BOX -1KG - Z BOX 2 BOX 2 Number of Elements 1KG, KKG, 27KG 2KG	OX 3 BOX 4 BOX 5 BOX a per box 3 BOX 4 BOX 5 BOX 6 BOX 7 E - 25 - F - F BOX 3 Media Type Z = Excellement® Z-Media® (Synthetic) AS = Anti-Static Pleat Media (Synthetic) DZ = Dirt Catcher® with	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5 Seal Material Omit = Buna N	GKL Filter Model GMLF Number Selection
BOX 1 GKC65 xample: <i>N</i> BOX 1 GKC65 BOX 1 Filter Series	BOX 2 B OTE: One option BOX 2 BOX -1KG - Z BOX 2 BOX 2 Number of Elements 1KG, KKG, 27KG 2KG	OX 3 BOX 4 BOX 5 BOX a per box 3 BOX 4 BOX 5 BOX 6 BOX 7 E - 25 - F - F BOX 3 Media Type z = Excellement® Z-Media® (Synthetic) AS = Anti-Static Pleat Media (Synthetic) DZ = Dirt Catcher® with Excellement® Z-Media®	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5 Seal Material Omit = Buna N	GKL Filter Model GMLF Number Selection
BOX 1 GKC65 - BOX 1 GKC65 - BOX 1 Filter Series GKC65	BOX 2 B OTE: One option BOX 2 BOX - 1KG - Z BOX 2 Number of Elements 1KG, KKG, 27KG 2 KG 3 KG 5 catalog page	OX 3       BOX 4       BOX 5       BOX 5         n per box         3       BOX 4       BOX 5       BOX 6       BOX 7       E         -       25       -       -       F       -       -         BOX 3       Media Type       Z       Excellement® Z-Media® (Synthetic)       C       South the second seco	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5 Seal Material Omit = Buna N	GKL Filter Model Number Selection GCC65
BOX 1 GKC65 - BOX 1 GKC65 - BOX 1 Filter Series GKC65	BOX 2 B OTE: One option BOX 2 BOX - 1KG - Z BOX 2 Number of Elements 1KG, KKG, 27KG 2 KG 3 KG 5 catalog page	OX 3 BOX 4 BOX 5 BOX a per box 3 BOX 4 BOX 5 BOX 6 BOX 7 E - 25 - F - F BOX 3 Media Type z = Excellement® Z-Media® (Synthetic) AS = Anti-Static Pleat Media (Synthetic) DZ = Dirt Catcher® with Excellement® Z-Media® W = W Media (water removal)	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5 Seal Material Omit = Buna N	GKL Filter Model Number Selection GKC65
BOX 1 GKC65 - BOX 1 GKC65 - BOX 1 Filter Series GKC65	BOX 2 B OTE: One option BOX 2 BOX - 1KG - Z BOX 2 Number of Elements 1KG, KKG, 27KG 2 KG 3 KG 5 catalog page	OX 3       BOX 4       BOX 5       BOX 5         n per box         3       BOX 4       BOX 5       BOX 6       BOX 7       E         -       25       -       -       F       -       -         BOX 3       Media Type       Z       Excellement® Z-Media® (Synthetic)       C       South the second seco	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	GZ25FD9 BOX 5 Seal Material Omit = Buna N	GKL Filter Model Number Selection GKC655

## **Medium Pressure Filters with GeoSeal<sup>®</sup> Elements**

Patented

<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 Series	Number of Elements	Media Type	Micron Rating	Seal 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 (Synthetic)	5 = 5 $\mu$ AS, Z, ZW, DZ media	
	3KG	DZ = Dirt Catcher <sup>®</sup> with Excellement <sup>®</sup> Z-Media <sup>®</sup>	$10 = 10 \ \mu \text{ AS, E, M, Z, ZW,}$ 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> DX 6 BOX 7 BOX 8 BOX 9	BOX 10_
How to BOX 1 GK9	Build a Vali BOX 2 E	d Model Number for a Sch 30X 3 BOX 4 BOX 5 BO		BOX 10
How to BOX 1 GK9 Example:	Build a Vali BOX 2 E	d Model Number for a Sch 30X 3 BOX 4 BOX 5 BO	DX 6 BOX 7 BOX 8 BOX 9	BOX 10
How to BOX 1 GK9	Build a Vali BOX 2 E	d Model Number for a Sch 30X 3 BOX 4 BOX 5 BO n per box 3 BOX 4 BOX 5 BOX 6 BOX 7		
How to BOX 1 GK9 Example: BOX 1	Build a Vali BOX 2 E NOTE: One option BOX 2 BOX	d Model Number for a Sch 30X 3 BOX 4 BOX 5 BO n per box 3 BOX 4 BOX 5 BOX 6 BOX 7	BOX 8 BOX 9 BOX 10	
How to BOX 1 GK9 Example: BOX 1 GK9	Build a Vali BOX 2 NOTE: One optio BOX 2 BOX 2 B	d Model Number for a Schu 30X 3 BOX 4 BOX 5 BO <i>n per box</i> 3 BOX 4 BOX 5 BOX 6 BOX 7 - 25 - B - S	BOX 8 BOX 9 BOX 10 D5	225BSD5
How to BOX 1 GK9 Example: BOX 1 GK9 BOX 1 Filter Series	Build a Vali BOX 2 E BOX 2 E BOX 2 BOX BOX 2 BOX BOX 2 BOX 2 BOX 2 Number of Elements 1 KG, KKG,	d Model Number for a Schi 30X 3 BOX 4 BOX 5 BO <i>n per box</i> 3 BOX 4 BOX 5 BOX 6 BOX 7 - 25 - B - S BOX 3 Media Type Z = Excellement® Z-Media®	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Z25BSD5 BOX 5 Seal
How to BOX 1 GK9 Example: BOX 1 GK9 BOX 1 Filter	Build a Vali BOX 2 E BOX 2 E BOX 2 BOX BOX 2 BOX BOX 2 BOX BOX 2 BOX 2 Number of Elements	d Model Number for a Schi 30X 3 BOX 4 BOX 5 BO <i>n per box</i> 3 BOX 4 BOX 5 BOX 6 BOX 7 - 25 - B - S BOX 3 Media Type	$\frac{BOX 8}{D5} = \frac{BOX 9}{BOX 9} = \frac{BOX 8}{BOX 9} = \frac{BOX 9}{BOX 10} = GK91KGZ$ $BOX 4$ $\frac{BOX 4}{Micron Rating}$	Z25BSD5 BOX 5 Seal Material
How to Box 1 GK9 Example: BOX 1 GK9 BOX 1 Filter Series	Build a Vali BOX 2 E BOX 2 E BOX 2 BOX BOX 2 BOX BOX 2 BOX 2 BOX 2 Number of Elements 1 KG, KKG,	d Model Number for a Schi 30X 3 BOX 4 BOX 5 BO <i>n per box</i> 3 BOX 4 BOX 5 BOX 6 BOX 7 - 25 - B - S BOX 3 Media Type 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 BOX 5 Seal Material B = Buna N
How to BOX 1 GK9 Example: BOX 1 GK9 BOX 1 Filter Series	Build a Vali BOX 2 E BOX 2 E BOX 2 BOX BOX 2 BOX BOX 2 BOX BOX 2 BOX 2 BOX 2 Number of Elements 1KG, KKG, 27KG	d Model Number for a Schi 30X 3 BOX 4 BOX 5 BO a per box 3 BOX 4 BOX 5 BOX 6 BOX 7 - 25 B S BOX 3 Media Type z = Excellement® Z-Media® (Synthetic) 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 BOX 5 Seal Material B = Buna N
How to BOX 1 GK9 Example: BOX 1 GK9 BOX 1 Filter Series	Build a Vali BOX 2 E BOX 2 BOX BOX 2 BOX BOX 2 BOX BOX 2 BOX 2 BOX 2 IKG, KKG, 27KG 2 KG	d Model Number for a Schi 30X 3 BOX 4 BOX 5 BOX a per box 3 BOX 4 BOX 5 BOX 6 BOX 7 - 25 - B - S	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Z25BSD5 BOX 5 Seal Material B = Buna N
How to BOX 1 GK9 Example: BOX 1 GK9 BOX 1 Filter Series	Build a Vali BOX 2 E BOX 2 BOX BOX 2 BOX BOX 2 BOX BOX 2 BOX 2 BOX 2 IKG, KKG, 27KG 2 KG	d Model Number for a Schi 30X 3 BOX 4 BOX 5 BOX a BOX 4 BOX 5 BOX 6 BOX 7 - 25 B S 4 BOX 6 BOX 7 BOX 3 BOX 3 Redia Type z = Excellement® Z-Media® (Synthetic) AS = Anti-Static Pleat Media (Synthetic) DZ = Dirt Catcher® with Excellement® Z-Media®	BOX 6 BOX 7 BOX 8 BOX 9 BOX 8 BOX 9 BOX 10 D5	Z25BSD5 BOX 5 Seal Material 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**

Patented

BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 G2K9	BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11	Model 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 3 27 = 27K size element	B = 3 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic) 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 Material	NOTES:
= 1 µ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)	B = Buna N	Box 2. Number of elements must equal 1 when using 21
= 3 $\mu$ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)	V = Viton <sup>®</sup>	KKG or 27KG elements. For replacement element
= 5 μ Excellement <sup>®</sup> Z-Media <sup>®</sup> (synthetic)		part numbers, please see 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 K-size elements can
= W media (water removal)		be replaced by single 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 ow to Build a Valid Model Numb BOX 1 BOX 2 BOX 3 BOX 4 BOX 5		
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Numb BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 G3K9	er for a Schroeder G3K9:	GML
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Numb 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 4 BOX 5 BOX 6 BC	er for a Schroeder G3K9:	GML
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Numb BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 G3K9	er for a Schroeder G3K9: BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 DX 7 BOX 8 BOX 9 BOX 10 BOX 11 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: $\begin{array}{c} BOX 6 \\ BOX 7 \\ BOX 8 \\ BOX 9 \\ BOX 10 \\ BOX 11 \\ B \\ \hline P16 \\ \hline P16 \\ \hline P16 \\ \hline D5 \\ \hline D5 \\ \hline BOX 4 \\ \hline BOX 4 \\ \end{array}$	respectively. GK G3K9 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: 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. GK G3K9 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: $BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 4 BOX 4 BOX 4 First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic)$	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: 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: 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 ow to Build a Valid Model Numb BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 33K9	er for a Schroeder G3K9: BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 B P16 P16 D5 = G3K9109ECABP16P16D5 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)	GK G3K9 GML
fer to 2K9 catalog page 185 for options in box <b>bow to Build a Valid Model Numb</b> BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 <b>i3K9</b> <b>ample:</b> <i>NOTE: One option per boxw</i> BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX <b>i3K9</b> <b>1</b> <b>09</b> - <b>E</b> - <b>C</b> - <b>A</b> <b>1</b> <b>1</b> <b>1</b> <b>2</b> <b>1</b> <b>2</b> <b>1</b> <b>1</b> <b>2</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>	er for a Schroeder G3K9: 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 G3K9 GML
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Numb BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 33K9	er for a Schroeder G3K9: $BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 11 BOX 10 BOX 11 BOX 11 BOX 10 BOX 11 BOX 11 BOX 4 BOX 4 BOX 4 BOX 9 BOX 10 BOX 10 BOX 11 BOX 11 BOX 4 BOX 4 First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic) B = 3 \mu Excellement® Z-Media® (synthetic) C = 5 \mu Excellement® Z-Media® (synthetic) D = 10 \mu Excellement® Z-Media® (synthetic) E = 25 \mu Excellement® Z-Media® (synthetic)$	GK G3K9 GML
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Number BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 G3K9	er for a Schroeder G3K9:	respectively. GML G
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Numb BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 3K9	er for a Schroeder G3K9: 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. GAL GI
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Numb BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 G3K9 - 1 - 09 - E - C - A - BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC G3K9 - 1 - 09 - E - C - A - BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC G3K9 - 1 - 09 - E - C - A - BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC G3K9 - 1 - 09 - E - C - A - BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC G3K9 - 1 - 09 - E - C - A - BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC G3K9 - 1 - 09 - E - C - A - BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC 1 09 - K size element 18 = KK size element 18 = KK size element 18 = KK size element 2 2 2 27K size element BOX 5 BOX 5 BOX 5 BOX 5	er for a Schroeder G3K9: $BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 4 BOX 4 First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic)B = 3 \mu Excellement® Z-Media® (synthetic)D = 10 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)A = 1 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® Ex$	respectively.
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Number BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 G3K9 1 09 E C A BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC G3K9 1 09 E C A BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC G3K9 1 09 E C A BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BC G3K9 1 09 E C A Elements 1 2 BOX 3 Filter Saries 1 2 BOX 3 Elements 1 8 = KK size element 18 = KK size element 18 = KK size element 27 = 27K size element BOX 5 BOX 5 Second Housing = 1 µ Excellement® Z-Media® (synthetic) = 3 µ Excellement® Z-Media® (synthetic)	er for a Schroeder G3K9: $BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 4 BOX 4 BOX 4 First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic)B = 3 \mu Excellement® Z-Media® (synthetic)C = 5 \mu Excellement® Z-Media® (synthetic)D = 10 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)F = W media (water removal)BOX 6 BOX 7SealMaterialA = 1 \mu Excellement® Z-Media® (synthetic)F = W media (water removal)BOX 6 BOX 7SealMaterialA = 1 \mu Excellement® Z-Media® (synthetic)BOX 6 BOX 7BOX 6$	respectively. GK GML G C C C C C C C C C C C C
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Numb BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 G3K9	er for a Schroeder G3K9: $BOX 6 BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 10 BOX 11 BOX 11 BOX 4  BOX 7 BOX 8 BOX 9 BOX 10 BOX 11 BOX 11 BOX 11 BOX 4  BOX 4  First Housing (with GeoSeal®) A = 1 \mu Excellement® Z-Media® (synthetic)B = 3 \mu Excellement® Z-Media® (synthetic)C = 5 \mu Excellement® Z-Media® (synthetic)D = 10 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)E = 10 \mu Excellement® Z-Media® (synthetic)E = 25 \mu Excellement® Z-Media® (synthetic)E = 3 \mu Excellement® Z-Media® (synthetic)B = 8 \mu Excellement® Z-Media® (synthetic)E = 2 \mu Excellement® Z-Media® (sy$	Respectively.
fer to 2K9 catalog page 185 for options in box ow to Build a Valid Model Number BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 G3K9	er for a Schroeder G3K9: $ \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

Patented

GKF3 SAME DAY HIPMENT MODEL AVAILABLE!	Example: <i>N</i> BOX 1 GKF3 BOX 1 Filter Series GKF3	OTE: One option BOX 2 BOX -1KG - Z BOX 2 Number of Elements 1KG, KKG, 27KG 2 KG 3 KG	BOX 4 BOX 5 BOX 6 BOX 7	BOX 8 BOX 9 BOX 10 D5	iZ25SD5 BOX 5 Seal Material Omit = Buna N V = Viton®
SAME DAY HIPMENT MODEL AVAILABLE!	GKF3 BOX 1 Filter Series	BOX 2 BOX 2 Number of Elements 1 KG, KKG, 27KG 2 KG	BOX 3 BOX 3 Media Type Z = Excellement <sup>®</sup> Z-Media <sup>™</sup> (Synthetic) AS = Anti-Static Pleat Media (Synthetic) DZ = Dirt Catcher <sup>®</sup> with 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 Seal Material Omit = Buna N
HIPMENT MODEL AVAILABLE!	Filter Series	Number of Elements 1 KG, KKG, 27KG 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 Material Omit = Buna N
AVAILABLE! C Double and triple stacking of K-size elements can be replaced by	Series	Elements 1KG, KKG, 27KG 2KG	z = Excellement®Z-Media™ (Synthetic) AS = Anti-Static Pleat Media (Synthetic) DZ = Dirt Catcher® with Excellement®Z-Media™	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	Material Omit = Buna N
le and triple ing of K-size ents can placed by	GKF3	27KG 2KG	(Synthetic)         AS = Anti-Static Pleat Media (Synthetic)         DZ = Dirt Catcher® with Excellement®Z-Media™	$3 = 3 \mu AS, E, Z, ZW, DZ media$ $5 = 5 \mu AS, Z, ZW, DZ media$ $10 = 10 \mu AS, E, M, Z, ZW, DZ media$	
of K-size is can iced by			(Synthetic) DZ = Dirt Catcher® with Excellement®Z-Media™	10 = 10 μ AS, E, M, Z, ZW, DZ media	
f K-size an d by		3KG	Excellement <sup>®</sup> Z-Media™	DZ media	
<sup>:</sup> K-size an d by			W = W Media (water removal)	2E - 2E ILE NA 7 7W/ D7 modia	
ng of K-size ents can placed by				$z_3 = z_5 \mu c$ , ivi, $z$ , $z_{VV}$ , $Dz$ media	
nts can laced by				$60 = 60 \ \mu M \text{ media}$	
le KKG and G respectively. nber of elements t equal 1 when g KKG or G elements.					
mbers are Il to contents s 2, 3, 4, and 5			131 for options in boxes 6 through 10 dicator and Magnetic Inserts <b>not offe</b>		
27KG elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5 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 GKL3	вох 2 вох – 1KG – Z	3 BOX 4 BOX 5 BOX 6 BOX 7 - 25 S	BOX 8 BOX 9 BOX 10 D5	Z25SD5
BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Number of Elements	Media Type	Micron Rating	Seal Material
GKL3	<mark>1KG,</mark> KKG, 27KG	Z = Excellement®Z-Media™ (Synthetic)	1 = 1 $\mu$ Z, ZW, DZ media 3 = 3 $\mu$ AS, E, Z, ZW, DZ media	Omit = Buna N V = Viton <sup>®</sup>
	2KG	AS = Anti-Static Pleat Media (Synthetic)	5 = 5 $\mu$ AS, Z, ZW, DZ media	
	3KG	DZ = Dirt Catcher <sup>®</sup> with Excellement <sup>®</sup> Z-Media™	$10 = 10 \ \mu$ AS, E, M, Z, ZW, 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

Patented

GMLF1 - xample: /	 NOTE: One opti	on per box		<u> - </u>  -				Model Iumber election
BOX 1 GMLF1	BOX 2 BO		OX 5 BOX 6 BC	DX 7 BOX 8 BC	BOX 10 - = GMLF11k	GZ25SD5	GM	
BOX 1	BOX 2		BOX 3		BOX 4	BOX 5		GRE
Filter Series	Number of Elements	Γ	Media Type		Micron Rating	Seal Material		GMKF
iMLF1	1KG, KKG, 27KG	z = Excelle (Synth	ement® Z-Media® netic)		1 $\mu$ Z, ZW, DZ media	Omit = Buna N V = Viton <sup>®</sup>		
	2KG	AS = Anti-S	Static Pleat Media	-	3 μ AS, E, Z, ZW, DZ media 5 μ AS, Z, ZW, DZ media	v = viton		GKC
	3KG	(Synth) DZ = Dirt C	netic) 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 60 μ M media		NOTES:	Gł
						-		and triple stacking
							be repla	e elements can aced by single G2k d 27KG elements,
							respecti element	vely. Number of ts must equal 2
							when us 27KG el	sing KKG or G31 ements.
							Box 3. Replace part nur	mbers are identical
			Ref	fer to MLF catalog	page 243 for options in box	es 6 through 10.	to conte 4 and 5	ents of Boxes 2, 3,5K combined.
								CI
								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 IOTE: One optic BOX 2 BO	BOX 4 bn per box DX 3 BOX 4	BOX 5 BOX 6	BOX 6 BOX 7	8 	\$24\$24NY2		MODEL GF
GRT - BOX 1 ample: M BOX 1 GRT -	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC	BOX 4	BOX 5 BOX 6	BOX 7 BOX BOX 6 BOX 7 BOX 6 POX 7 Y2	8	S24S24NY2	SAME D SHIPMENT I	GMLI DAY MODEL GF
OX 1 GRT - BOX 1 GRT - SOX 1	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of	BOX 4 bn per box DX 3 BOX 4	BOX 5 BOX 6	BOX 7 BOX BOX 6 BOX 7 - Y2 BOX 3	8 BOX 8 = GRT1KBGZ10	S24S24NY2	SAME D SHIPMENT I	GMLI DAY MODEL GF
OX 1 GRT - BOX 1 GRT - SOX 1 Filter Sox 1	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC BOX 2	BOX 4 bn per box DX 3 BOX 4	BOX 5 BOX 6	BOX 6 BOX 7 BOX 6 BOX 7 Y2 BOX 3 BOX 3	8 BOX 8 = GRT1KBGZ10	S24S24NY2	SAME D SHIPMENT I	GMLI DAY MODEL GF
OX 1 GRT - BOX 1 GRT - COX 1 Filter eries	BOX 2 BOX IOTE: One optic BOX 2 BC -1 KBC BOX 2 Number of Elements 1	BOX 4 on per box DX 3 BOX 4 GZ10 K Length KBGZ1	BOX 5 BOX 6	BOX 7 BOX BOX 6 BOX 7 PY2 BOX 3 BOX 3 BOX 3 Cont Part Number 27K Length 27K BGZ1	8 BOX 8 = GRT1KBGZ10		SAME D SHIPMENT I	GMLI DAY MODEL GF
OX 1 GRT - BOX 1 GRT - COX 1 Filter eries	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of Elements 1	BOX 4 on per box DX 3 BOX 4 GZ10 K Length	BOX 5 BOX 6 BOX 5 - S24 S24 N Elem KK Length	BOX 6 BOX 7 BOX 6 BOX 7 Y2 BOX 3 BOX 3 BOX 3 Cont Part Number 27K Length	BOX 8 = GRT1KBGZ10 (with GeoSeal®)	® (synthetic)	SAME D SHIPMENT I	GMLI DAY MODEL GF
OX 1 GRT - ample: A BOX 1 GRT - OX 1 illter eries	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of Elements 1	BOX 4 on per box DX 3 BOX 4 GZ10 K Length KBGZ1 KBGZ3/ KBGZ3/ KBGAS3 KBGZ5/	BOX 5 BOX 6	BOX 7 BOX BOX 6 BOX 7 PY2 BOX 3 BOX 3 BOX 3 BOX 3 BOX 4 BOX 3 BOX 7 PY2 BOX 3 BOX 7 PY2 BOX 3 BOX 7 PY2 BOX 3 BOX 3 BOX 7 PY2 BOX 3 BOX 3 BOX 3 BOX 3 BOX 6 BOX 7 PY2 BOX 3 BOX 3 BOX 3 BOX 3 BOX 3 BOX 6 BOX 7 PY2 BOX 3 BOX	BOX 8 - <b>GRT1KBGZ10</b> (with GeoSeal <sup>®</sup> ) = 1 μ Excellement <sup>®</sup> Z-Media	<sup>®</sup> (synthetic) <sup>®</sup> (synthetic)	SAME D SHIPMENT I	GML DAY MODEL GI
OX 1 GRT - BOX 1 GRT - COX 1 Filter eries	BOX 2 BOX JOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of Elements	BOX 4 on per box DX 3 BOX 4 GZ10 K Length KBGZ1 KBGZ3/ KBGZ3/ KBGAS3 KBGZ5/ KBGAS5 KBGZ10/	BOX 5 BOX 6	BOX 7 BOX BOX 6 BOX 7 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) <sup>®</sup> (synthetic) <sup>®</sup> (synthetic)	SAME D SHIPMENT I	GML DAY MODEL GI
OX 1 GRT - BOX 1 GRT - COX 1 Filter eries	BOX 2 BOX JOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of Elements	BOX 4 on per box DX 3 BOX 4 GZ10 K Length KBGZ1 KBGZ3/ KBGZ3/ KBGZ5/ KBGAS5	BOX 5 BOX 6	BOX 7 BOX BOX 6 BOX 7 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) <sup>®</sup> (synthetic) <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic)	SAME D SHIPMENT I	GMLI DAY MODEL GF
OX 1 GRT - BOX 1 GRT - SOX 1 Filter Sox 1	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of Elements 1	BOX 4 on per box DX 3 BOX 4 GZ10 K Length KBGZ1 KBGZ3/ KBGZ3/ KBGZ5/ KBGZ5/ KBGAS5 KBGZ10/ KBGAS10	BOX 5 BOX 6 BOX 5 BOX 5 -S24 S24 N Elem KK Length KKBGZ1 KKBGZ3/ KKBGZ3/ KKBGZ5/ KKBGZ5/ KKBGZ5/ KKBGZ10/ KKBGZ10/ KKBGAS10	BOX 7 BOX BOX 6 BOX 7 P BOX 6 BOX 7 P 27K Length 27K Length 27K BGZ1 27K BGZ3/ 27K BGZ5/ 27K BGZ5/ 27K BGZ5/ 27K BGZ5/ 27K BGZ10/ 27K BGZ10/ 27K BGZ10/ 27K BGZ10/ 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) <sup>®</sup> (synthetic) <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic)	SAME D SHIPMENT I	GML DAY MODEL GI
OX 1 GRT - ample: A BOX 1 GRT - BOX 1 Filter Series	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of Elements 1	3 BOX 4 an per box DX 3 BOX 4 GZ10 GZ10 K Length KBGZ1 KBGZ3/ KBGZ3/ KBGZ5/ KBGZ5/ KBGZ5/ KBGZ10/ KBGZ10/ KBGZ25	BOX 5 BOX 6 BOX 5 BOX 6 BOX 5 -S24 S24 N Elem KK Length KKBGZ1 KKBGZ3/ KKBGZ5/ KKBGAS5 KKBGZ10/ KKBGAS10 KKBGZ25	BOX 7 BOX BOX 6 BOX 7 PY2 BOX 3 BOX 3 BOX 3 BOX 3 BOX 3 BOX 3 BOX 4 BOX 7 PY2 BOX 3 BOX 3 BOX 7 PY2 BOX 3 BOX 7 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2	<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</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) <sup>®</sup> (synthetic) <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic)	SAME D SHIPMENT I	GML DAY MODEL GI
BOX 1 GRT - ample: A BOX 1 GRT - GRT - BOX 4 Seal	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of Elements 1	3 BOX 4 an per box DX 3 BOX 4 GZ10 GZ10 K Length KBGZ1 KBGZ3/ KBGZ3/ KBGZ5/ KBGZ5/ KBGZ5/ KBGZ10/ KBGZ10/ KBGZ25	BOX 5 BOX 6 BOX 5 BOX 6 BOX 5 -S24 S24 N Elem KK Length KKBGZ1 KKBGZ3/ KKBGZ5/ KKBGAS5 KKBGZ10/ KKBGAS10 KKBGZ25	BOX 7 BOX BOX 6 BOX 7 PY2 BOX 3 BOX 3 BOX 3 BOX 3 BOX 3 BOX 3 BOX 4 BOX 7 PY2 BOX 3 BOX 3 BOX 7 PY2 BOX 3 BOX 7 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2	<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</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) <sup>®</sup> (synthetic) <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic)	SAME D SHIPMENT I	GML DAY MODEL GI
BOX 1 GRT - ample: A BOX 1 GRT - BOX 1 GRT - GRT - BOX 4 Seal Material	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of Elements	3 BOX 4 an per box DX 3 BOX 4 GZ10 GZ10 K Length KBGZ1 KBGZ3/ KBGZ3/ KBGZ5/ KBGZ5/ KBGZ5/ KBGZ10/ KBGZ10/ KBGZ25	BOX 5 BOX 6 BOX 5 BOX 6 BOX 5 -S24 S24 N Elem KK Length KKBGZ1 KKBGZ3/ KKBGZ5/ KKBGAS5 KKBGZ10/ KKBGAS10 KKBGZ25	BOX 7 BOX BOX 6 BOX 7 PY2 BOX 3 BOX 3 BOX 3 BOX 3 BOX 3 BOX 3 BOX 4 BOX 7 PY2 BOX 3 BOX 3 BOX 7 PY2 BOX 3 BOX 7 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2	<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</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) <sup>®</sup> (synthetic) <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic)	NOTES: Box 2. Number	GML MODEL BLE! G
BOX 1 GRT - ample: A BOX 1 GRT - GRT - BOX 4 Seal	BOX 2 BOX IOTE: One optic BOX 2 BC -1 - KBC BOX 2 Number of Elements	3 BOX 4 an per box DX 3 BOX 4 GZ10 GZ10 K Length KBGZ1 KBGZ3/ KBGZ3/ KBGZ5/ KBGZ5/ KBGZ5/ KBGZ10/ KBGZ10/ KBGZ25	BOX 5 BOX 6 BOX 5 BOX 6 BOX 5 -S24 S24 N Elem KK Length KKBGZ1 KKBGZ3/ KKBGZ5/ KKBGAS5 KKBGZ10/ KKBGAS10 KKBGZ25	BOX 7 BOX BOX 6 BOX 7 PY2 BOX 3 BOX 3 BOX 3 BOX 3 BOX 3 BOX 3 BOX 4 BOX 7 PY2 BOX 3 BOX 3 BOX 7 PY2 BOX 3 BOX 7 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2 PY2	<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</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) <sup>®</sup> (synthetic) <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic) ia <sup>®</sup> (synthetic)	NOTES: Box 2. Number must eq	GMLI AY MODEL BLE! 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 Series	Element 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 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 with nerm ocko	n nal				Ele	ectri	cal						wi The	trica th rmal cout			1	Elect Vis		I	Electr Visu wit Ther Lock	ual th 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 wi Theı Lock	th rmal				Ele	ectri	cal								wit ocko			I	Elect Vis		I	Elect Vis wi Ther Lock	ual th 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 Volts@ Amps	Current Range (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 Volts @ Amps	Current Range (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



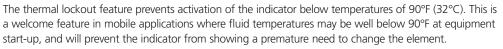
- Y—Vacuum Gauge mounted in porting head P/N LFT-363
- YR—Same as Y but mounted on opposite side of standard location P/N LFT-363



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





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-3870

D8R—Same as D8 but mounted on opposite side of standard location P/N A-LF-3870



- Y2—Back mounted ¼" NPT Tri-color Glycerin-filled Gauge (0-60 psi) P/N LFT-134-2 (0-100 psi) P/N LFT-1081
- 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

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

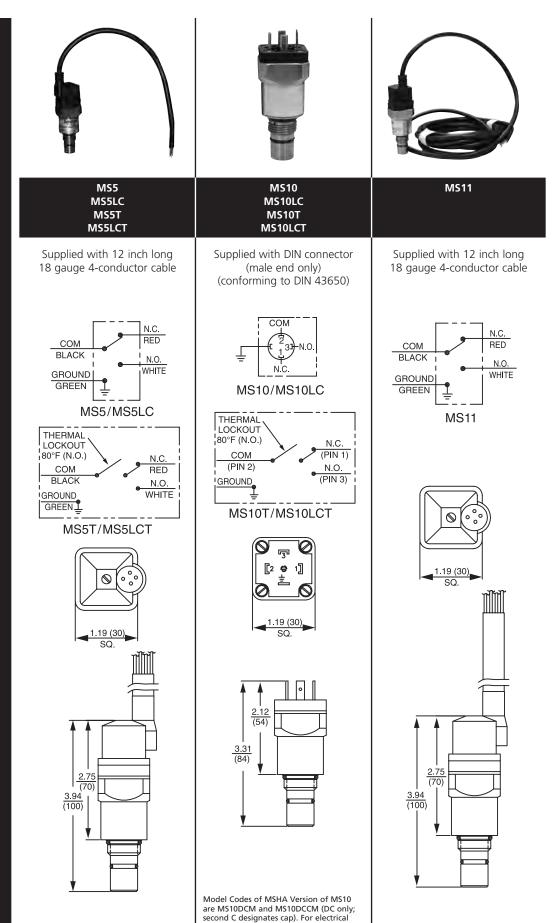
ES3—Electric pressure switch (1/8"NPT) with DIN connector P/N LF-4499 (Black = common; Red = N.O.; Blue = N.C.)

I			
Code	Type of Contact	Electrical Rating	Connection
ES	SPST	8 Amps @ 12 VDC, 1 Amp @ 120 VAC 4 Amps @ 24 VDC, 0.5 Amp @ 240 VAC	Screw Terminal with Rubber Boot
ES1	SPDT	10 Amps @ 115 VAC 50mA-5A @ 24 VDC	<sup>1</sup> ⁄2" Conduit, Male

### Electrical

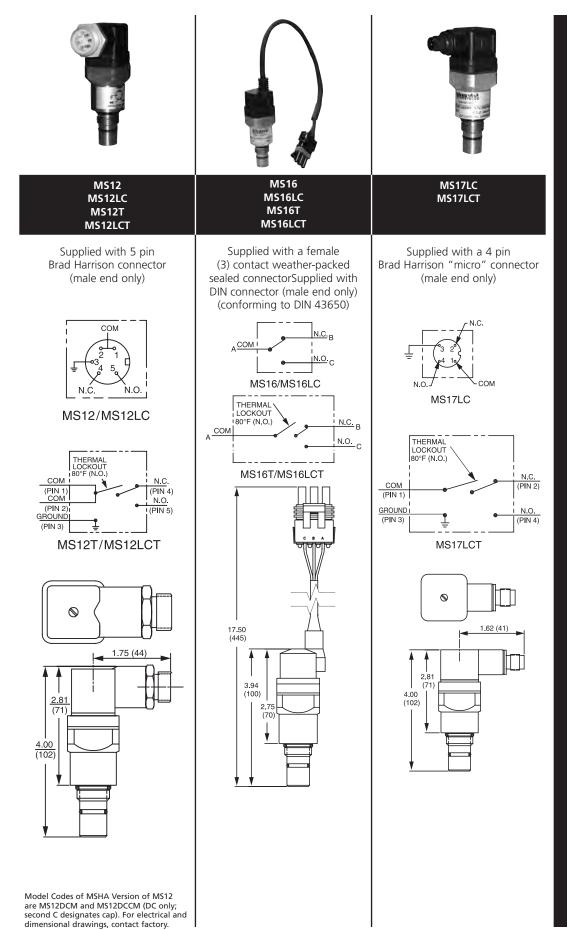
# Appendix A Filter Dirt Alarm<sup>®</sup> Selection: Step 3

**Electrical and Electrical with Thermal Lockout** 



and dimensional drawings, contact factory.

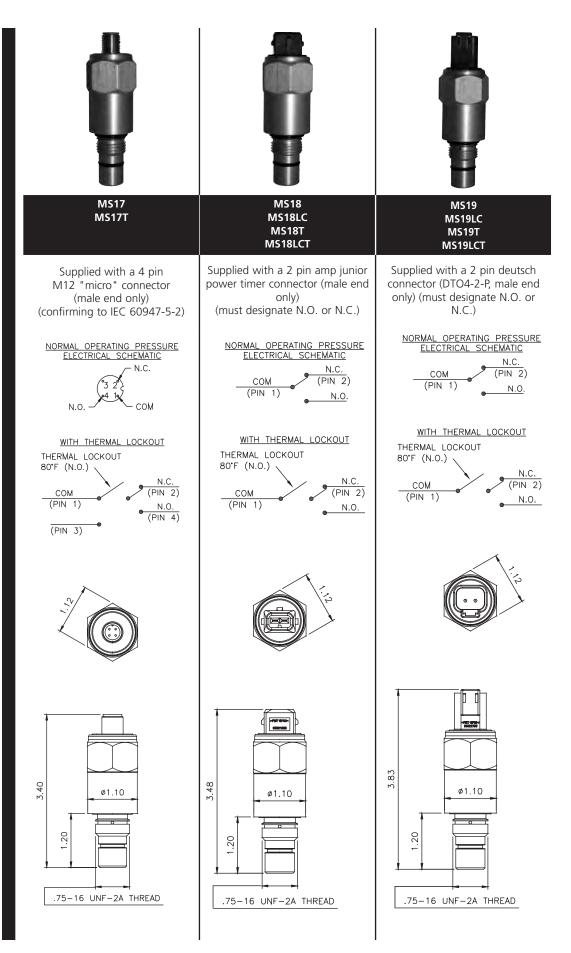
## Filter Dirt Alarm<sup>®</sup> Selection: Step 3 Appendix A



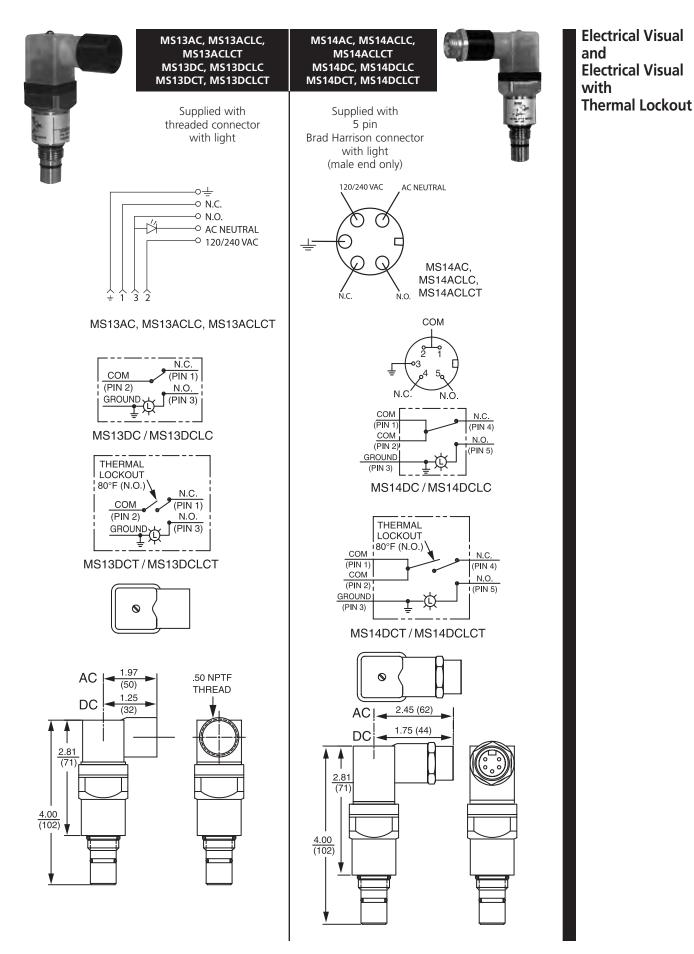
**Electrical and Electrical with Thermal Lockout** (cont'd.)

## **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 A-LF-2548VAC-50	MS5AC 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 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 MS5VLC-50	MS5LC MS5LC
A-LF-2548VLC-50 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 A-LF-2919AC-30	MS10AC MS10AC	MS10-15 MS10-30	MS10 MS10
A-LF-2919AC-30	MSTOAC MSTOAC	MS10-30	MS10
A-LF-2919AC-50	MSTOAC MSTOAC	MS10-40	MS10
A-LF-2919AC-60	MSTOAC MSTOAC	MS10-50	MS10
A-LF-2919AC-75	MSTOAC MSTOAC	MS10-00	MS10 MS10
A-LF-2919AC-90	MS10AC MS10AC	MS10-90	MS10
A-LF-2919BAC-40	MS10AC 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 ALF-2919LCSS-40	MS10LC MS10LC	MS10BLC-50	MS10LC MS10LC
ALF-2919LC33-40 ALF-2919SSLC-30	MSTOLC MSTOLC	MS10SSLC-40 MS10SSLC-30	MS10LC MS10LC
ALF-291955LC-50	MSTOLC MSTOLC	MS10SSLC-50	MS10LC
A-LF-2919VLC-30	MSTOLC MSTOLC	MS10VLC-30	MS10LC
A-LF-2919VLC-40	MSTOLC	MS10VLC-40	MSTOLC
A-LF-2919VLC-50	MS10LC 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 MS11AC	MS11-13 MS11-30	MS11
A-LF-3011AC-40	MSTIAC MS11AC	MS11-40	MS11
A-LF-3011AC-50	MSTIAC MS11AC	MS11-40 MS11-50	MS11
A-LF-3011AC-90	MS11AC MS11AC	MS11-90	MS11
A-LF-3011VAC-30	MS11AC 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 MS12AC	MS12-25	MS12
A-LF-4498AC-30	MS12AC MS12AC	MS12-20	MS12 MS12
A-LF-4498AC-40	MS12AC MS12AC	MS12-30	MS12 MS12
A-LF-4498AC-50	MS12AC MS12AC	MS12-40 MS12-50	MS12 MS12
A-LF-4498AC-50 A-LF-4498AC-75	MS12AC MS12AC	MS12-50 MS12-75	MS12
A-LF-4498VAC-30	MS12AC MS12AC	MS12V-30	MS12 MS12
A-LF-4498VAC-40	MS12AC MS12AC	MS12V-40	MS12 MS12
A-LF-4498VAC-50	MS12AC MS12AC	MS12V-40	MS12 MS12
A-LF-4498DC-30	MS12AC MS12DC	MS12-30	MS12 MS12
A-LF-4498DC-40	MS12DC MS12DC	MS12-40	MS12 MS12
A-LF-4498DC-50	MS12DC MS12DC	MS12-40	MS12
A-LF-4498DC-75	MS12DC MS12DC	MS12-75	MS12 MS12
A-LF-4498VDC-30	MS12DC MS12DC	MS12730	MS12 MS12
A-LF-4498VDC-40	MS12DC MS12DC	MS12V-40	MS12 MS12
A-LF-4498LC-30	MS12LC	MS12LC-30	MS12LC
A-LF-4498LC-40	MS12LC MS12LC	MS12LC-40	MS12LC MS12LC
A-LF-4498LC-50	MS12LC MS12LC	MS12LC-50	MS12LC
A-LF-4498LC-75	MS12LC MS12LC	MS12LC-75	MS12LC
ALF-4498SSLC-30	MS12LC MS12LC	MS12SSLC-30	MS12LC
A-LF-449855LC-30	MS12LC MS12LC	MS12VLC-30	MS12LC MS12LC
A-LF-4498VLC-40	MS12LC MS12LC	MS12VLC-40	MS12LC MS12LC
A-LF-4498VLC-50	MS12LC MS12LC	MS12VLC-50	MS12LC
A-LF-4498VLC-50 A-LF-4498LCT-40	MS12LCT	MS12VEC-50 MS12LCT-40	MS12LCT
A-LF-4498LCT-75	MS12LCT MS12LCT	MS12LCT-75	MS12LCT MS12LCT
A-LI -4496LC I-79	MS12LC1 MS13		IVIJIZLUI
A-LF-5099AC1	MS13AC1	, MS13AC-30	MS13AC
A-LF-5099AC1-15	MS13AC1 MS13AC1	MS13AC-15	MS13AC
A-LF-5099AC1-30	MS13AC1 MS13AC1	MS13AC-30	MS13AC
A-LF-5099AC1-40	MS13AC1 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 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 MS14DC1	MS14AC-30	MS14AC MS14DC
A-LF-5100DC1-40	MS14DC1	MS14DC-40	MS14DC MS14DC
ALF-5100VDC1-40	MS14DC1 MS14DC1	MS14VDC-40	MS14DC MS14DC
A-LF-5100DC2-30	MS14DC2	MS140C-30	MS14DC MS14DC
A-LF-5100DC2-40 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

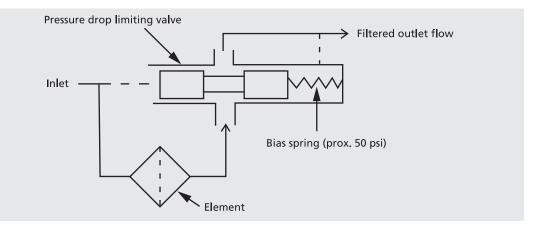
### Unique Non-Bypassing Filtration: A Better Way That Does Not Require High Crush Elements

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.



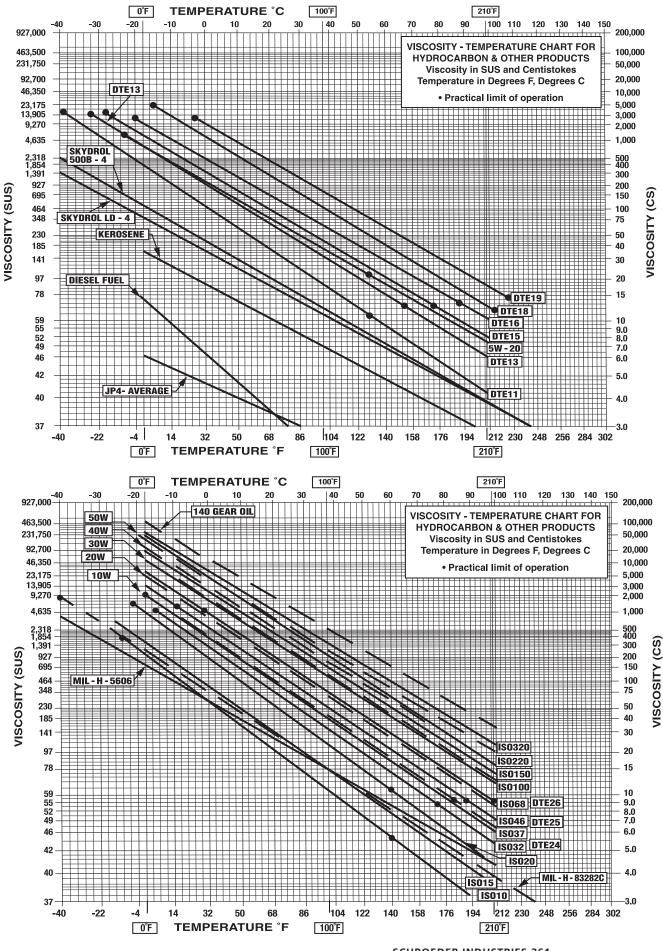
# **Appendix C** Element Case Weights

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 Lot	Weight (lb.)			Case Lot	Weight (lb.)			Case Lot	Weight (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).

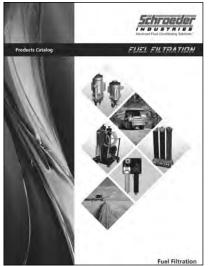
\*These ranges have been determined to provide a quick reference for the purpose of creating our catalog. This is currently no industry standard terminology. These ranges are subject to change.

## **Other Product Line Catalogs**



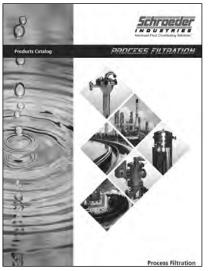
Filter Systems

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** 

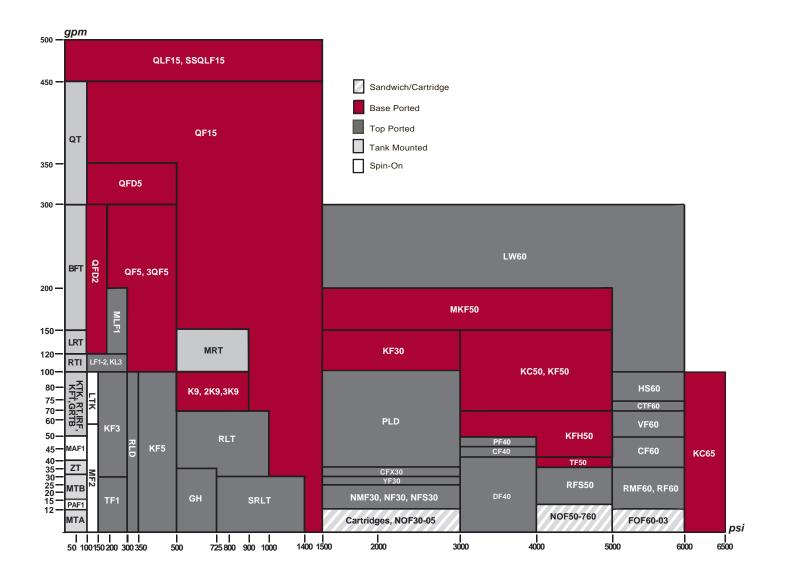


The keystone product of Schroeder Process Filtration is the RF3 automatic self-cleaning backflush filter. This filter along with bag filters, cartridge filters and custom designed systems allows Schroeder to offer you complete solutions to your process filtration needs. Our process filters are used to 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:				

Notes Section Continued:			

### **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, Top-Ported	NF30	20 gpm, 3000 psi, SAE 1-1/16"-12 straight porting, cartridge dirt alarm		N/A	
High Pressure, Top-Ported	DF40	30 gpm, 4000 psi, SAE 1-5/16"-12 straight porting, cartridge dirt alarm	DF401CCZ3SD5	CC10, CCZ5	
High Pressure, Base-Ported	GKF30	100 gpm, 3000 psi, 1 element, SAE 1-7/8"- 12 straight porting, cartridge dirt alarm	GKF301KGZ10SD5	KG3, KG10, KG25, KGZ1, KGZ3, KGZ25	
Low Pressure, 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, Tank-Mounted	GRT	100 gpm, 100 psi, 2 SAE 1.5" inlet ports, tri-color visible dirt alarm			
Low Pressure, Tank-Mounted	GRT	100 gpm, 100 psi, 1 SAE 1.25" straight inlet port, tri-color visible dirt alarm			
Low Pressure, Tank-Mounted	LRT	150 gpm, 100 psi, 2 SAE 1.5" straight inlet ports, tri-color visible dirt alarm	LRT18LZ10S24S24NY2 (LRT-1820)	N/A	
Low Pressure, Spin-On	PAF1	20 gpm, 100 psi, 3/4" NPTF porting, tri-color visible dirt alarm	PAF16PZ10PY2	N/A	
Low Pressure, Top-Ported	GKF3	100 gpm, 300 psi, 1 element, SAE 1-7/8"- 12 straight porting, cartridge dirt alarm	GKF31KGZ25SD5	KG3, KG10, KG25, KGZ1, KGZ3, KGZ25	
Medium Pressure, Top-Ported	SRLT	25 gpm, 1400 psi, SAE 1-1/16"-12 straight porting, cartridge dirt alarm	SRLT6RZ10S12D5	6RZ3, 6RZ25	
Medium Pressure, Top-Ported	RLT	70 gpm, 1000 psi, 9" element, SAE 1-5/8"- 12 straight porting, cartridge dirt alarm	RLT9VZ10S20D5	9V25, 9VZ25	



**Hydraulic & Lube Filtration** 

Accessories Filter Systems

Fuel Filtration Process Filtration

### **Advanced Fluid Conditioning Solutions®**

### L-2520 | 2017







\*To access more information about Schroeder, scan the code with your app-enabled smartphone.

© Copyright 2017 Schroeder Industries. All rights reserved

www.schroederindustries.com | 580 West Park Road | Leetsdale, PA 15056-1025 | 1.800.722.4810 p | 724.318.1200 f