Schroeder INDUSTRIES
Advanced Fluid Conditioning Solutions®

Products Catalog

HYDRAULIC & LUBE FILTRATION

Hydraulic & Lube Filtration

Vision Mission Value Quality Statement:

Vision:

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

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


Leetsdale Facility

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.

Schroeder
INDUSTRIES
Advanced Fluid Conditioning Solutions®

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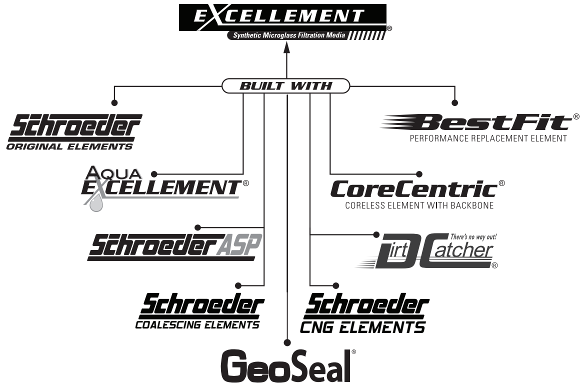
Note to the Reader

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

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

Section 1 also explains recent changes in industry standards regarding how fluid cleanliness is defined and measured. Recent technological advancements in the measurement of microscopic particles, coupled with the establishment of a new standard test dust for calibration purposes, necessitated these changes. Although the new standards may seem confusing at first, they enable more accurate sizing of dirt particles and reduce variability in output among different automatic particle counters. The end result is more reliable data for the user.



In Section 2, you'll find extensive technical data on Schroeder's Excellement® 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®, BestFit®, Excellement®, DirtCatcher® and CoreCentric® 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® replacement elements. With this user-friendly guide you can match 41,000 filter elements from 150 other manufacturers with appropriate Bestfit® replacements. Click the BestFit® 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

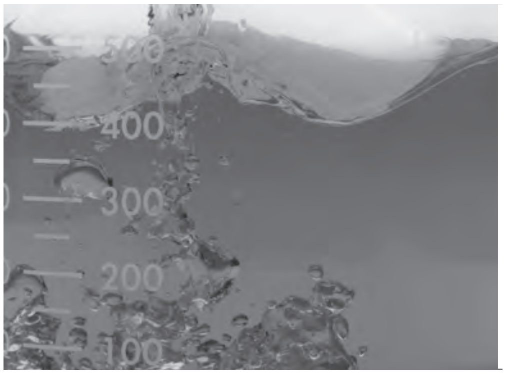
> **Innovating products, solutions, processes and services to improve performance and efficiency in industry.**

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®.

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:

AGRICULTURE
AUTOMOTIVE MANUFACTURING
BULK FUEL FILTRATION
CHEMICAL PROCESSING
CONSTRUCTION
INDUSTRIAL
MACHINE TOOL
MARINE
MINING TECHNOLOGY
MOBILE VEHICLES
OFFSHORE
POWER GENERATION
PULP & PAPER
RAILROAD
STEEL MAKING
WASTE WATER TREATMENT

Products

Engineering Laboratory

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.

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

Description	Standard
Burst Pressure Test	NFPA/T-2.6.1
Fatigue Testing	NFPA/T-2.6.1
Pressure/Life Rating of a Spin-On Filter	NFPA/T-3.10.17
Pressure Drop vs. Flow	ISO 3968

Design and Testing Standards of Schroeder High Efficiency Elements

Description	Standard
Element Collapse (Burst)	ISO 2941
Fabrication Integrity	ISO 2942
Material Compatibility	ISO 2943
End Load	ISO 3723
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®.

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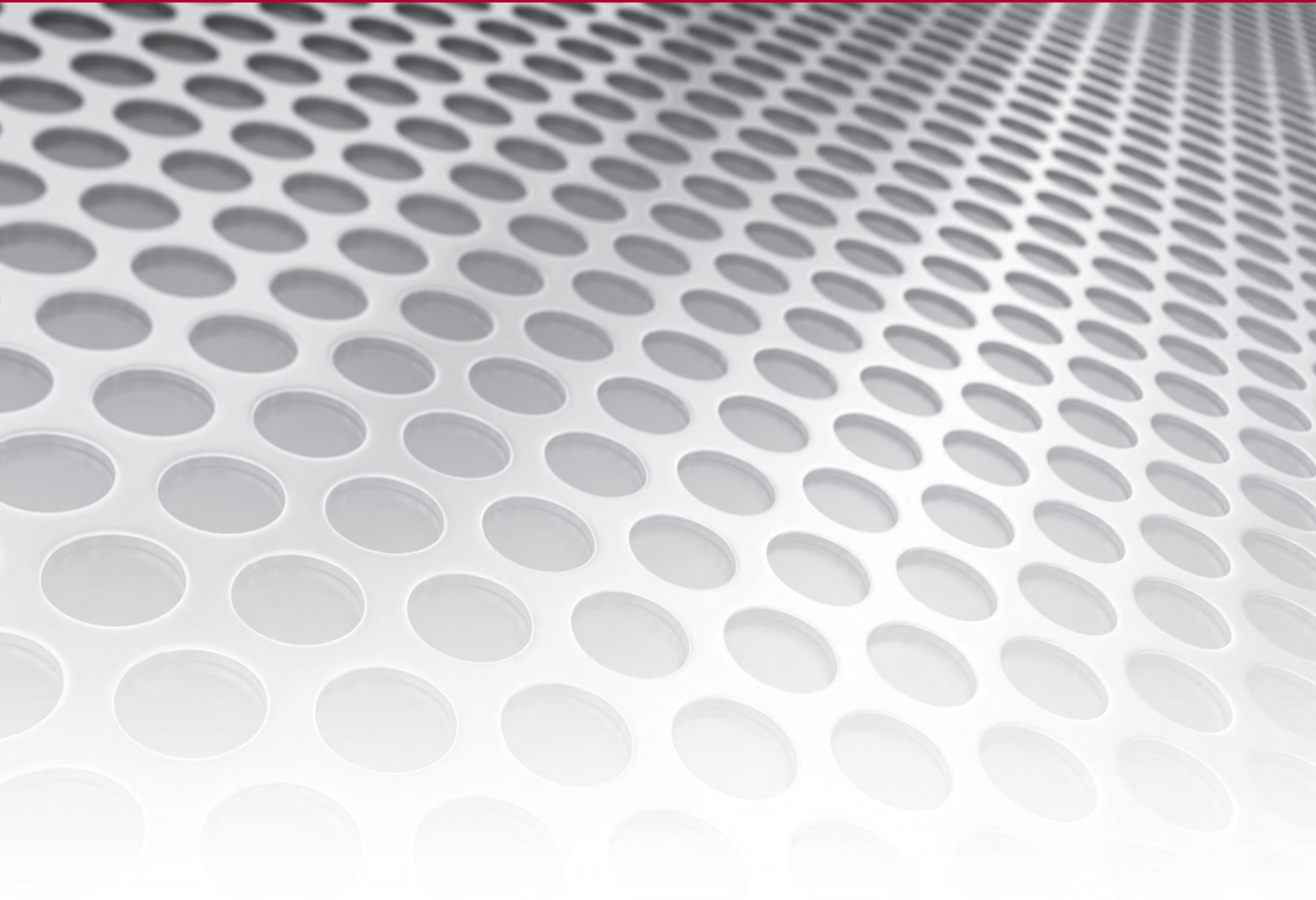
Advanced Fluid Conditioning Solutions®

Section 1: PRINCIPLES OF FILTRATION



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.

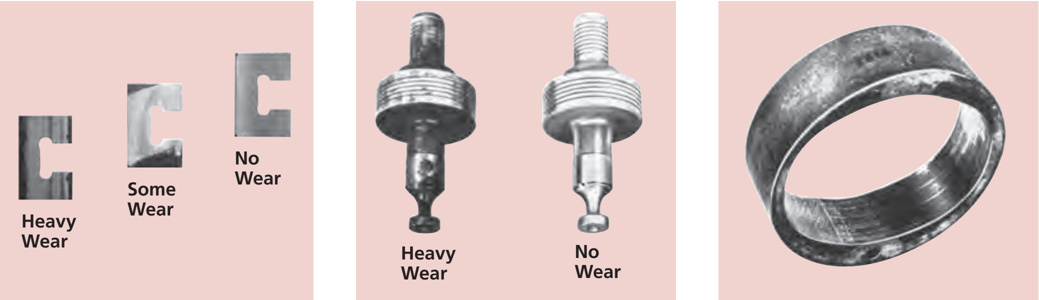
High contaminant levels accelerate component wear and decrease service life. Worn components, in turn, contribute to inefficient system operation, seizure of parts, higher fluid temperatures, leakage, and loss of control. All of these phenomena are the result of direct mechanical action between the contaminants 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

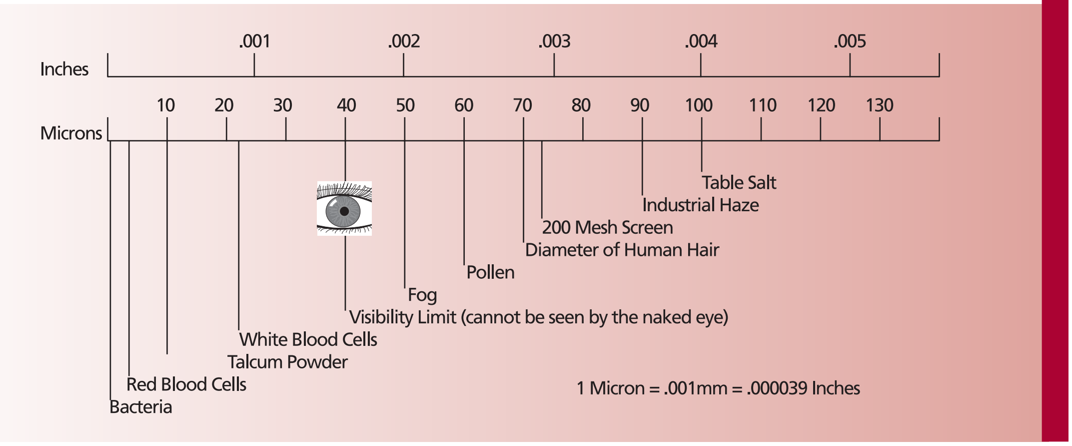
The size of solid particle contaminants is commonly measured in micrometers, µm, (usually referred to as microns, µ). A micron is a unit of length equal to one millionth of a meter or about .00004 inch. Particles that are less than 40 µ cannot be detected by the human eye.

Substance	Microns	Inches
Grain of table salt	100 µ	.0039"
Human hair	70 µ	.0027"
Talcum powder	10 µ	.00039"
Bacteria (average)	2 µ	.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 ß10 ≥1000, meaning that it can remove particles of 10 µ and greater at 99.9% efficiency.

Figure 2. Sizes of Known Particles in Inches and Microns



How Contaminants are Measured and Reported

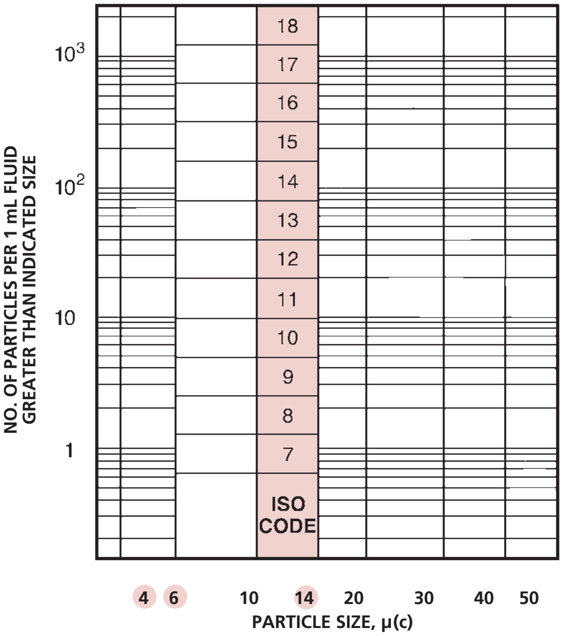
In hydraulic fluid power systems, power is transmitted and contained through a liquid under pressure within an enclosed circuit. These fluids all contain a certain amount of solid particle contaminants. The amount of particulate contaminants present in a hydraulic or lubrication system's fluid is commonly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

ISO Scale Numbers– ISO 4406:1999

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 μ(c), 6 μ(c), and 14 μ(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



ISO Scale Numbers– ISO 4406:1999

(continued)

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

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

- ISO codes are made up of 3 numbers representing the number of particles ≥4 μ(c), ≥6 μ(c) and ≥14 μ(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/≥7 signifies that there are more than 80 and up to and including 160 particles equal to or larger than 4 μ(c) per mL and more than 20 and up to and including 40 particles equal to or larger than 6 μ(c) per mL. The third part of the code, ≥7 indicates that there are more than 0.64 and up to and including 1.3 particles equal to or larger than 14 μ(c) per mL. The ≥ symbol indicates that less than 20 particles were counted, which lowers statistical confidence. Because of this lower confidence, the 14 μ(c) part of the code could actually be higher than 7, thus the presence of the ≥ symbol.

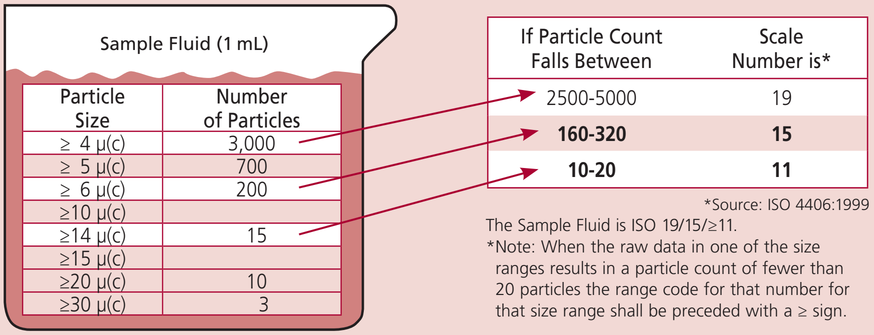
Cleanliness Levels– ISO 4406:1999

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 μ(c) particles falls between 2500 and 5000, the first ISO range number is 19 using Table 1. The number of 6 μ(c) particles falls between 160 and 320 particles, so the second ISO range number is 15. The number of 14 μ(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 Fluid (1 mL)

Particle Size	Number of Particles
≥ 4 μ(c)	3,000
≥ 5 μ(c)	700
≥ 6 μ(c)	200
≥10 μ(c)	
≥14 μ(c)	15
≥15 μ(c)	
≥20 μ(c)	10
≥30 μ(c)	3

If Particle Count Falls Between	Scale Number is*
2500-5000	19
160-320	**15**
10-20	**11**

*Source: ISO 4406:1999

The Sample Fluid is ISO 19/15/≥11.

*Note: When the raw data in one of the size ranges results in a particle count of fewer than 20 particles the range code for that number for that size range shall be preceded with a ≥ sign.

Required Cleanliness Levels

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 on Pressure

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	

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 (Δp) 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® Z-Media® elements offer the best combination of high efficiency, high beta stability, high dirt holding capacity, and low pressure drop.

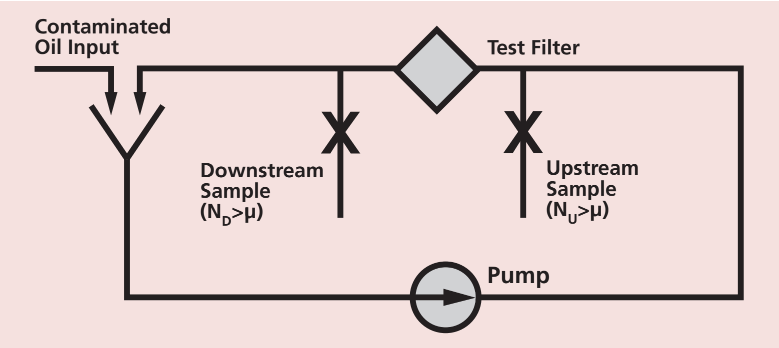
The Multi-pass Test

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



Efficiency / Filtration Ratio (Beta)

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.

$$\text{Example: } \beta_{10} = \frac{400}{100} = 4$$

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:

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

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.

Efficiency

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%

Filtration Ratio

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 $\beta_X(c) \geq 75$ (98.7% efficiency) for their absolute rating. Others use $\beta_X(c) \geq 100$ (99.0% efficiency), $\beta_X(c) \geq 200$ (99.5% efficiency), or $\beta_X(c) \geq 1000$ (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.

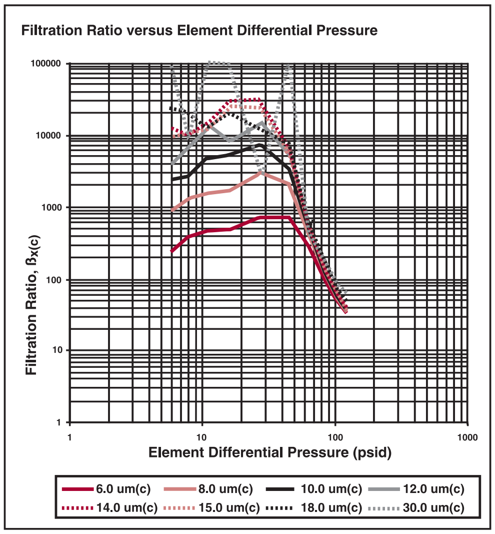
Beta Stability

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.

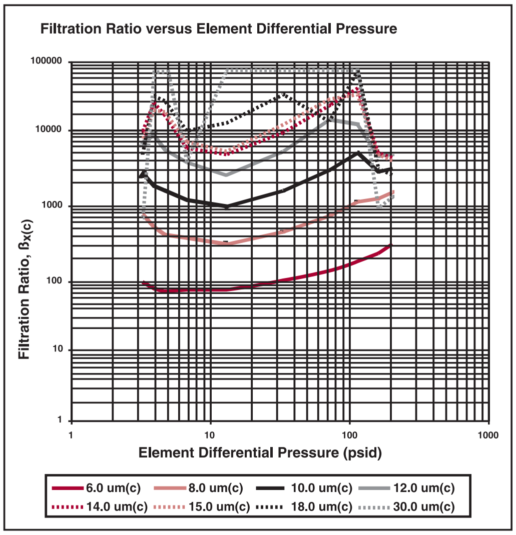
Beta Stability

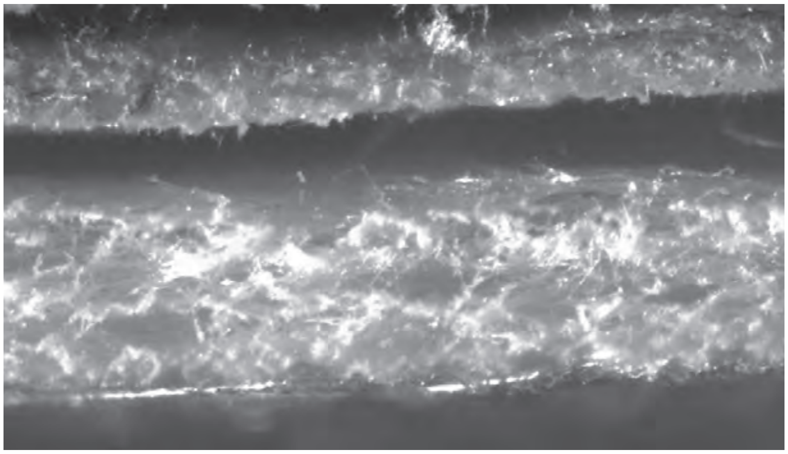
(continued)

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



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





Microscopic Photo - 50X magnification

Top: competitor's media Bottom: Schroeder Excellement® Z-Media®
Thin, weak media cannot withstand differential pressure as well as Z-Media®.

Dirt Holding Capacity

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

Element Size	Medium				
	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
K	112	115	119	108	93
KK	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

Pressure Drop

When sizing a filter, it is important to consider the initial differential pressure (ΔP) across the element and the housing. Elements offering a lower pressure drop at a high Beta efficiency are better than elements with a high ΔP at the same efficiency. At every level of filtration, Schroeder's Excellement® Z-Media® 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.

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®.

Schroeder-designed Dirt Alarms® 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®. These indicators may also be purchased as separate items. For more information on Dirt Alarms®, 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

Amount of Fluid Filtered

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).

Sizing a Filter Element

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:

$$EL = RC - (H + E)$$

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.

Fluid Compatibility: Fire Resistant Fluids

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

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® 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.

Fluid Compatibility: Fire Resistant Fluids (cont.)

Some special factors that need to be considered in the selection process include the following:

- 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® 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® 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® (synthetic) is compatible and 10 and 25 μ only E media (cellulose) with phosphate esters.
- For Skydrol®, only 3, 5, 10, and 25 μ Z-Media® (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:

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

Viton® is a registered trademark of DuPont Dow Elastomers.

Skydrol® is a registered trademark of Solutia Inc.

Filter Selection Considerations

Filter Location

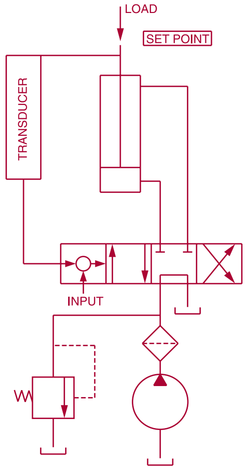


Figure 6(a). Pressure Filtration Circuit

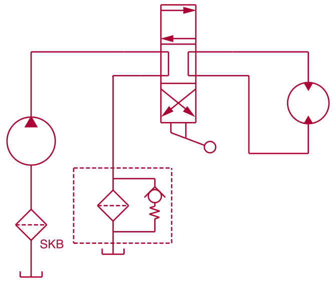


Figure 6(b). Return Line Filtration Circuit

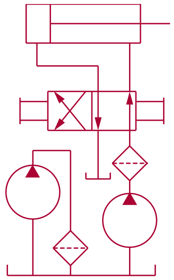


Figure 6(c). Re-circulating Filtration Circuit

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).

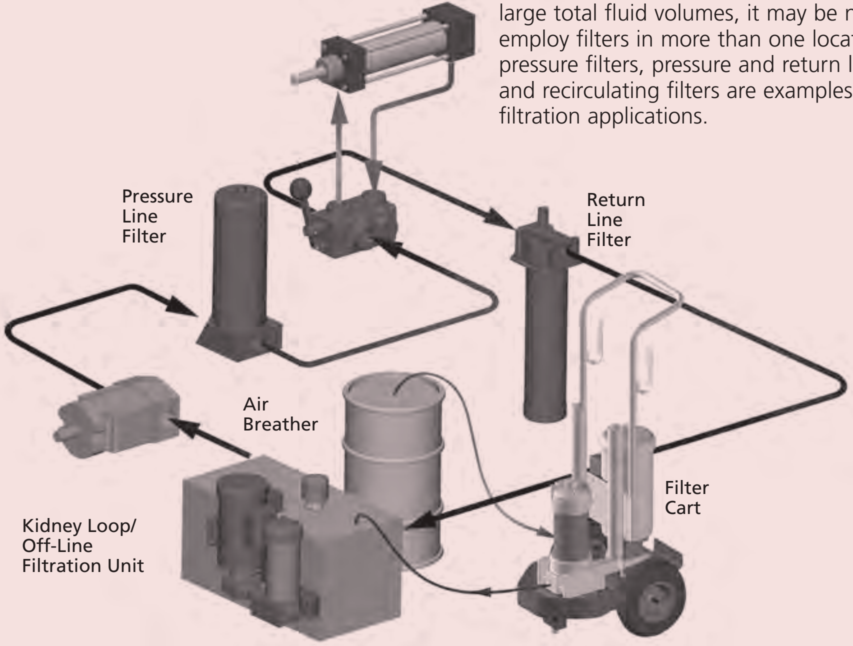
Return line filtration: Return line filters are often considered when initial cost is a major concern. A special concern in applying return line filters is sizing for flow. Large rod cylinders and other components can cause return line flows to be much greater than pump output. Return lines can have 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.



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

Step 1. 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

Step 2. Using Tables 6 and 7 (page 20, respectively), identify the proper Schroeder filter media to employ.

3. Where to filter

Step 3. Determine where to locate the filters, using the information on the previous page, "Filter Location."

4. Selecting filter housing

Step 4. 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

Step 5. 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.

7. Verifying results

Step 7. Check all filtration systems to determine if the results expected are obtained and maintained during system operation, as operating conditions and maintenance practices may not remain constant. Schroeder distributors and field representatives have access to contamination monitoring equipment that can determine the exact cleanliness level (ISO code) of your system on the spot. **Contact your Schroeder distributor or representative for complete details.**

Filter Selection Considerations

Filtration Selection Exercise

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.

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.

Table 8. 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

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.

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.

Table 9. Fatigue Pressure Ratings

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)		

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® 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® 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®. No-element indicator is not available when the indicator is placed in the cap in base-ported filters.

Ordering Information

Model Number Selection

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, 1½" NPTF porting, and a visual cartridge Dirt Alarm®.

Figure 7. Model Number Selection

How to Build a Valid Model Number for a Schroeder KF30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	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	
KF30	1K	Z	10			S		D5		= KF301KZ10SD5

BOX 1

Filter Series
KF30
KFN30 (Non-bypass housings requires Zx high collapse elements)

BOX 2

Number & Size of Elements	
1	K, KK, 27K
2	K
3	K

BOX 3

Media Type	
Omit =	E Media (Cellulose)
AS =	Anti-Stat Media (synthetic)
Z =	Excellement® Z-Media® (synthetic)
ZW =	Aqua-Excellement® ZW Media
ZX =	Excellement® Z-Media® (High Collapse centertube)
W =	W Media (water removal)
M =	Media (reusable metal mesh) N size only

BOX 4

MIcron Rating		
1	= 1 Micron	(Z, ZW, ZX media)
3	= 3 Micron	(AS,E, Z, ZW, ZX media)
5	= 5 Micron	(AS, Z, ZW, ZX media)
10	= 10 Micron	(AS,E,M, Z, ZW, ZX media)
25	= 25 Micron	(E, Z, ZW, ZX media)
60	= 60 Micron	(M media)
150	= 150 Micron	(M media)
260	= 260 Micron	(M media)

BOX 5

Seal Material
Omit = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

BOX 6

Magnet option
Omit = None
M = Magnet inserts (not available w/ indicator in cap)

BOX 7

Porting
P = 1 ½" NPTF
P32 = 2" NPTF
S = SAE-24
F = 1 ½" SAE 4-bolt flange Code 61
F32 = 2" SAE 4-bolt flange Code 61
O = Subplate
B24 = ISO 228 G-1 ½"

BOX 8

Options
Omit = None
X = Blocked bypass
50 = 50 psi bypass setting
L = Two ¼" NPTF inlet & outlet female test ports
U = Series 1215 ⁷⁄₁₆ UNF Schroeder Check Test Point installed in Cap (upstream & downstream)
UU = Series 1215 ⁷⁄₁₆ UNF Schroeder Check Test Point installed in Cap (upstream)

BOX 9

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
	D5C =	D5 in cap
	D9 =	All stainless D5
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	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 =	MS16 (see above) w/ thermal lockout
	MS16LCT =	Low current MS16T
	MS17LCT =	Low current MS17T
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

BOX 10

Additional Options
Omit = None
N = No-Element Indicator (not available w/ KFN30 or housings w/ indicator in cap)
G509 = Dirt Alarm and drain opposite standard
G588 = Electric Switch and drain opposite standard

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® 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 non-bypassing model is 50 psi unless otherwise specified.

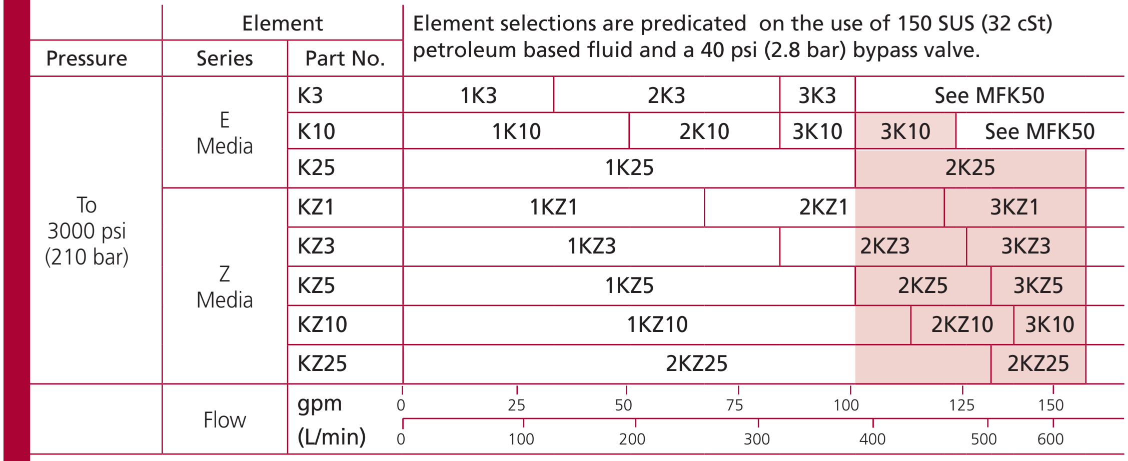
Box 10. Options N, G509 and G588 are not available with KFN30. N option should be used in conjunction with dirt alarm.

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 μ). 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



	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.
Pressure	Series	Part No.	
To 3000 psi (210 bar)	E Media	K3	1K3 2K3 3K3 See MFK50
		K10	1K10 2K10 3K10 3K10 See MFK50
		K25	1K25 2K25
	Z Media	KZ1	1KZ1 2KZ1 3KZ1
		KZ3	1KZ3 2KZ3 3KZ3
		KZ5	1KZ5 2KZ5 3KZ5
		KZ10	1KZ10 2KZ10 3K10
		KZ25	2KZ25 2KZ25
	Flow	gpm	0 25 50 75 100 125 150
		(L/min)	0 100 200 300 400 500 600

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.

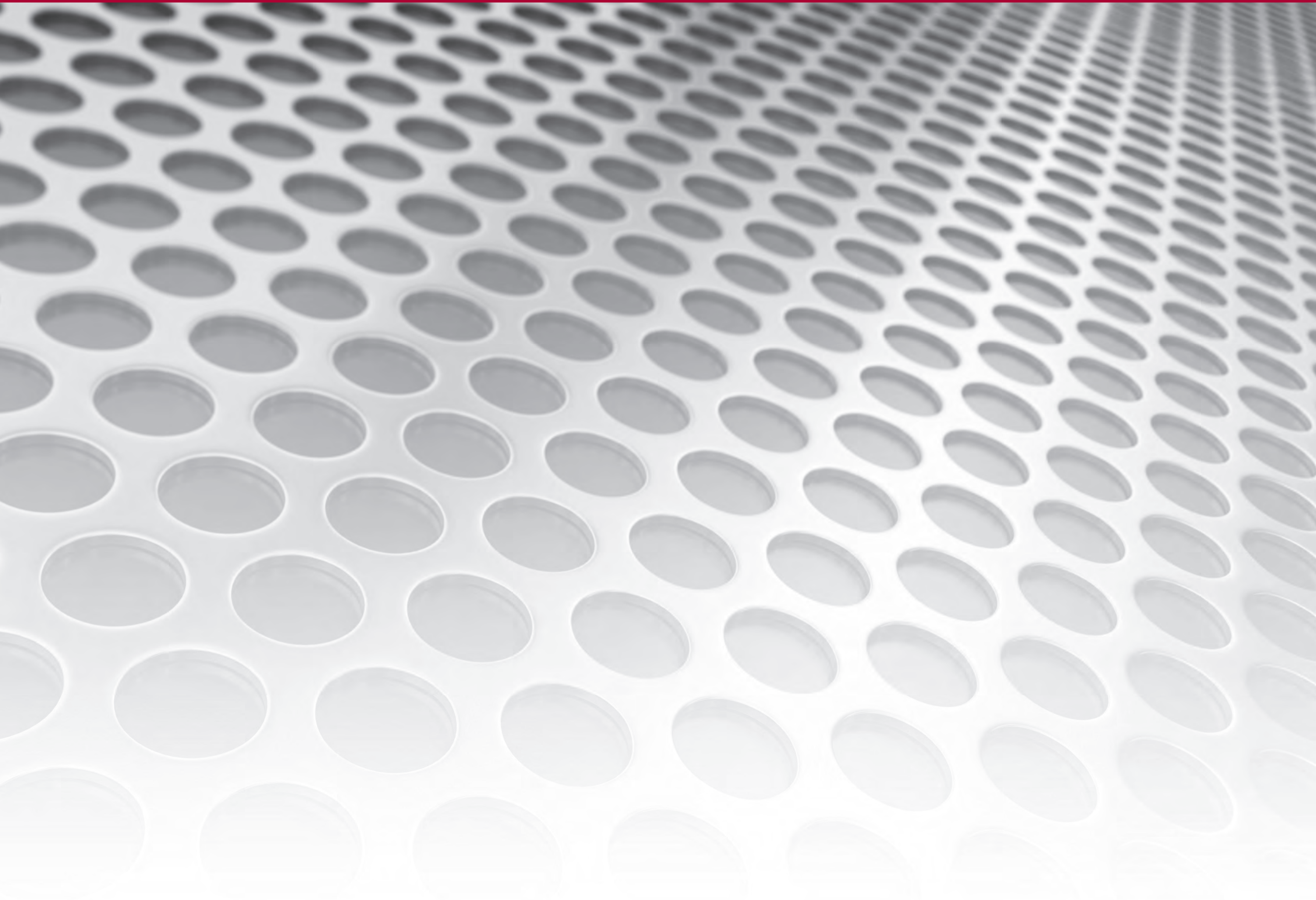
If the viscosity or specific gravity of the fluid you are designing for is different from these, use the following formulas to obtain the correct ΔP values.

$$\text{Corrected element } \Delta P = \Delta P \text{ from curve } \times \frac{\text{SUS viscosity}}{150} \times \frac{\text{specific gravity}}{0.86}$$

OR

$$\text{Corrected element } \Delta P = \Delta P \text{ from curve } \times \frac{\text{cST viscosity}}{32} \times \frac{\text{specific gravity}}{0.86}$$

Section 2: FILTER ELEMENTS



Schroeder Element Media

Z-Media® Elements (Synthetic)

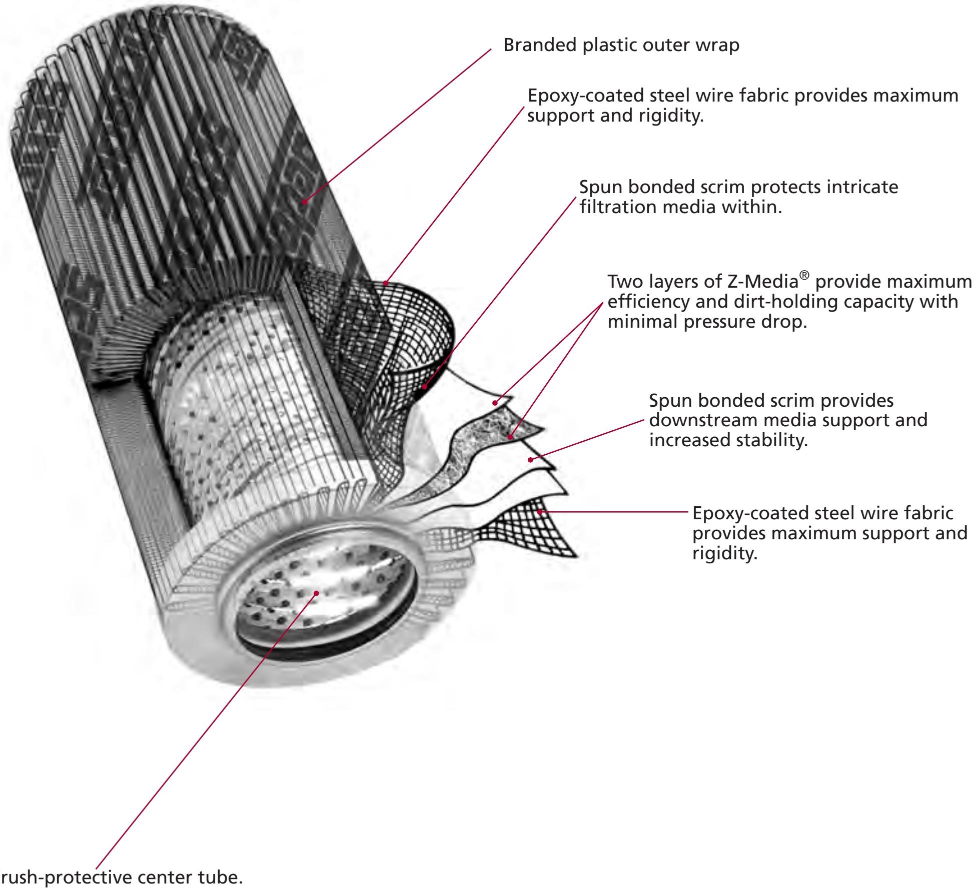
Schroeder
ORIGINAL ELEMENTS
BUILT WITH EXCELLEMENT

EXCELLEMENT®
Synthetic Microglass Filtration Media

The special class of micro-glass and other fibers used in Z-Media® 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® Z-Media®: 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®



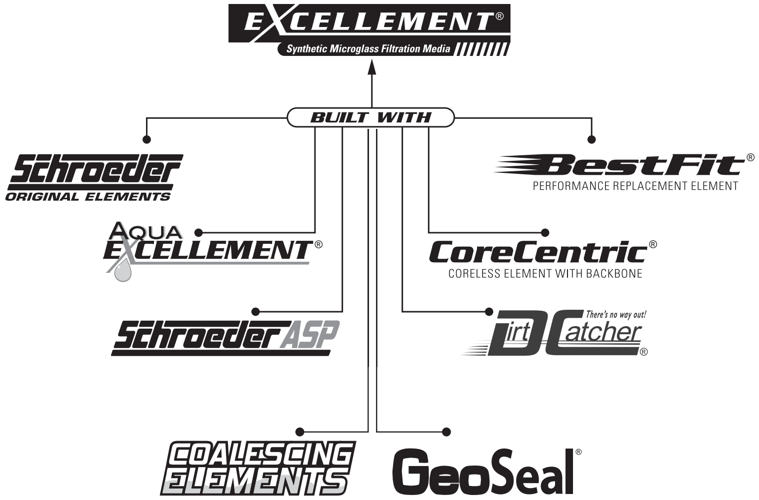
Schroeder's complete line of quality filtration elements—including Schroeder's original element designs, BestFit® replacement elements, CoreCentric® coreless repair elements and DirtCatcher® —are manufactured with Excellement® Z-Media®.

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

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

Features and Benefits

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



Excellement® Elements Have *Improved Filtration Ratios*

Schroeder Z-Media® 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® 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® filter elements in various applications.

Table 10. Typical Field Application Results

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 coarser or finer Schroeder Z-Media®, respectively.

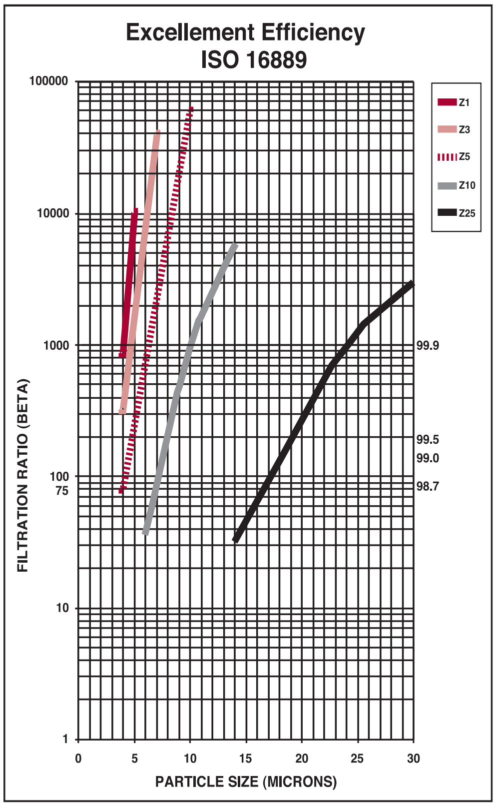
Table 11 shows the ISO 16889 filtration ratios (Betas) for Schroeder Z-Media® elements Z1, Z3, Z5, Z10 and Z25. Figure 10 depicts the information in Table 11 graphically and provides corresponding % efficiencies. The numbers contained in the tables are simply specific data points from the plots for the 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.

Table 11. Z-Media® Filtration Ratios

Element Media	Filtration Ratio Per ISO 16889			
	ßx(c) ≥ 75 (98.7%)	ßx(c) ≥ 100 (99%)	ßx(c) ≥ 200 (99.5%)	ßx(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

Excellement® *Efficiency*

Figure 10. Z-Media® Excellement® Efficiency



Typical Dirt Holding Capacities for Z-Media® Elements

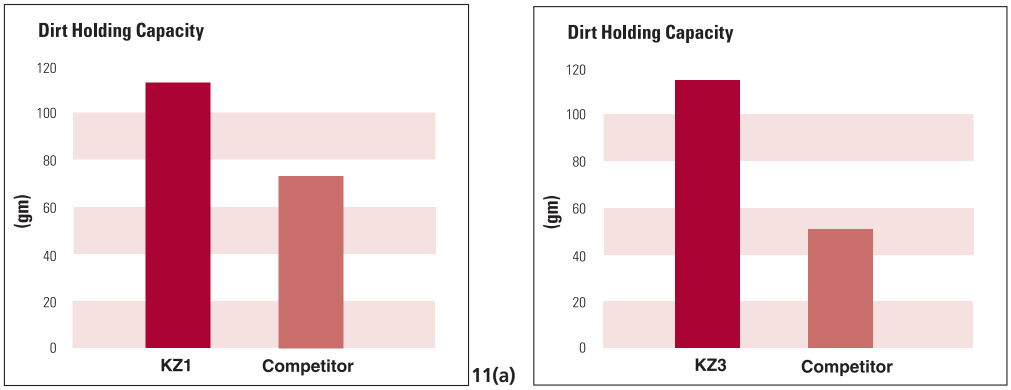
Element Size	Medium				
	Z1	Z3	Z5	Z10	Z25
3TA	9	7	10	8	8
3TB	27	11	12	11	11
5TB	40	18	21	17	18
KB	110	99	138	110	112
KI	85	88	130	104	106
KKI	181	185	263	174	214
27KI	336	345	357	324	279
16Q	258	283	254	280	234
39Q	593	1001	691	940	537
39QCLQF	1259	1293	869	1214	1102
39QPML	1485	1525	1235	1432	1299
BBI	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
K	112	115	119	108	93
KK	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
6G	38	30	42	34	34
9G	64	51	71	57	58
5H	26	28	39	47	48
9H	51	42	59	42	48
16QCLQF	307	315	364	306	278
16QPML	307	315	364	330	299
10DV	74	59	82	66	67
14DV	119	95	133	106	108
13HZ	143	114	159	127	129
25DN	NA	46	49	55	61
40DN	NA	76	81	91	102
85	164	131	183	146	149

Excellement Elements Have *High Dirt Holding Capacities*

EXCELLEMENT®
Synthetic Microglass Filtration Media

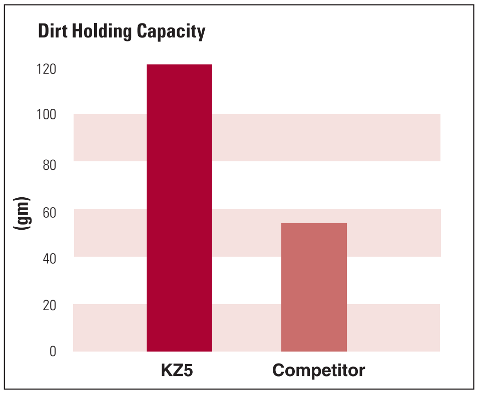
Dirt holding capacity (DHC), simply stated, is the amount of solid contamination that an element can hold before the filter housing reaches its terminal bypass setting. The higher the dirt holding capacity, the longer the element will last. This translates to fewer element purchases, less frequent equipment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

Figures 11(a) - 11(e). DHC Comparison for Z-Media® Elements and Competition

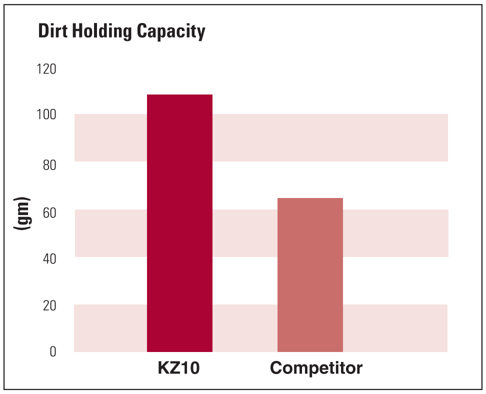


11(a)

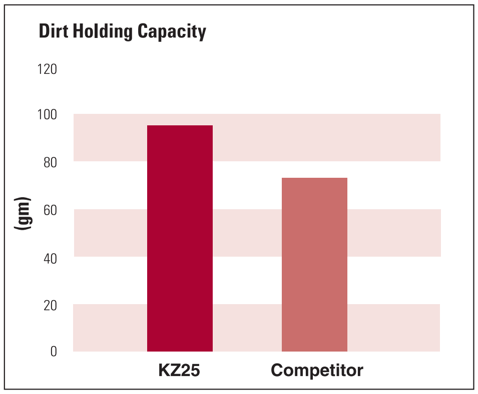
11(b)



11(c)



11(d)



11(e)

Table 12. Typical Dirt-Holding Capacities for Z-Media® Element (in grams)

Type Medium	Element Size (Diameter x Length)				
	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

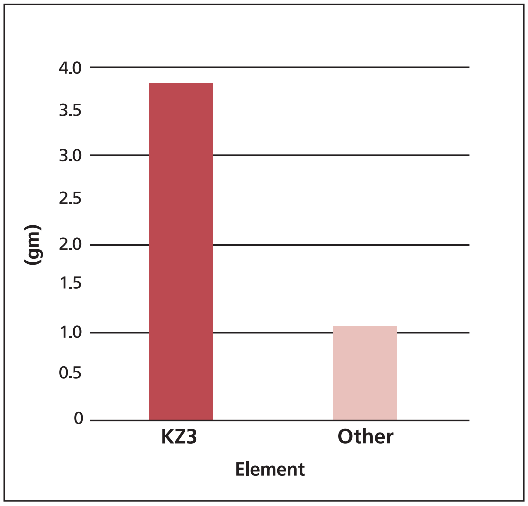
The data shown represents the cumulative results of multi-pass tests in accordance with ISO 16889. Tests are conducted on a regular basis at Schroeder's own laboratory and at approved independent facilities.

Cost Per Gram Analysis

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



GeoSeal®

There are currently more than 180 filter element suppliers in business producing cheap imitations of well-established manufacturers like Schroeder. Far too often, customers make purchasing decisions based solely on price, only to be extremely disappointed with the poor quality delivered by low cost imitations. To make the matter worse, the customer often points an accusing finger at the filter housing manufacturer for poor performance, rather than the inadequate element they used as a replacement for the original Schroeder element.

GeoSeal® is a patented offering from Schroeder that provides a unique way for OEM's to retain replacement element business and to keep a filter's performance at the level that it was supplied. The idea is brilliantly simple: the critical sealing arrangement between a filter housing and its replacement element takes on a shape other than the standard circular arrangement. Specifically, the element grommet & mating bushing are given a new geometric shape. Figures 1 & 2 show the initial configuration being used.

Figure 1. Filter element with GeoSeal grommet.

Figure 2. Filter housing (cut-away) with GeoSeal grommet bushing.

Availability

Currently, the GeoSeal® design is available on the K-size element and in the following Schroeder filter series: KF30, KF50, KC50, KC65, MKF50, K9, 2K9, 3K9, KF3, KL3, MLF1, KF5, RT.

How To Order

To order the filter housing and element incorporated with the GeoSeal® design:

- "G" is added to the front of the housing model code (KF30, KF50, KC50, KC65, MKF50, KF3, KL3, MLF1, KF5, K9, 2K9, 3K9)
- "BG" is added to the element model code for RT (one end of the element has the GeoSeal®; the other end has an integrated bypass valve)
- "G" is added to the element model code for all other housings

GeoSeal® Filters Selection Guide

		Pressure psi (bar)	Flow gpm (L/min)	Element Length/Size	Page
GeoSeal® Filters	**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
	Medium Pressure GeoSeal® Filters				
	GKF5 GeoSeal®	500 (35)	100 (380)	KG	342
	GK9 GeoSeal®	900 (60)	100 (380)	KG, KKG, 27KG	342
	G2K9 GeoSeal®	900 (60)	100 (380)	KG, KKG, 27KG	343
	G3K9 GeoSeal®	900 (60)	100 (380)	KG, KKG, 27KG	343
	Low Pressure GeoSeal® Filters				
	GKF3 GeoSeal®	300 (20)	100 (380)	KG, KKG, 27KG	344
	GKL3 GeoSeal®	300 (20)	120 (455)	KG, KKG, 27KG, 18LG	344
	GMLF1 GeoSeal®	300 (20)	200 (760)	KG	345
	GRT GeoSeal®	100 (7)	100 (380)	KBG, KKBG, 27KBG	345

Anti-Static Pleat Elements

Schroeder ASP

The Anti-Static Pleat Media (ASP®) 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® media and ASP® 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

K	C	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					

DirtCatcher® Elements

DirtCatcher®

there's no way out!

Patent # 7384547

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

DirtCatcher® 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® media. DirtCatcher® elements are currently available in single and double length K, BB, and 18L size elements, and feature Excellement® media within. Part numbers appear on left.

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

The DirtCatcher® 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.

CoreCentric® Coreless Element

Schroeder
ORIGINAL ELEMENTS
BUILT WITH EXCELLEMENT

CoreCentric®

CORELESS ELEMENT WITH BACKBONE

The CoreCentric® 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® Coreless repair elements are designed to ensure optimum performance and ease of service. Built with Excellement® Z-Media®, CoreCentric® 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® elements are available with Viton® seals only.

CoreCentric® 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

Series ZX High Collapse Elements (Synthetic)

Schroeder
ORIGINAL ELEMENTS
BUILT WITH EXCELLEMENT

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

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

Table 13. Schroeder High Crush Element Sizes

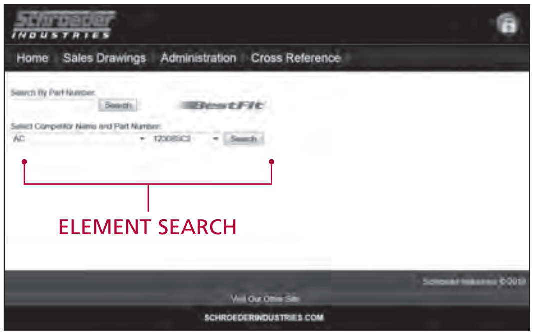
Element	Nominal Element Size
CZX3, CZX10	3.0" Diameter x 4.8" Long
CCZX3, CCZX10	3.0" Diameter x 9.5" Long
FZX3	1.3" Diameter x 3.3" Long
KZX1, KZX3,	
KZX10, KZX25	3.9" Diameter x 9.0" Long
KKZX1, KKZX3, KKZX5,	
KKZX10, KKZX25	3.9" Diameter x 18.0" Long
27KZX1, 27KZX3, 27KZX5,	
27KZX10, 27KZX25	3.9"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

BestFit® High Performance Replacement Elements

Schroeder
ORIGINAL ELEMENTS
BUILT WITH EXCELLEMENT

BestFit®
PERFORMANCE REPLACEMENT ELEMENT

Schroeder manufactures over 1900 Bestfit® 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® 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).



ELEMENT SEARCH

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	

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

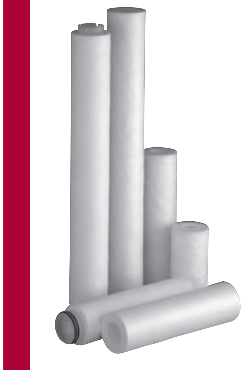
Used in process and cutting fluid applications, melt-blown and spun-bonded elements are manufactured with either polypropylene or nylon filter media. Element fibers are blown onto and thermally bonded to a central support core with increasing fiber density towards the core, creating depth filtration.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

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

They have a wide range of applications including:

- Machine tool coolants
- Roll mill coolants
- EDM fluids
- Quench oils
- Parts washing solvents
- Electrophoretic paints
- Etching solutions
- Plating solutions
- Light oils
- Fuels
- High water containing fluids

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

Element Media	Filtration Ratios (Beta)						
	$\beta_x \geq 75$ (98.7%)	$\beta_x \geq 100$ (99%)	$\beta_x \geq 200$ (99.5%)	β_3	β_5	β_{10}	β_{20}
E3	6.8	7.5	10.0	28	48	200	>1000
E10	15.5	16.2	18.0	—	1.3	10	400

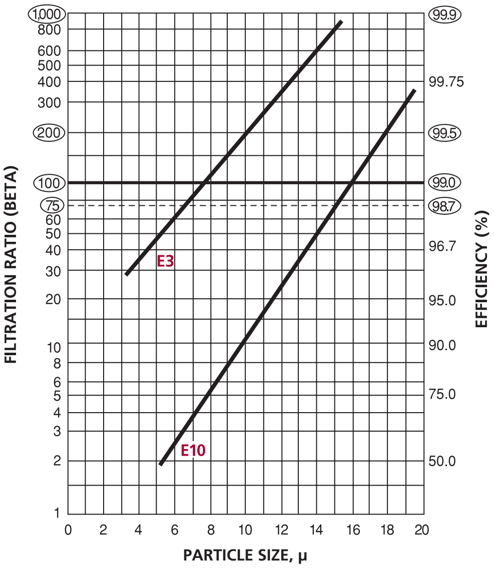
The cost effectiveness of E media becomes even more apparent when dirt holding capacity is considered (see Table 15). The dollars spent per gram of dirt retained with an E media element makes it an excellent choice for many contamination control programs.

Table 15. Typical Dirt Holding Capacities for E Media Elements (ACFTD capacity in grams)

Element Size	Media	
	E3	E10
N	8	7
NN	12	10
C	14	12
CC	30	25
A	16	13
K	54	44
9C	30	25
BB	162	132
18L	108	88
M	50	37
8Z	39	32
8T	39	32
P	—	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.

M Media Elements (Reusable Metal)

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 µ 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

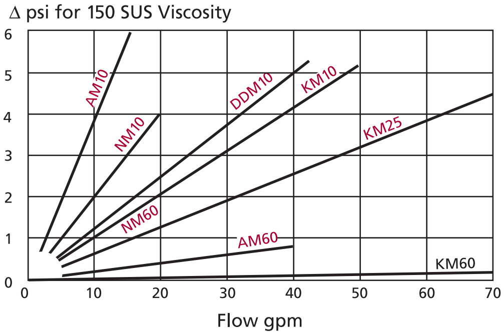


Table 17. Micron Ratings and Wire Mesh

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

F-Pack Media

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: ß3=1000 and ß10=1000
- Excellent choice for use with phosphate esters and Fyrquel® fluids
- Operating temperature -20°F to 250°F with use of Viton® seals
- Element collapse rating 3000 psid for use at high differential pressures

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.

Table 18. Water Holding Capacity

Element Model No.	Flow gpm (L/min)	Capacity	
		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)	ΔP 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 Model No.	Maximum Recommended Flow Rate	
	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

Aqua-Excellement™ High Efficiency Particulate Water Removal Media

AQUA EXCELLEMENT™

Schroeder introduces its new Aqua-Excellement™ 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® Z-Media® 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® 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.

Table 21. KZW Cartridge Element Dirt and Water Holding Capacities

Element Part Number	DHC (g)	Water Removal Capacity		Filtration Ratios (Beta)		
		2.5 gpm	10 gpm	ßx ≥ 200	ßx ≥ 1000	ΔP Factor
KZW1	61	197 ml/ 6.66 oz	134ml/ 4.53 oz	<4.0	<4.0	0.43
KZW3/KKZW3	64/128			4.0	4.8	0.32
KZW5/KKZW5	63/126			5.1	6.4	0.28
KZW10/KKZW10	57/114			6.9	8.6	0.23
KZW25/KKZW25	79/158			15.4	18.5	0.14

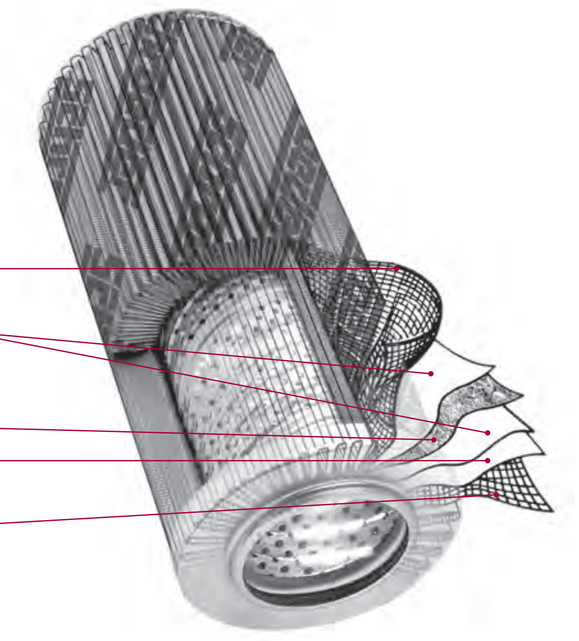
Aqua-Excellement™ High Efficiency Particulate Water Removal Media

AQUA EXCELLEMENT™

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

Element Part Number	DHC (g)	Water Removal Capacity		Filtration Ratios (Beta)	
		2.5 gpm	10 gpm	ßx ≥ 200	ßx ≥ 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.



- Epoxy-coated steel wire fabric provides maximum support and rigidity.
- Two layers of Z-Media provide maximum efficiency and dirt-holding capacity with minimal pressure drop
- Water removal media
- Spun-bonded scrim provides downstream media support and increased stability
- Epoxy-coated steel wire fabric provides maximum support and rigidity.

Total water injection flow rate: 2.0 ml/min.

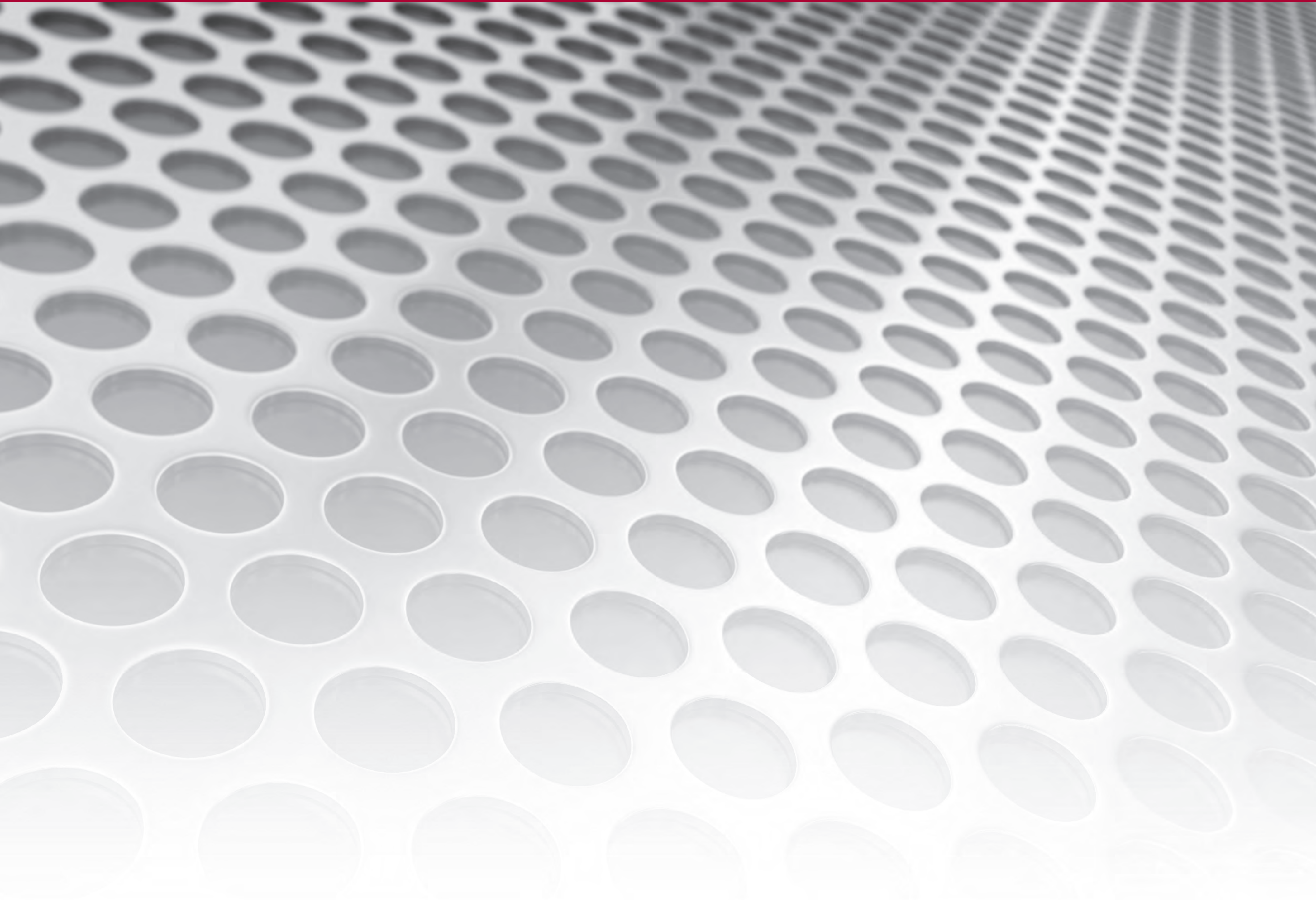
Schroeder Kidney Loop Systems and Mobile Filtration Carts *can utilize the KZW cartridge elements*

ZW Spin-On Elements

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

Section 3:
above 3000 psi

HIGH PRESSURE FILTERS



Section 3 High Pressure Filters Selection Guide

		Pressure psi (bar)	Flow gpm (L/min)	Element Length/Size	Page
High Pressure Filters (1500 - 6500 psi)	**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)	CC	89
	CTF60	6000 (415)	75 (284)	5CT, 8CT, 14CT	93
	VF60	6000 (415)	70 (265)	9V	97
	LW60	6000 (415)	300 (1135)	39ZP	101
	Base-Ported High Pressure Filters				
	KF30	3000 (210)	100/150 (380/570)	K, KK, 27K	105
	TF50	5000 (345)	40 (150)	A, CC	109
	KF50	5000 (345)	100/150 (380/570)	K, KK, 27K	113
	KC50	5000 (345)	100/150 (380/570)	K, KK, 27K	117
	MKF50	5000 (345)	200 (760)	K, KK, 27K	121
	KC65	6500 (450)	100 (380)	K, KK, 27K	125
	Servo Protection (Sandwich) Filters DO7, DO3, Moog, Parker & 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 & Installation Drawings)				
	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 Pressure Filters				
	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

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

20 gpm
75 L/min
3000 psi
210 bar

Model No. of filter in photograph is NF301NZ10SD5.

Features and Benefits

- Top-ported pressure filter
- All aluminum assembly
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread and ISO 228 porting
- Same day shipment model available

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

PULP & PAPER

AGRICULTURE

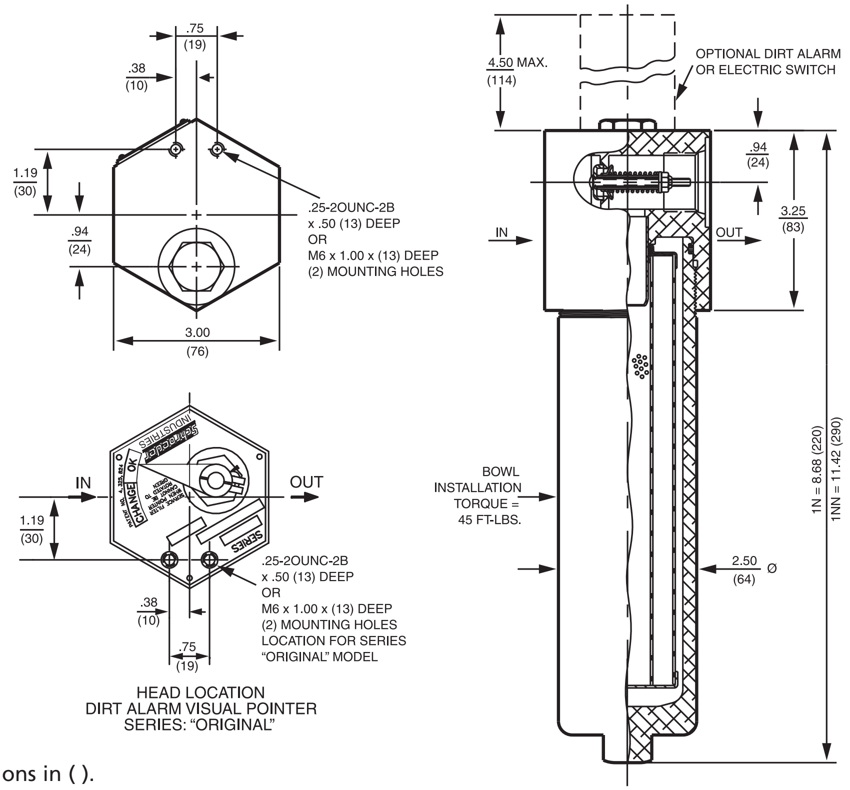
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	10,000 psi (690 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2400 psi (165 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 85 psi (5.9 bar) Non-bypassing model has a blocked bypass.
Porting Head:	Aluminum
Element Case:	Aluminum
Weight of NF30-1N:	3.4 lbs. (1.5 kg)
Weight of NF30-1NN:	4.4 lbs. (2.0 kg)
Element Change Clearance:	4.50" (115 mm)

NF30 Top-Ported Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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/NAS10	7.4	8.2	10.0	8.0	10.0
NZ25/NNZ25	18.0	20.0	22.5	19.0	24.0
NNZX3	<1.0	<1.0	<2.0	4.7	5.8
NNZX10	7.4	8.2	10.0	8.0	9.8

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)
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
		NNZX3	11*
		NNZX10	13*

*Based on 100 psi terminal pressure

Element Collapse Rating:	150 psid (10 bar) for standard elements 3000 psid (210 bar) for high collapse (ZX) versions
Flow Direction:	Outside In
Element Nominal Dimensions:	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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic), 3, 5, and 10 μ ASP® Media (synthetic)

Element Selection
Based on Flow Rate

Pressure	Series	Element 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.		
To 3000 psi (210 bar)	E Media	N3 & NN3	1N3	1NN3	See DF40
		N10 & NN10	1N10	1NN10	
		N25	1N25		
	Z-Media®	NZ1 & NNZ1	1NZ1	1NNZ1	See DF40 or YF30
		NZ3 & NNZ3	1NZ3	1NNZ3	
		NZ5 & NNZ5	1NZ5	1NNZ5	
		NZ10 & NNZ10	1NZ10 & 1NNZ10		
		NZ25 & NNZ25	1NZ25 & 1NNZ25		
	Flow	gpm	0 5 10 15 20		
		(L/min)	0 25 50 75		

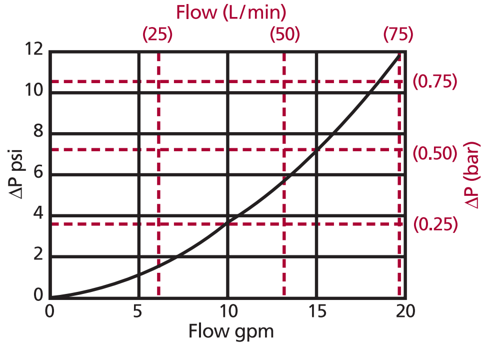
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

NF30 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1N		1NN
N3	1.10	**NN3**	.77
N10	.17	**NN10**	.13
N25	.10	**NN25**	.07
NZ1	1.43	**NNZ1**	1.23
NZ3/NAS3	.92	**NNZ3/NNAS3**	.56
NZ5/NAS5	.71	**NNZ5/NNAS5**	.46
NZ10/NAS10	.57	**NNZ10/NNAS10**	.35
NZ25	.36	**NNZ25**	.20
		NNZX3	1.00
		NNZX10	.52

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

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

Exercise:

Determine ΔP at 15 gpm (57 L/min) for NF301NZ25SMS5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 7.0 psi [.50 bar]

$\Delta P_{element}$ = 15 x .36 x (200÷150) = 7.2 psi

or

= [57 x (.36÷54.9) x (44÷32) = .51 bar]

ΔP_{total} = 7.0 + 7.2 = 14.2 psi

or

= [.50 + .51 = 1.01 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

NF30 Top-Ported Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model
See inside back cover for details.

How to Build a Valid Model Number for a Schroeder NF30

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
NF30								

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
NF30	1N	Z	10		S		D5		**= NF301NZ10SD5**

BOX 1

Filter Series
NF30
NFN30 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number & Size of Elements	
1	N = Single Length
	NN = Double Length

BOX 3

Media Type	
Omit	= E Media (Cellulose)
Z	= Excellement® Z-Media® (synthetic)
AS	= Anti-Stat Media (synthetic)
ZX	= Excellement® Z-Media® (high collapse center tube)
M	= Media (reusable metal mesh) N size only

BOX 4

Micron Rating		
1	= 1 Micron	(Z, ZX media)
3	= 3 Micron	(AS ,E, Z, ZX media)
5	= 5 Micron	(AS, Z, ZX media)
10	= 10 Micron	(AS, E, M, Z, ZX media)
25	= 25 Micron	(E, Z, ZX media) only N
60	= 60 Micron	(M media)

BOX 5

Seal Material
Omit = Buna N
V = Viton®
W = Buna N

BOX 6

Porting
B = ISO228 G-¾"
P = ¾" NPTF
S = SAE-12

BOX 7

Options
Omit = None
X = Blocked bypass (NA with NFN30)

BOX 8

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer (D available with NF30 only)
	D5 =	Visual pop-up
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
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

BOX 9

Additional Options
Omit = None
G792 = 7⁄16"-20 UNF drain on housing

NOTES:

Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5.

Box 5. E media (cellulose) elements are only available with Buna N seals. For options V and W, all aluminum parts are anodized.
Viton® is a registered trademark of DuPont Dow Elastomers.

Box 6. B porting option supplied with metric mounting holes.

Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Manifold Mounted Pressure Filter **NFS30**

20 gpm
75 L/min
3000 psi
210 bar

Model No. of filter in photograph is NFS301NZ3OD5.

Features and Benefits

- Manifold mounted pressure filter
- Offered in square head conventional subplate porting
- Direct mounting to inlet port on customer's manifold

Applications

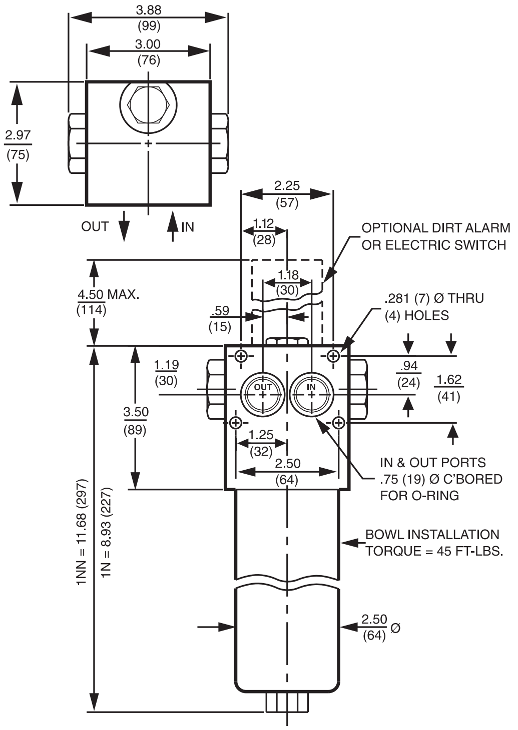
- INDUSTRIAL
- AUTOMOTIVE MANUFACTURING
- MACHINE TOOL
- STEEL MAKING
- PULP & PAPER
- AGRICULTURE
- MOBILE VEHICLES

Filter Housing Specifications

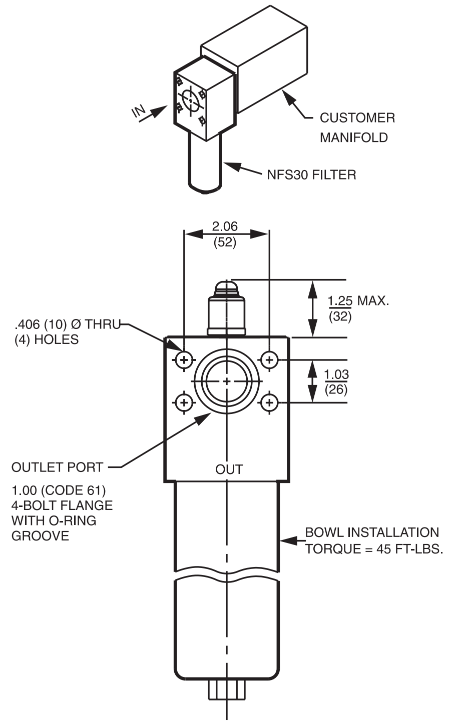
Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	10,000 psi (690 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2400 psi (165 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 85 psi (5.9 bar)
Porting Head: Element Case:	Aluminum Aluminum
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)

NFS30 Manifold Mounted Pressure Filter

NFS30 WITH “O” PORT CONFIGURATION



NFS30 WITH PO, SO, FO PORT CONFIGURATION



Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)
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 standard elements
3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: 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

Manifold Mounted Pressure Filter **NFS30**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic), 3, 5, and 10 μ ASP® Media (synthetic)

Element Selection
Based on Flow Rate

Pressure	Series	Element 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.		
To 3000 psi (210 bar)	E Media	N3 & NN3	1N3	1NN3	See DF40
		N10 & NN10	1N10	1NN10	
		N25 & NN25	1N25 & 1NN25		
	Z-Media®	NZ1 & NNZ1	1NZ1	1NNZ1	See DF40
		NZ3 & NNZ3	1NZ3	1NNZ3	
		NZ5 & NNZ5	1NZ5	1NNZ5	
		NZ10 & NNZ10	1NZ10 & 1NNZ10		
		NZ25 & NNZ25	1NZ25 & 1NNZ25		
	Flow	gpm	0 5 10 15 20		
		(L/min)	0 25 50 75		

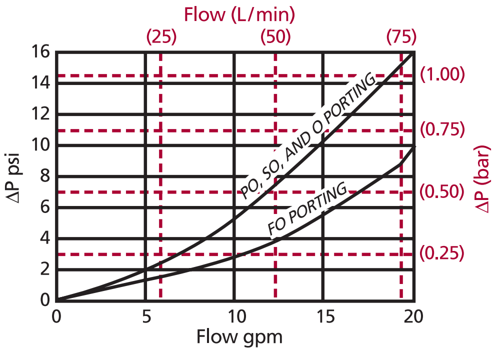
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

NFS30 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1N		1NN
N3	1.10	**NN3**	.77
N10	.17	**NN10**	.13
N25	.10	**NN25**	.07
NZ1	1.43	**NNZ1**	1.23
NZ3/NAS3	.92	**NNZ3/NNAS3**	.56
NZ5/NAS5	.71	**NNZ5/NNAS5**	.46
NZ10/NAS10	.57	**NNZ10/NNAS10**	.35
NZ25	.36	**NNZ25**	.20

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

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

Exercise:

Determine ΔP at 10 gpm (38 L/min) for NFS301NNZ10FOD using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.25 bar]
$\Delta P_{element}$ = 10 x .35 x (200÷150) = 4.7 psi
or
= [38 x (.35÷54.9) x (44÷32) = .33 bar]
ΔP_{total} = 3.0 + 4.7 = 7.7 psi
or
= [.25 + .33 = .58 bar]

NFS30 Manifold Mounted Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder NFS30

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
NFS30							

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
NFS30	1N	Z	10		SO		D5	= NFS301NZ10SOD5

BOX 1

Filter Series
NFS30
NFSN30 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number & Size of Elements	
1	N = Single Length
	NN = Double Length

BOX 3

Media Type	
Omit	= E Media (Cellulose)
Z	= Excellement® Z-Media® (synthetic)
AS	= Anti-Stat Media (synthetic)
ZX	= Excellement® Z-Media® (high collapse center tube)
M	= Media (reusable metal mesh) N size only

BOX 4

Micron Rating	
1 = 1 Micron	(Z, ZX media)
3 = 3 Micron	(AS,E, Z, ZX media)
5 = 5 Micron	(AS, Z, ZX media)
10 = 10 Micron	(AS,E,M, Z, ZX media)
25 = 25 Micron	(E, Z, ZX media)
60 = 60 Micron	(M media)

BOX 5

Seal Material
Omit = Buna N
V = Viton®
W = Buna N

BOX 6

Porting
SO = SAE-12
PO = ¾" NPTF
FO = 1" SAE 4-bolt flange Code 61
O = Manifold

BOX 7

Options
Omit = None
X = Blocked bypass (N/A with NFSN30)

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	D = Pointer
	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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

NOTES:

Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5.

Box 5. E media (cellulose) elements are only available with Buna N seals. For options V and W, all aluminum parts are anodized.
Viton® is a registered trademark of DuPont Dow Elastomers.

Box 6. For option O, O-rings included; fastening hardware not included.

Box 8. For options SO, PO, and FO, available dirt alarm is D only

Top-Ported Pressure Filter YF30

25 gpm
100 L/min
3000 psi
210 bar

Features and Benefits

- Top-ported pressure filter
- All aluminum assembly
- Meets HF2 automotive standard
- Offered in straight thread porting
- Optional drain plug in bowl for easy servicing
- Available with non-bypass option

Model No. of filter in photograph is YF308YZ10SD5.

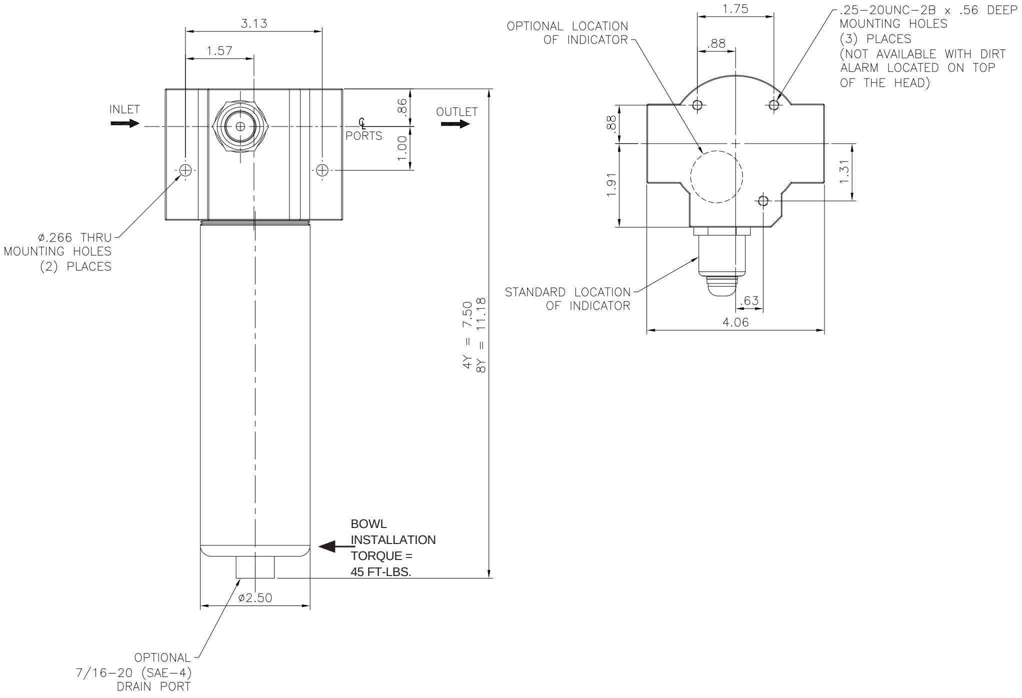
Applications

INDUSTRIAL
AUTOMOTIVE MANUFACTURING
MACHINE TOOL
POWER GENERATION
CONSTRUCTION
STEEL MAKING
PULP & PAPER
AGRICULTURE
MOBILE VEHICLES
WASTE WATER TREATMENT

Filter Housing Specifications

Flow Rating:	Up to 25 gpm (100 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	10,000 psi (690 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	1800 psi (124 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.4 bar) Non-bypassing model has a blocked bypass.
Porting Head: Element Case:	Aluminum Aluminum
Weight of YF30-4Y: Weight of YF30-8Y:	3.75 lbs. (1.70 kg) 4.25 lbs. (1.93 kg)
Element Change Clearance:	4.50" (115 mm)

YF30 Top-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Holding Capacity

Element	DHC (gm)	Element	DHC (gm)
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

Element Collapse Rating:	150 psid (10 bar) for standard elements 3000 psid (210 bar) for high collapse (ZX) versions
Flow Direction:	Outside In
Element Nominal Dimensions:	4Y: N 1.77" (45 mm) O.D. x 4.50" (114 mm) long 8Y: 1.77" (45 mm) O.D. x 8.21" (209 mm) long

Top-Ported Pressure Filter **YF30**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)

Element Selection
Based on Flow Rate

Pressure	Series	Element 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.		
To 3000 psi (210 bar)	Z-Media®	4YZ1/8YZ1	4YZ1	8YZ1	See DF40 or CF40
		4YZ3/8YZ3	4YZ3	8YZ3	See DF40 or CF40
		4YZ5/8YZ5	4YZ5	8YZ5	
		4YZ10/8YZ10	4YZ10	8YZ10	
		4YZ25/8YZ25	4YZ25 & 8YZ25		
Flow		gpm	0 5 10 15 20 25		
		(L/min)	0 25 50 75 95		

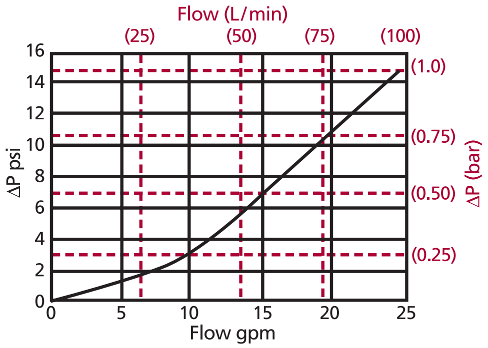
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

YF30 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

4YZ1	2.68	**8YZ1**	1.38
4YZ3	2.13	**8YZ3**	1.10
4YZ5	1.44	**8YZ5**	0.74
4YZ10	0.74	**8YZ10**	0.38
4YZ25	0.43	**8YZ25**	0.22
4YZX5	1.65	**8YZX5**	0.92
4YZX10	1.15	**8YZX10**	0.63

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

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

Exercise:

Determine ΔP at 15 gpm (57 L/min) for YF308YZ10SD5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 7.0 psi [.48 bar]

$\Delta P_{element}$ = 15 x .38 x (200÷150) = 7.6 psi
or
= [57 x (.38÷54.9) x (44÷32) = .54 bar]

ΔP_{total} = 7.0 + 7.6 = 14.6 psi
or
= [.48 + .54 = 1.02 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

YF30 Top-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder YF30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
YF30							

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
YF30	4	YZ10	W	S		DR	D5	=YF304YZ10WSDRD5

BOX 1

Filter Series
YF30
YFN30 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Element Length (in)
4
8

BOX 3

Element Size and Media
YZ1 = Y size 1 μ Excellement® Z-Media® (synthetic)
YZ3 = Y size 3 μ Excellement® Z-Media® (synthetic)
YZ5 = Y size 5 μ Excellement® Z-Media® (synthetic)
YZ10 = Y size 10 μ Excellement® Z-Media® (synthetic)
YZ25 = Y size 25 μ Excellement® Z-Media® (synthetic)
YZX5 = Y size 5 μ Excellement® Z-Media® (high collapse center tube)
YZX10 = Y size 10 μ Excellement® Z-Media® (high collapse center tube)

BOX 4

Seal Material
Omit = Buna N
W = Buna N
V = Viton®

BOX 5

Inlet Port
S = SAE-12
O = Subplate (contact factory)

BOX 6

Dirt Alarm® Location
Omit = Side of filter head
T = Top of filter head

BOX 7

Optional Bowl Drain
Omit = No drain
DR = Drain

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 4YZ10V

Box 4. For options V and W, all aluminum parts are anodized. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Non-Bypassing Pressure Filter **CFX30**

30 gpm
115 L/min
3000 psi
210 bar

Model No. of filter in photograph is CFX301CC10S.

Features and Benefits

- Top-ported non-bypassing pressure filter
- Unique valve eliminates need for high collapse elements
- Offered in pipe, SAE straight thread and ISO 228 porting
- Integral inlet and outlet female test points option available

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

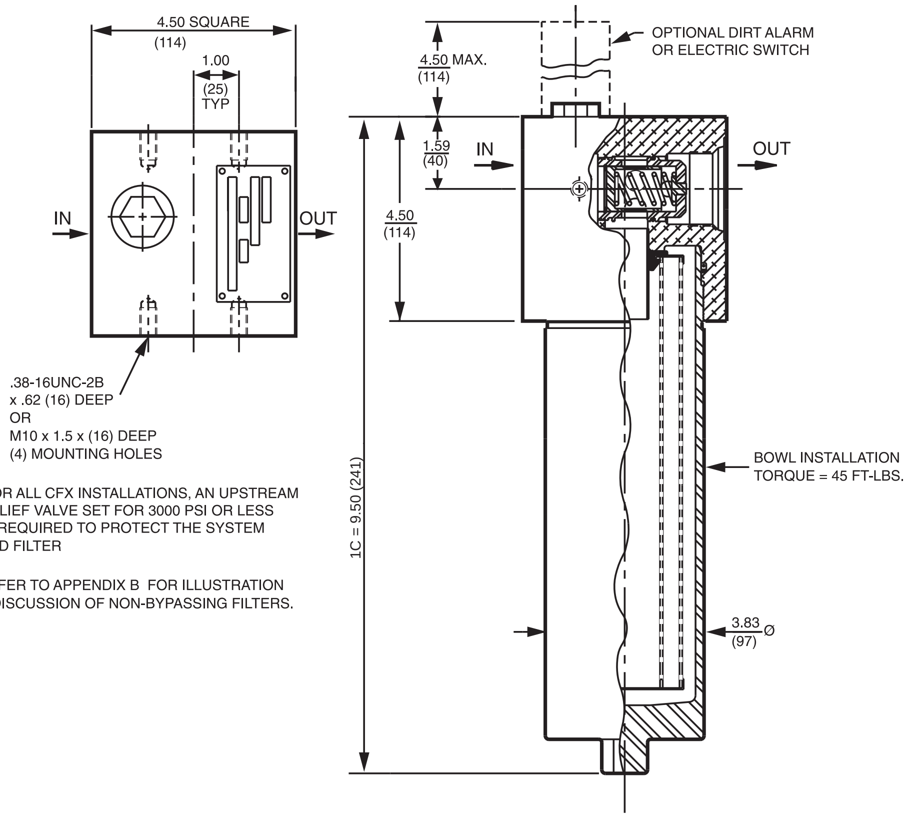
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
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)
Bypass Setting:	Non-Bypassing
Porting Head: Element Case:	Aluminum Steel
Weight of CFX30-1CC:	19.5 lbs. (8.9 kg)
Element Change Clearance:	4.00" (100 mm)

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

CFX30 Non-Bypassing Pressure Filter



NOTE: FOR ALL CFX INSTALLATIONS, AN UPSTREAM RELIEF VALVE SET FOR 3000 PSI OR LESS IS REQUIRED TO PROTECT THE SYSTEM AND FILTER

REFER TO APPENDIX B FOR ILLUSTRATION & DISCUSSION OF NON-BYPASSING FILTERS.

Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \ge 75$	$\beta_x \ge 100$	$\beta_x \ge 200$	$\beta_x(c) \ge 200$	$\beta_x(c) \ge 1000$
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

Dirt Holding Capacity

Element	DHC (gm)
CC3	30
CC10	25
CCZ1	57
CCZ3/CAS3/CCAS3	58
CCZ5/CAS5/CCAS5	63
CCZ10/CAS10/CCAS10	62
CCZ25	63

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

Flow Direction: Outside In

Element Nominal Dimensions: CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long

Non-Bypassing Pressure Filter **CFX30**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media (synthetic), 3, 5 and 10 μ ASP® Media (synthetic)
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

	Element		Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid. Non bypass with standard elements.	
Pressure	**Series**	**Part No.**		
To 3000 psi (210 bar)	E Media	CC3	1CC3	See CFN or KFX
		CC10	1CC10	
		CC25	1CC25	
	Z-Media®	CCZ1	1CCZ1	See CFN or KFX
		CCZ3	1CCZ3	
		CCZ5	1CCZ5	
		CCZ10	1CCZ10	
		CCZ25	1CCZ25	
	Flow	gpm	0 5 10 15 20 25 30	
		(L/min)	0 25 50 75 100 115	

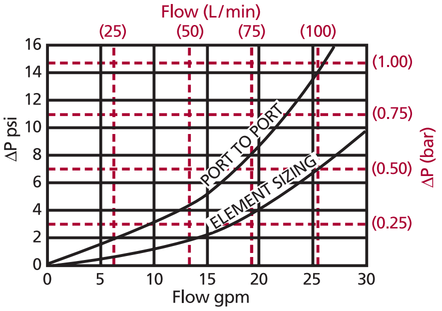
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

CFX30 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1CC
CC3	.22
CC10	.13
CC25	.03
CCZ1	.35
CCZ3/CAS3/CCAS3	.20
CCZ5/CAS5/CCAS5	.19
CCZ10/CAS10/CCAS10	.10
CCZ25	.05

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

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

The ΔP 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. Although "Port to Port" ΔP is not a factor in Element Selection, it should be considered for overall system design.

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

CFX30 Non-Bypassing Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder CFX30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
CFX30							

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
CFX30	1C	Z	5		S		D5	**= CFX301CZ5SD5**

BOX 1

Filter Series
CFX30

BOX 2

Number & Size of Elements	
1	C = Single Length
	CC = Double Length

BOX 3

Media Type	
Omit	= E Media (cellulose)
Z	= Excellement® Z-Media® (synthetic)
AS	= Anti-Stat Media (synthetic)
M	= Media (reusable metal mesh) D size only

BOX 4

Micron Rating		
1	= 1 Micron	(Z-Media®)
3	= 3 Micron	(E, Z, AS Media)
5	= 5 Micron	(Z, AS Media)
10	= 10 Micron	(E, M, Z, AS Media)
25	= 25 Micron	(E & Z-Media®)

BOX 5

Seal Material
Omit = Buna N
V = Viton®
W = Buna N
H = EPR
H.5 = Skydrol® compatibility

BOX 6

Porting
S = SAE-20
P = 1¼" NPTF
B = ISO 228 G-1¼"

BOX 7

Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports
U = Schroeder Check 7⁄16"-20 UNF Test Point installation in cap (upstream)

BOX 8

Dirt Alarm® Options		
	Omit	= None
Visual	D5	= Visual pop-up
Visual with Thermal Lockout	D8	= Visual w/ thermal lockout
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

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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 6. B porting option supplied with metric mounting holes.

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

100 gpm
380 L/min
3000 psi
205 bar

Model No. of filter in photograph is PLD10DVZ3VF24VM.

Features and Benefits

- Durable carbon steel construction
- 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® 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

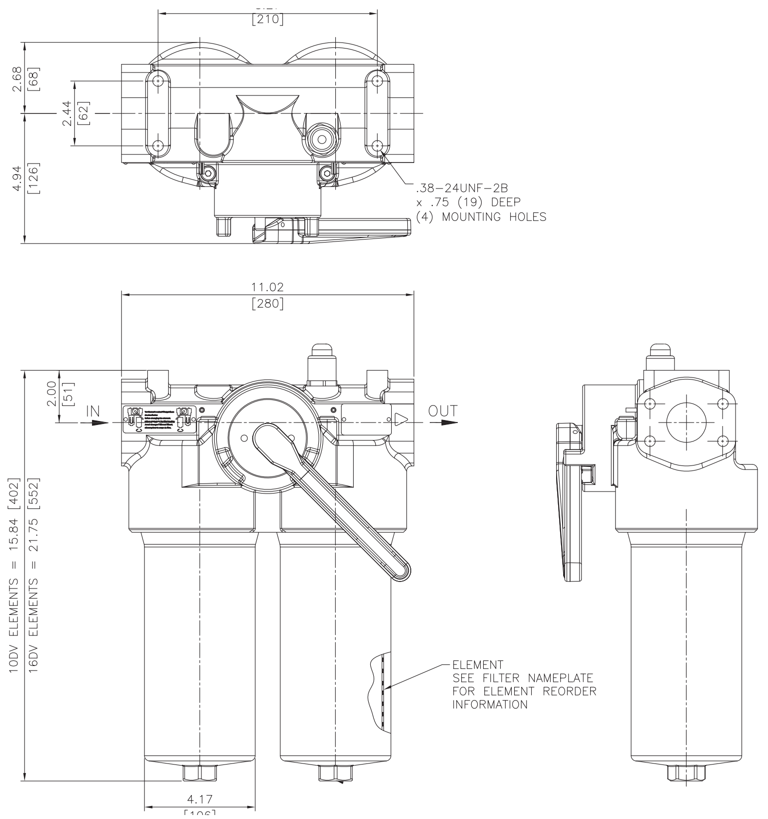
Applications

INDUSTRIAL
AUTOMOTIVE MANUFACTURING
MACHINE TOOL
MINING TECHNOLOGY
STEEL MAKING
POWER GENERATION
MARINE
PULP & PAPER

Filter Housing Specifications

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

PLD High Pressure Filter



Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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

Element	DHC (gm)	Element	DHC (gm)
10DVZ1	57	16DVZ1	110
10DVZ3	59	16DVZ3	114
10DVZ5	64	16DVZ5	124
10DVZ10	62	16DVZ10	112
10DVZ25	63	16DVZ25	102

Element Collapse Rating: 290 psid (20 bar)

Flow Direction: Outside In

Element Nominal Dimensions: 3.0" (75 mm) O.D. x 14.5" (370 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 6, 10 and 25 μ Z-Media® (synthetic)

Element Selection
Based on Flow Rate

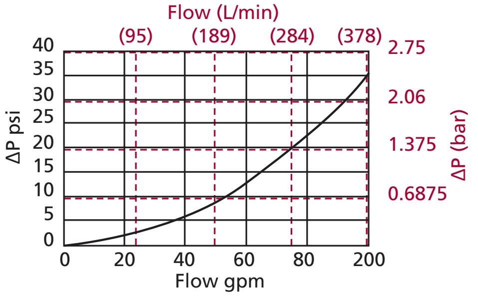
	Element		Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 102 psi (7 bar) bypass valve.		
Pressure	Series	Part No.			
To 350 psi (24 bar)	Z-Media®	10DVZ1 & 16DVZ1	10DVZ1	16DVZ1	Contact Factory
		10DVZ3 & 16DVZ3	10DVZ3 or 16DVZ3	Contact Factory	
		10DVZ5 & 16DVZ5	10DVZ5	16DVZ5	Contact Factory
		10DVZ10 & 16DVZ10	10DVZ10	16DVZ10	C.F.
		10DVZ25 & 16DVZ25	10DVZ25	16DVZ25	
Flow	gpm		0 20 40 60 80 100		
	(L/min)		0 50 100 150 250 380		

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

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

PLD $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

10DVZ1	.35	**16DVZ1**	.23
10DVZ3	.22	**16DVZ3**	.18
10DVZ5	.13	**16DVZ5**	.10
10DVZ10	.11	**16DVZ10**	.09
10DVZ125	.06	**16DVZ25**	.05

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

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

Exercise: PLD16DVZ3F24VM

Determine ΔP at 75 gpm (284 L/min) for 16DVZ3 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 20 psi [1.38 bar]

$\Delta P_{element}$ = 75 x .18 x (200÷150) = 18 psi
or
= [284 x (.18÷54.9) x (44÷32) = 1.24 bar]

ΔP_{total} = 20 + 18 = 38 psi
or
= [1.38 + 1.24 = 2.62 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

PLD High Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder PLD:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
PLD					

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
PLD	10	DVZ1	V	F24	VM

= PLD10DVZ1VF24VM

BOX 1

Filter Series
PLD

BOX 2

Length of Elements (in)
10
16

BOX 3

Element Size and Media
DVZ1 = DV size 1 μ synthetic media
DVZ3 = DV size 3 μ synthetic media
DVZ5 = DV size 5 μ synthetic media
DVZ10 = DV size 10 μ synthetic media
DVZ25 = DV size 25 μ synthetic media

BOX 4

Seal Material
Omit = Buna N
V = Viton®

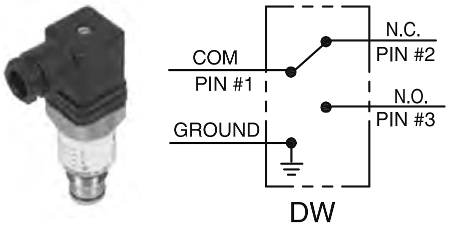
BOX 5

Porting
F24 = 1½" SAE 4-bolt flange Code 61
S24 = SAE-24 (1½")

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	VM = Visual pop-up w/manual rest
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: 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

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

30 gpm
115 L/min
4000 psi
275 bar

Model No. of filter in photograph is DF401CCZ10PD5.

Features and Benefits

- Top-ported pressure filter
- Available with non-bypass option with high collapse element
- Offered in conventional subplate porting
- Offered in pipe, SAE straight thread and ISO 228 porting
- Same day shipment model available
- No-Element indicator option available

Applications

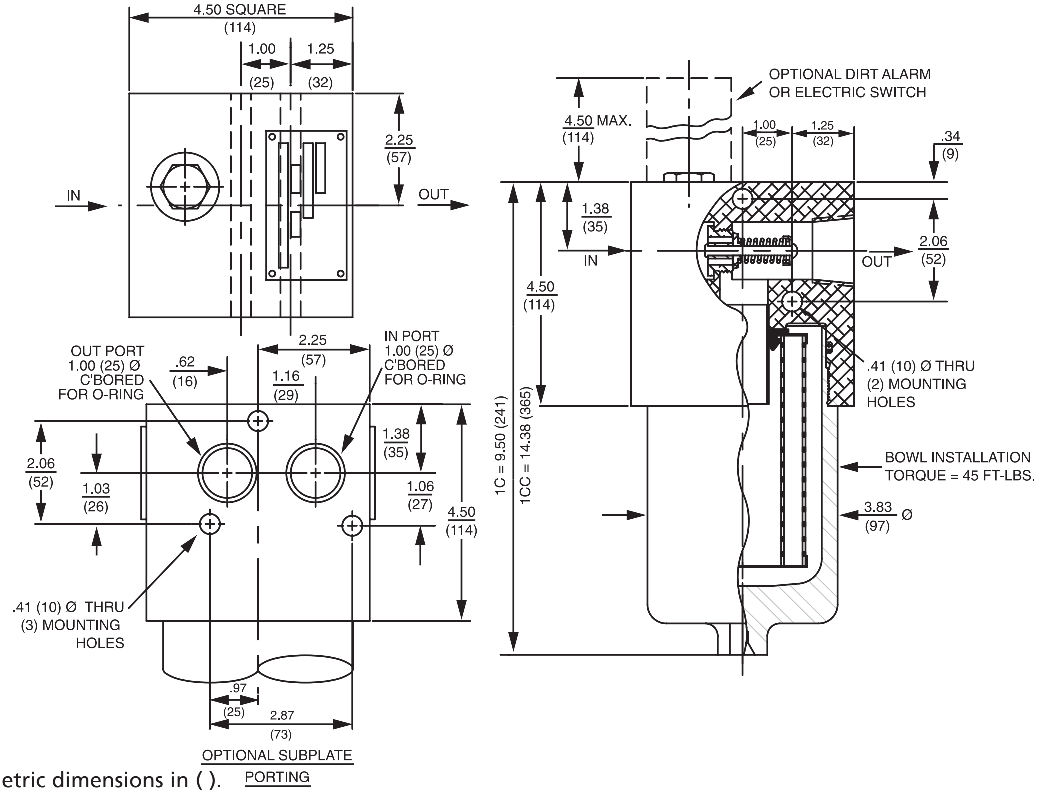
- INDUSTRIAL
- AUTOMOTIVE MANUFACTURING
- MACHINE TOOL
- STEEL MAKING
- CONSTRUCTION
- MOBILE VEHICLES
- PULP & PAPER
- AGRICULTURE

Filter Housing Specifications

Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	4000 psi (275 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
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)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 57 psi (3.9 bar) Non-bypassing model has a blocked bypass.
Porting Head: Element Case:	Aluminum Steel
Weight of DF40-1C: Weight of DF40-1CC:	14.0 lbs. (6.4 kg) 19.5 lbs. (8.9 kg)
Element Change Clearance:	4.0" (100 mm)

DF40 Top-Ported Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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/CAS3/CCZ3/CCAS3	<1.0	<1.0	<2.0	<4.0	4.8
CZ5/CAS5/CCZ5/CCAS5	2.5	3.0	4.0	4.8	6.3
CZ10/CAS10/CCZ10/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

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)
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/CAS10	28	CCZ10/CCAS10	62
CZ25	28	CCZ25	63
		CCZX3	26*
		CCZX10	28*

*Based on 100 psi terminal pressure

Element Collapse Rating:	150 psid (10 bar) for standard elements 3000 psid (210 bar) for high collapse (ZX) versions
Flow Direction:	Outside In
Element Nominal Dimensions:	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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® Media (synthetic)
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) 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 (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Series	Element 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.	
To 4000 psi (275 bar)	E Media	C3 & CC3	1C3	1CC3
		C10 & CC10	1C10	1CC10
		C25 & CC25	1C25	
	Z-Media®	CZ1 & CCZ1	1CZ1	1CCZ1
		CZ3 & CCZ3	1CZ3	1CCZ3
		CZ5 & CCZ5	1CZ5 & 1CCZ5	
		CZ10 & CCZ10	1CZ10 & 1CCZ10	
		CZ25 & CCZ25	1CZ25 & 1CCZ25	
	Flow	gpm	0 10 15 20 25 30	
		(L/min)	0 25 50 75 100 115	

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

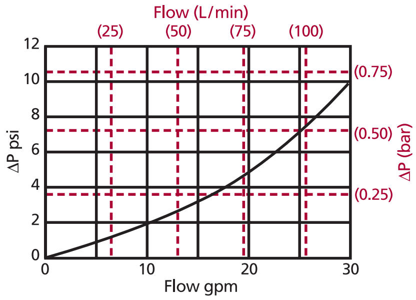
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

DF40 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1C		1CC
C3	.50	**CC3**	.22
C10	.19	**CC10**	.13
C25	.09	**CC25**	.03
CZ1	.70	**CCZ1**	.35
CZ3/CAS3	.50	**CCZ3/CCAS3**	.20
CZ5/CAS5	.32	**CCZ5/CCAS5**	.19
CZ10/CAS10	.25	**CCZ10/CCAS10**	.10
CZ25	.14	**CCZ25**	.05
		CCZX3	.29
		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).

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

Notes

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

Exercise:

Determine ΔP at 20 gpm (75 L/min) for DF401CZ10PMS using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 5.0 psi [.35 bar]

$\Delta P_{element}$ = 20 x .25 x (200÷150) = 6.6 psi

or

= [75 x (.25÷54.9) x (44÷32) = .46 bar]

ΔP_{total} = 5.0 + 6.6 = 11.6 psi

or

= [.35 + .46 = 11.7 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

DF40 Top-Ported Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model

See inside back cover for details.

How to Build a Valid Model Number for a Schroeder NF30

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
DF40								

Example: *NOTE: Only box 7 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
DF40	1CC	Z	3		S		D5		= DF401CCZ3SD5

BOX 1

Filter Series
DF40
DFN40 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number and Size of Elements	
1	C
	D
	CC
	DD

BOX 3

Media Type	
Omit	E Media(Cellulose)
Z	= Excellement® Z-Media® (synthetic)
ZX	= Excelllement® Z-Media® (High Collapse center tube)
AS	= Anti-Stat Media (synthetic)
M	= Media (reusable metal mesh) D/DD size only

BOX 4

Micron Rating		
1	= 1 Micron	(Z, ZX media)
3	= 3 Micron	(AS,E, Z, ZX media)
5	= 5 Micron	(AS, Z, ZX media)
10	= 10 Micron	(AS,E,M, Z, ZX media)
25	= 25 Micron	(E & Z-media®)
60	= 60 Micron	(M media)

BOX 5

Seal Material
Omit = Buna N
V = Viton®
W = Buna N
H = EPR
H.5 = Skydrol® compatibility

BOX 6

Porting
O = Manifold mounting
S = SAE-16
P = 1" NPTF
B = ISO 228 G-1

BOX 7

Options
Omit = None
X = Blocked bypass
10 = 10 psi bypass setting
15 = 15 psi bypass setting
20 = 20 psi bypass setting
25 = 25 psi bypass setting
30 = 30 psi bypass setting
40 = 40 psi bypass setting
50 = 50 psi bypass setting
60 = 60 psi bypass setting
75 = 75 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Schroeder Check 7⁄16" -20 UNF Test Point installation in cap (upstream)

BOX 8

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
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	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

BOX 9

Additional Options
Omit = None
N = No-Element Indicator (DF40 only)

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® is a registered trademark of DuPont Dow Elastomers. Skydrol® 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 non-bypassing 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**

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

45 gpm
170 L/min
4000 psi
275 bar

Features and Benefits

- Top-ported pressure filter
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread and ISO 228 porting
- Integral inlet and outlet female test points option available
- No-Element indicator option available

Model No. of filter in photograph is CF401CC10SD5.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

MOBILE VEHICLES

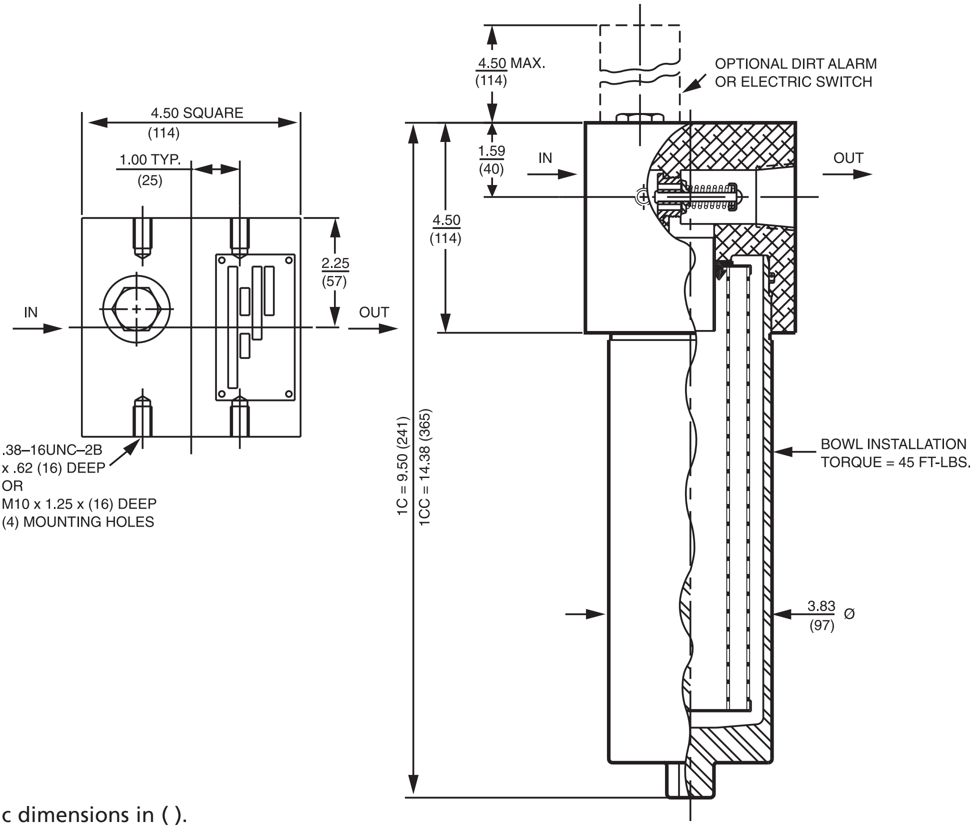
PULP & PAPER

AGRICULTURE

Filter Housing Specifications

Flow Rating:	Up to 45 gpm (170 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	4000 psi (275 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
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)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 72 psi (5.0 bar) Non-bypassing model has a blocked bypass.
Porting Head: Element Case:	Aluminum Steel
Weight of CF40-1C: Weight of CF40-1CC:	14.0 lbs. (6.4 kg) 19.5 lbs. (8.9 kg)
Element Change Clearance:	4.00" (100 mm) for C elements 8.75" (219 mm) for CC elements

CF40 Top-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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

Dirt Holding Capacity

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

Element Collapse Rating:	150 psid (10 bar) for standard elements 3000 psid (210 bar) for high collapse (ZX) versions
Flow Direction:	Outside In
Element Nominal Dimensions:	C:N 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

*Based on 100 psi terminal pressure

Top-Ported Pressure Filter **CF40**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® Media (synthetic)
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) 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 (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Series	Element 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.		
To 4000 psi (275 bar)	E Media	C3 & CC3	1C3	1CC3	See KF30
		C10 & CC10	1C10	1CC10	See KF30
		C25 & CC25	1C25	1CC25	
	Z-Media®	CZ1 & CCZ1	1CZ1	1CCZ1	See KF30
		CZ3 & CCZ3	1CZ3	1CCZ3	
		CZ5 & CCZ5	1CZ5 & 1CCZ5		
		CZ10 & CCZ10	1CZ10 & 1CCZ10		
		CZ25 & CCZ25	1CZ25 & 1CCZ25		
Flow		gpm	0 10 20 30 35 40 45		
		(L/min)	0 50 100 150 170		

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

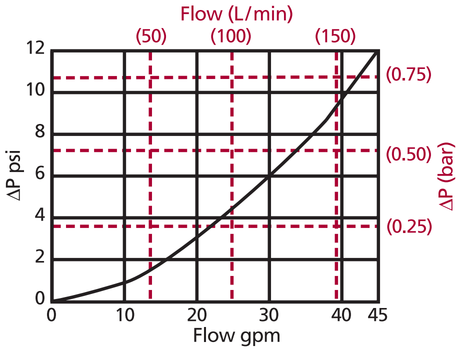
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

CF40 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1C		1CC
C3	.50	**CC3**	.22
C10	.19	**CC10**	.13
C25	.09	**CC25**	.03
CZ1	.70	**CCZ1**	.35
CZ3/CAS3	.50	**CCZ3/CCAS3**	.20
CZ5/CAS5	.32	**CCZ5/CCAS5**	.19
CZ10/CAS10	.25	**CCZ10/CCAS10**	.10
CZ25	.14	**CCZ25**	.05
		CCZX3	.29
		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).

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

Notes

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

Exercise:

Determine ΔP at 35 gpm (132 L/min) for CF401CC10SD5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 8.0 psi [.50 bar]

$\Delta P_{element}$ = 35 x .13 x (200÷150) = 6.0 psi
or
= [132 x (.13÷54.9) x (44÷32) = .42 bar]

ΔP_{total} = 8.0 + 6.0 = 14.0 psi
or
= [.50 + .42 = .92 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

CF40 Top-Ported Pressure Filter

Filter Model Number Selection

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
CF40	–	–	–	–	–	–	–	–

Example: *NOTE: Only box 7 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
CF40	1C	Z	10		S		D5		= CF401CZ10SD5

BOX 1

Filter Series
CF40
CFN40 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number and Size of Elements	
1	C
	CC

BOX 3

Media Type	
Omit	E Media(Cellulose)
Z	= Excellement® Z-Media® (synthetic)
ZX	= Excellement® Z-Media® (high collapse center tube)
AS	= Anti-Stat Media (synthetic)
M	= Media (reusable metal mesh) D size only

BOX 4

Micron Rating		
1	= 1 Micron	(Z, ZX media)
3	= 3 Micron	(AS, E, Z, ZX media)
5	= 5 Micron	(AS, Z, ZX media)
10	= 10 Micron	(AS, E, M, Z, ZX media)
25	= 25 Micron	(E & Z media®)

BOX 5

Seal Material

Omit = Buna N
V = Viton®
W = Buna N
H = EPR
H.5 = Skydrol® compatibility

BOX 6

Porting

S = SAE-20
P = 1¼" NPTF
B = ISO 228 G-1¼"

BOX 7

Options

Omit = None
X = Blocked bypass
10 = 10 psi bypass setting
15 = 15 psi bypass setting
20 = 20 psi bypass setting
25 = 25 psi bypass setting
30 = 30 psi bypass setting
40 = 40 psi bypass setting
50 = 50 psi bypass setting
60 = 60 psi bypass setting
75 = 75 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Schroeder Check 7⁄16" -20 UNF Test Point installation in cap (upstream)

BOX 8

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
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	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

BOX 9

Additional Options

Omit = None
N = No-Element Indicator (CF40 only)

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® is a registered trademark of DuPont Dow Elastomers. Skydrol® 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 non-bypassing 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**

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

50 gpm
190 L/min

4000 psi
275 bar

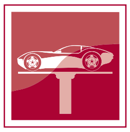
Model No. of filter in photograph is PF409HZ10.

Features and Benefits

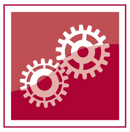
- Top-ported pressure filter
- All steel housing offers unparalleled fatigue rating
- Available with non-bypass option with high collapse element
- Two bowl lengths provide optimal sizing for the application
- Offered in conventional sub-plate, SAE straight thread, and ISO 228 porting
- Same day shipment model available

Applications

MINING TECHNOLOGY



AUTOMOTIVE MANUFACTURING



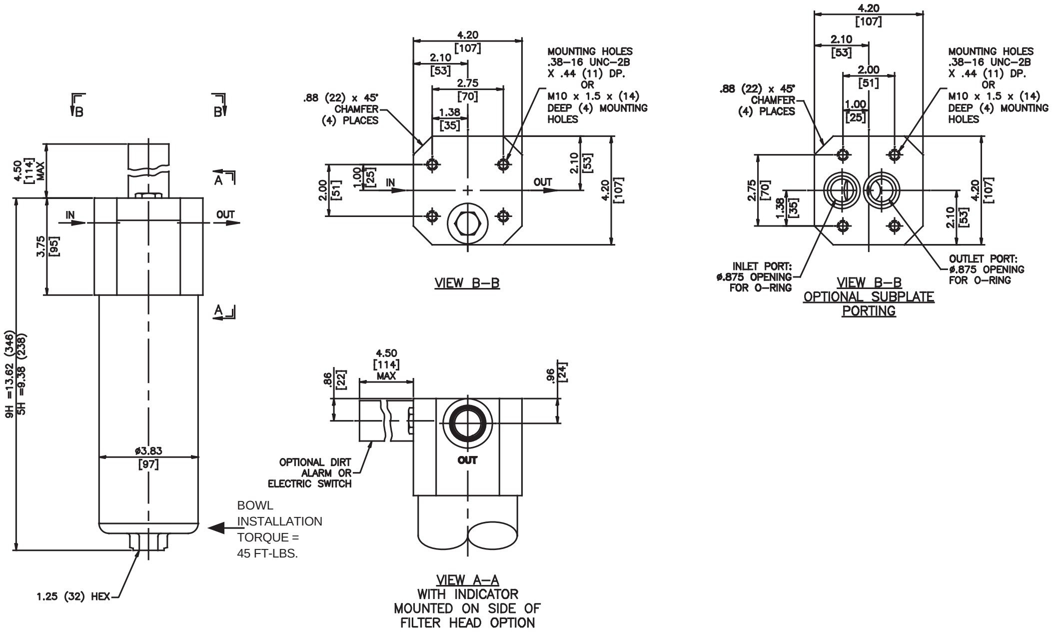
MACHINE TOOL

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	4000 psi (275 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2500 psi (173 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: 75 psi (5.2 bar)
Porting Head: Element Case:	Steel Steel
Weight of PF40-5H: Weight of PF40-9H:	21.8 lbs. (9.9 kg) 25.5 lbs. (11.6 kg)
Element Change Clearance:	3.25" (83 mm)

PF40 Top-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
5HZ1/9HZ1	<1.0	<1.0	<1.0	<4.0	4.2
5HZ3/9HZ3	<1.0	<1.0	<2.0	<1.0	4.8
5HZ5/9HZ5	2.5	3.0	4.0	4.8	6.3
5HZ10/9HZ10	7.4	8.2	10.0	8.0	10.0
5HZ25/9HZ25	18.0	20.0	22.5	19.0	24.0
5HZX1/9HZX1	<1.0	<1.0	<1.0	<4.0	4.2
5HZX3/9HZX3	<1.0	<1.0	<2.0	<1.0	4.8
5HZX5/9HZX5	2.5	3.0	4.0	4.8	6.3
5HZX10/9HZX10	7.4	8.2	10.0	8.0	10.0
5HZX25/9HZX25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

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

Flow Direction: Outside In

Element Nominal Dimensions: 5H: 2.5" (100 mm) O.D. x 5.36" (136 mm) long
9H: 2.5" (100 mm) O.D. x 9.63" (244 mm) long

Top-Ported Pressure Filter **PF40**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation

Element Selection
Based on Flow Rate

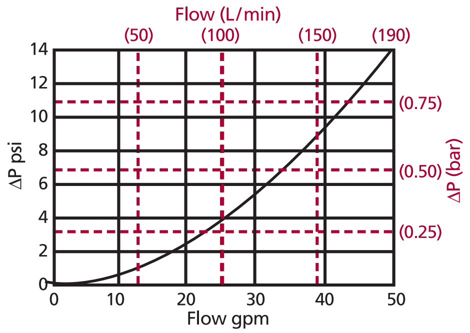
Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve.	
To 4000 psi (275 bar)	Z-Media®	Z1	5HZ1	9HZ1
		Z3	5HZ3	9HZ3
		Z5	5HZ5	9HZ5
		Z10	5HZ10	9HZ10
		Z25	5HZ25	9HZ25
	Flow	gpm	0 10 20 30 40 50	
		(L/min)	0 50 100 150 190	

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

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

PF40 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	5H	9H
Z1	2.01	1.07
Z3	0.77	0.41
Z5	0.65	0.35
Z10	0.44	0.23
Z25	0.29	0.15
ZX3	1.17	0.62
ZX10	0.50	0.26
ZX25	0.27	0.14

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

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

Exercise:

Determine ΔP at 20 gpm (76 L/min) for PF405HZ10D5 using 200 SUS (44 cSt) fluid.

Solution:

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

$\Delta P_{element}$ = 20 x .44 x (200÷150) = 11.7 psi

or

= [76 x (.44÷54.9) x (44÷32) = .84 bar]

ΔP_{total} = 2.5 + 11.7 = 14.2 psi

or

= [.17 + .84 = 1.01 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

PF40 Top-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder PF40:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
PF40								

Example: *NOTE: Only box 6 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
PF40	5	HZ3		S		D5	S		= **PF405HZ3SD5S**

BOX 1 Filter Series
PF40
PFN40 (Non-bypassing: requires ZX high collapse elements)

BOX 2 Element Length (in)
5
9

BOX 3 Element Part Number
HZ1 = H size 1 μ Excellement® Z-Media® (synthetic)
HZ3 = H size 3 μ Excellement® Z-Media® (synthetic)
HZ5 = H size 5 μ Excellement® Z-Media® (synthetic)
HZ10 = H size 10 μ Excellement® Z-Media® (synthetic)
HZ25 = H size 25 μ Excellement® Z-Media® (synthetic)
HZX3 = H size 3 μ Excellement® Z-Media® (high collapse center tube)
HZX10 = H size 10 μ Excellement® Z-Media® (high collapse center tube)
HZX25 = H size 25 μ Excellement® Z-Media® (high collapse center tube)

BOX 4 Seal Material
Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® compatibility

BOX 5 Porting
O = Manifold Mounting (Contact factory)
S = SAE-16
B = ISO 228 G-1"

BOX 6 Options
Omit = None
L = Two ¼" NPTF inlet & outlet female test ports
U = Schroeder Check 7⁄16"-20 UNF test point installation in head (upstream)

BOX 7 Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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

BOX 8 Dirt Alarm® Location
Omit = Top mounted
S = Side mounted

BOX 9 Bowl Drain Options
Omit = None
DR = Drain 7⁄16"-20

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4. Example: 5HZ10V

Box 4. 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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

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

In-Line Filter **LC50**

9 gpm
35 L/min

5000 psi
350 bar

Model No. of filter in photograph is LC501LZX10S.

Features and Benefits

- Compact design allows for in-line installation on hose reels
- High quality synthetic ZX-Media high collapse elements ensure all fluid is filtered
- Available with SAE or NPT threading
- Convenient 2 ¼" Hex for easy service

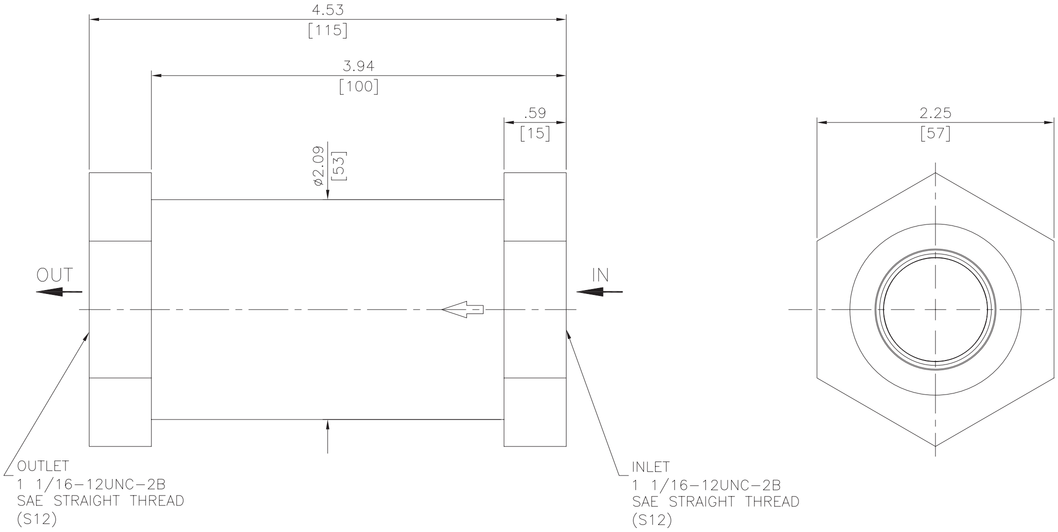
Applications

AGRICULTURE
INDUSTRIAL
CONSTRUCTION
MINING TECHNOLOGY
DEFENSE
FORESTRY
CHEMICAL PROCESSING
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 9 gpm (35 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (350 bar)
Min. Yield Pressure:	15,000 psi (1050 bar)
Rated Fatigue Pressure:	5000 psi (350 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Body and Cap:	Steel
Element Case:	Steel
Weight of LC50:	3.63 lbs. (1.65 kg)
Element Change Clearance:	3.25" (83 mm)

LC50 In-Line Filter



Metric dimensions in ( ).

Element Performance Information

Element	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 $\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
LZX10	8.0	10.0
LZX25	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
LZX10	1.0
LZX25	1.0
LZX40	0.9

Element Collapse Rating:	3000 psi (207 bar)
Flow Direction:	Outside In
Element Nominal Dimensions:	1.4" (43 mm) O.D. x 1.7" (35 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	10 and 25 μ Z-Media® (synthetic)

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid.
To 5000 psi (350 bar)	Z-Media®	Z10	LZX10
		Z25	LZX25
		Z40	LZX40
Flow		gpm	0 5 9
		(L/min)	0 17.5 35

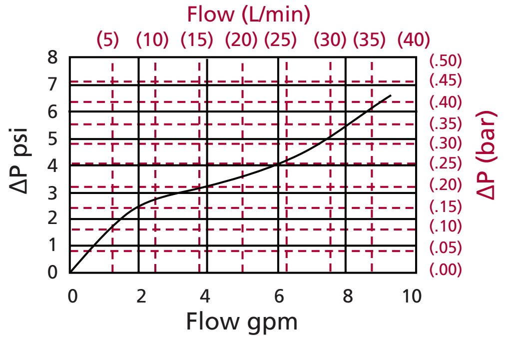
Shown above are the elements most commonly used in this housing.

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

LC50 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

LZX10	5.0
LZX25	3.0
LZX40	3.0

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

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

Exercise:

Determine ΔP at 5 gpm (19 L/min) for LC501LZX10S using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.5 psi [.24 bar]
$\Delta P_{element}$ = 5 x 5.0 x (200÷150) = 33.3 psi
or
= [19 x (5÷54.9) x (44÷32) = 2.38 bar]
ΔP_{total} = 3.5 + 33.3 = 36.8 psi
or
= [.24 + 2.38 = 2.62 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

LC50 In-Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder LC50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LC50				

Example:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
LC50	1	LZX10		S	**= LC501LZX10S**

BOX 1

Filter Series
LC50 (non-bypassing only)

BOX 2

Number of Elements
1

BOX 3

Element Part Number	
LZX10 =	10 μ Excellement® Z-Media® (high collapse center tube)
LZX25 =	25 μ Excellement® Z-Media® (high collapse center tube)
LZX40 =	40 μ Excellement® Z-Media® (high collapse center tube)

BOX 4

Seal Material	
Omit =	Buna N
V =	Viton®

BOX 5

Porting	
S =	SAE-12
P =	¾″ NPT

NOTES:

Box 4. Viton® is a registered trademark of DuPont Dow Elastomers.

Manifold Mounted Pressure Filter **RFS50**

Features and Benefits

- Manifold mounted high pressure filter
- Offered in square head conventional subplate porting
- Direct mounting to customer's manifold
- Standard drain plug in bowl for easy servicing
- Various dirt alarm options available

30 gpm
115 L/min

5000 psi
345 bar

Model No. of filter in photograph is RFS508R10O.

Applications

MINING TECHNOLOGY

AGRICULTURE

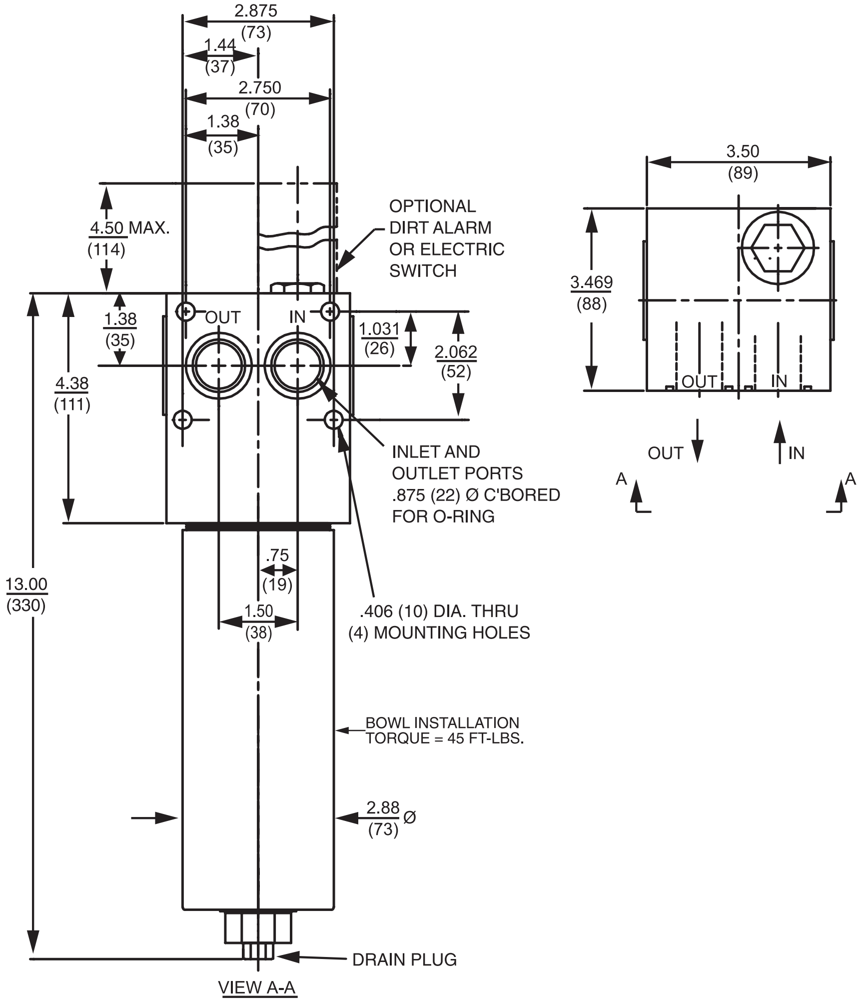
STEEL MAKING

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,500 psi (1070 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact Factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 56 psi (3.9 bar)
Porting Head: Element Case:	Steel Steel
Weight of RFS50-8R:	16.50 lbs. (7.5 kg)
Element Change Clearance:	3.0" (75 mm)

RFS50 Manifold Mounted Pressure Filter



Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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

Dirt Holding Capacity

Element	DHC (gm)
8R3	6
8R10	7
8RZ1	33
8RZ3	26
8RZ5	51
8RZ10	29
8RZ25	30

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

Flow Direction: Outside In

Element Nominal Dimensions: 2.18" (55 mm) O.D. x 8.15" (206 mm) long

Manifold Mounted Pressure Filter **RFS50**

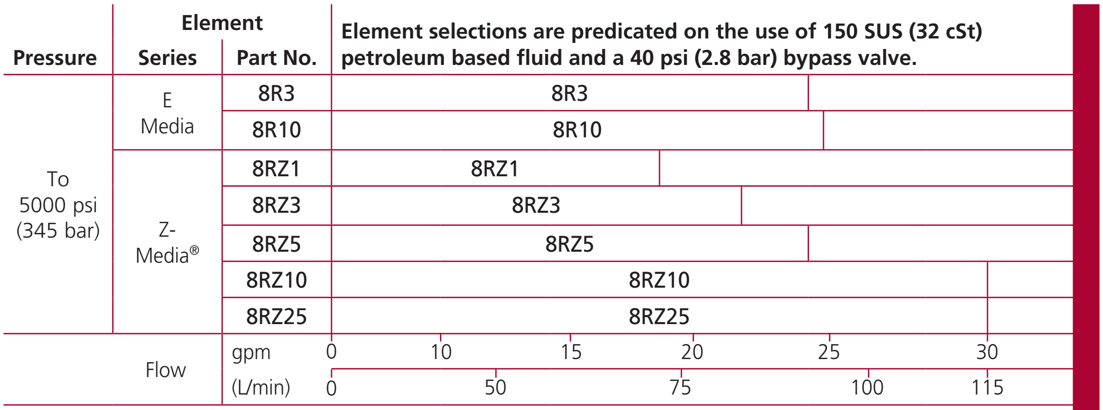
Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

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



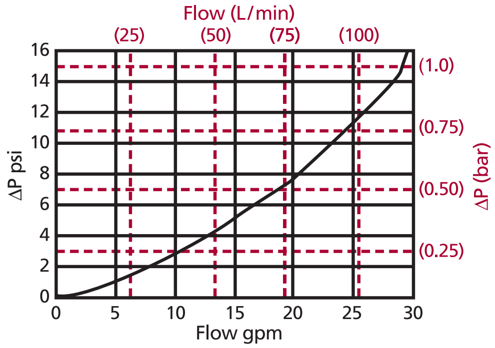
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

RFS50 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

8R3	.35
8R10	.30
8RZ1	.87
8RZ3	.43
8RZ5	.39
8RZ10	.36
8RZ25	.11

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

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

Exercise:

Determine ΔP at 15 gpm (57 L/min) for RFS508R10OD5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 5.0 psi [.38 bar]

$\Delta P_{element}$ = 15 x .30 x (200÷150) = 6.0 psi

or

= [57 x (.30÷54.9) x (44÷32) = .41 bar]

ΔP_{total} = 5.0 + 6.0 = 11.0 psi

or

= [.38 + .41 = .79 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

RFS50 Manifold Mounted Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder RFS50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
RFS50						

Example: *NOTE: Only box 6 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
RFS50	8	RZ10	V	O		D5	**= RFS508RZ10VOD5**

BOX 1

Filter Series
RFS50

BOX 2

Element Length (in)
8

BOX 3

Element Size and Media

R3 = R size 3 μ E media (cellulose)
R10 = R size 10 μ E media (cellulose)
RZ1 = R size 1 μ Excellement® Z-Media® (synthetic)
RZ3 = R size 3 μ Excellement® Z-Media® (synthetic)
RZ5 = R size 5 μ Excellement® Z-Media® (synthetic)
RZ10 = R size 10 μ Excellement® Z-Media® (synthetic)
RZ25 = R size 25 μ Excellement® Z-Media® (synthetic)

BOX 4

Seal Material

Omit = Buna N
H = EPR
V = Viton®

BOX 5

Inlet Port

O = Manifold mounting

BOX 6

Options

Omit = None
X = Blocked bypass
50 = 50 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Schroeder Check 7/16"-20 UNF Test Point installation in head (upstream)

BOX 7

Dirt Alarm® Options

	Omit = None
Visual	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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

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® 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**

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

30 gpm
115 L/min

6000 psi
415 bar

Model No. of filter in photograph is RF608R10P.

Features and Benefits

- Top-ported high pressure filter
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- Available with non-bypass option with high collapse element
- Standard drain plug in bowl for easy servicing
- Various dirt alarm options available

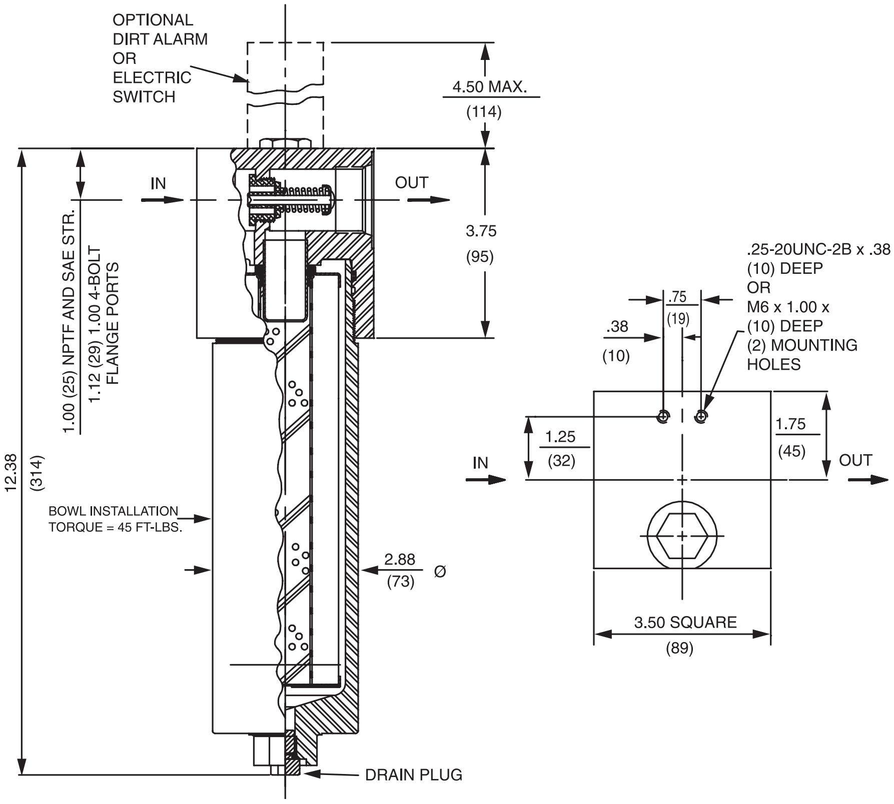
Applications

MINING TECHNOLOGY
AGRICULTURE
STEEL MAKING
MOBILE VEHICLES
CONSTRUCTION

Filter Housing Specifications

Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	18,000 psi (1241 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2300 psi (159 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: 56 psi (3.9 bar) Non-bypassing model has a blocked bypass.
Porting Head:	Steel
Element Case:	Steel
Weight of RF60-8R:	15.75 lbs. (7.2 kg)
Element Change Clearance:	3.0" (75 mm)

RF60 Top-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x^{(c)} \geq 200$	$\beta_x^{(c)} \geq 1000$
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 Holding Capacity

Element	DHC (gm)
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
Element Nominal Dimensions:	2.18" (55 mm) O.D. x 8.15" (206 mm) long

Top-Ported Pressure Filter **RF60**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element 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.	
To 6000 psi (415 bar)	E Media	8R3	8R3	See CF60
		8R10	8R10	See CF60
	Z-Media®	8RZ1	8RZ1	See CF60
		8RZ3	8RZ3	See CF60
		8RZ5	8RZ5	See CF60
		8RZ10	8RZ10	
		8RZ25	8RZ25	
Flow		gpm	0 10 15 20 25 30	
		(L/min)	0 50 75 100 115	

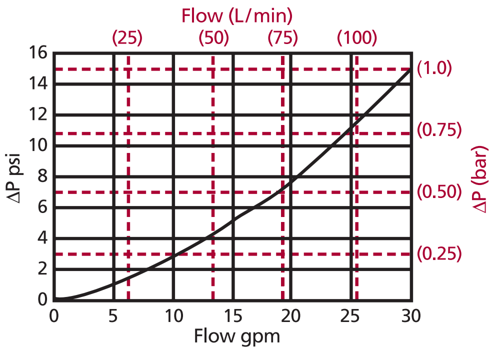
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

RF60 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

8R3	.35
8R10	.30
8RZ1	.87
8RZ3	.43
8RZ5	.39
8RZ10	.36
8RZ25	.11
8RZX3	NA
8RZX10	NA

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

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

Exercise:

Determine ΔP at 15 gpm (57 L/min) for RF608R10SD5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 5.0 psi [.35 bar]

$\Delta P_{element}$ = 15 x .30 x (200÷150) = 6.0 psi

or

= [57 x (.30÷54.9) x (44÷32) = .41 bar]

ΔP_{total} = 5.0 + 6.0 = 11.0 psi

or

= [.38 + .41 = .79 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

RF60 Top-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder RF60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
RF60						

Example: *NOTE: Only box 6 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
RF60	8	RZ10	V	P		D5	**= RF608RZ10VPD5**

BOX 1

Filter Series
RF60
RFN60 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Element Length (in)
8

BOX 3

Element Size and Media

R3 = R size 3 μ E media (cellulose)
R10 = R size 10 μ E media (cellulose)
RZ1 = R size 1 μ Excellement® Z-Media® (synthetic)
RZ3 = R size 3 μ Excellement® Z-Media® (synthetic)
RZ5 = R size 5 μ Excellement® Z-Media® (synthetic)
RZ10 = R size 10 μ Excellement® Z-Media® (synthetic)
RZ25 = R size 25 μ Excellement® Z-Media® (synthetic)
RZX3 = R size 3 μ Excellement® Z-Media® (high collapse center tube)
RZX10 = R size10 μ Excellement® Z-Media® (high collapse center tube)

BOX 4

Seal Material

Omit = Buna N
H = EPR
V = Viton®

BOX 5

Inlet Port

P = 1" NPTF
S = SAE-16
F = 1" SAE 4-bolt flange Code 62
B = ISO 228 G-1"

BOX 6

Options

Omit = None
X = Blocked bypass
50 = 50 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Schroeder Check 7⁄16"-20 UNF Test Point installation in head (upstream)

BOX 7

Dirt Alarm® Options

	Omit = None
Visual	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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

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® is a registered trademark of DuPont Dow Elastomers.

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

Box 7. Standard indicator setting for non-bypassing model is 50 psi unless otherwise noted.

Top-Ported Pressure Filter **CF60**

Model No. of filter in photograph is CF601CCZ3SD5.

Features and Benefits

- Top-ported high pressure filter
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- No-Element indicator option available

50 gpm
190 L/min
6000 psi
415 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

STEEL MAKING

PULP & PAPER

AGRICULTURE

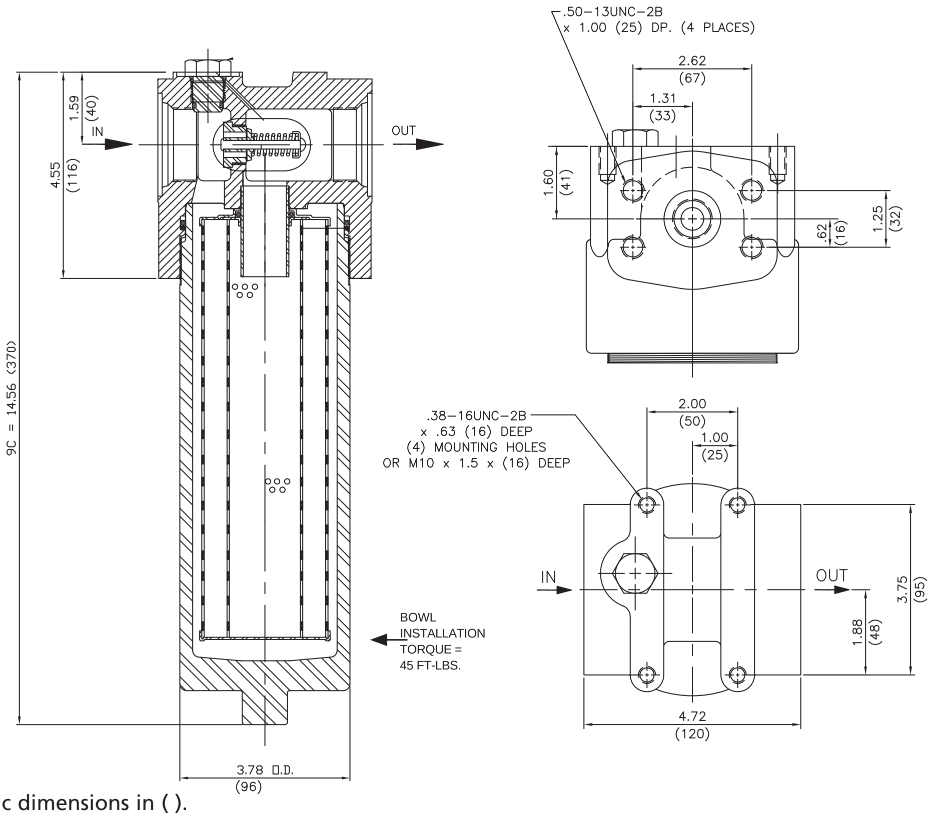
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	15,500 psi (1070 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	4000 psi (276 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: 75 psi (5.2 bar) Non-bypassing model has a blocked bypass.
Porting Head: Element Case:	Ductile Iron Steel
Weight of CF60-9C:	24.0 lbs. (10.9 kg)
Element Change Clearance:	4.0" (103 mm)

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

CF60 Top-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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
CCZX3	<1.0	<1.0	<2.0	4.7	5.8

Dirt Holding Capacity

Element	DHC (gm)
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 terminal pressure

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

Flow Direction: Outside In

Element Nominal Dimensions: CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long

Top-Ported Pressure Filter **CF60**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® Media (synthetic)
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® and all ASP® Media (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.

Element Selection
Based on Flow Rate

Pressure	Element Series	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.	
To 6000 psi (415 bar)	E Media	CC3	CC3	
		CC10	CC10	
		CC25	CC25	
	Z-Media®	CCZ1	CCZ1	See KC65
		CCZ3	CCZ3	See KC65
		CCZ5	CCZ5	
		CCZ10	CCZ10	
		CCZ25	CCZ25	
Flow		gpm	0 10 20 30 40 50	
		(L/min)	0 50 100 150 190	

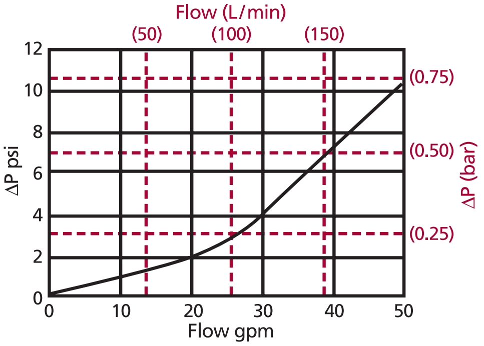
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

CF60 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

CC3	.22
CC10	.13
CC25	.03
CCZ1	.35
CCZ3/CCAS3	.20
CCZ5/CCAS5	.19
CCZ10/CCAS10	.10
CCZ25	.05
CCZX3	.29
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).

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

Notes

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

Exercise:

Determine ΔP at 30 gpm (115 L/min) for CF601CCZ3SD5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 4.0 psi [.30 bar]

$\Delta P_{element}$ = 30 x .20 x (200÷150) = 8.0 psi
or
= [115 x (.20÷54.9) x (44÷32) = .58 bar]

ΔP_{total} = 7.0 + 7.2 = 14.2 psi
or
= [.30 + .58 = .88 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

CF60 Top-Ported Pressure Filter

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
CF60 –	–	–	–	–	–	–	–	

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		**= CF601CCZ5SD5**

BOX 1

Filter Series
CF60
CFN60 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number and Size of Elements	
1	CC

BOX 3

Media Type	
Omit	E Media (cellulose)
Z	= Excellement® Z-Media® (synthetic)
ZX	= Excellement® Z- Media® (high collapse center tube)
AS	= Anti-Stat Media (synthetic)

BOX 4

Micron Rating		
1	= 1 Micron	(Z media)
3	= 3 Micron	(AS,E, Z and ZX media)
5	= 5 Micron	(AS, Z, and ZX media)
10	= 10 Micron	(AS,E, Z, and ZX media)
25	= 25 Micron	(E, Z and ZX media)

BOX 5

Seal Material
Omit = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

BOX 6

Porting
S = SAE-20
P = 1¼" NPTF
F = 1¼" SAE 4-bolt flange code 62
B = ISO 228 G-1¼"

BOX 7

Options
Omit = None
10 = 10 psi bypass setting
15 = 15 psi bypass setting
20 = 20 psi bypass setting
25 = 25 psi bypass setting
30 = 30 psi bypass setting
40 = 40 psi bypass setting
50 = 50 psi bypass setting
60 = 60 psi bypass setting
75 = 75 psi bypass setting

BOX 8

Dirt Alarm® Options		
	Omit =	None
Visual	D5 =	Visual pop-up
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
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

BOX 9

Additional Options
Omit = None
N = No-Element Indicator (CF60 only)

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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 6. B porting option supplied with metric mounting holes.

Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Box 9. N option should be used in conjunction with dirt alarm.

Top-Ported Pressure Filter **CTF60**

Features and Benefits

- Top-ported high pressure filter
- High cyclic fatigue performance (6000 psi)
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Thread on bowl with optional drain plug for easy element service

75 gpm
284 L/min
6000 psi
415 bar

Model No. of filter in photograph is CTF608CTZ10F20D9.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

PULP & PAPER

AGRICULTURE

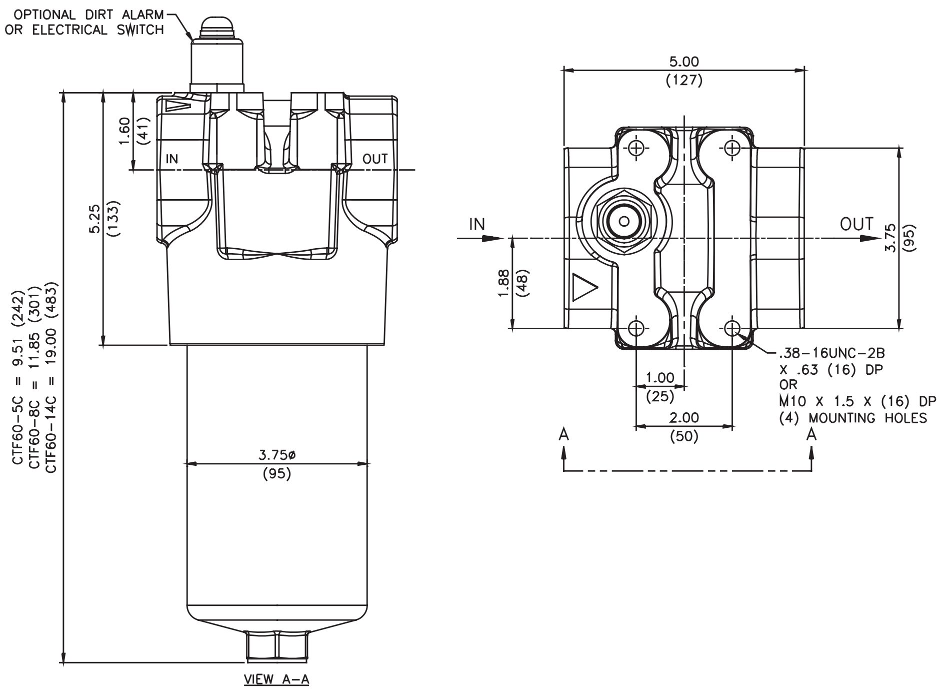
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 75 gpm (284 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	18,000 psi (1241 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	6000 psi (415 bar), per NFPA T2.6.1-R1-2005 (only with F20 4-bolt flange porting)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.4 bar) Full Flow: 83 psi (5.7 bar) Non-bypassing model has a blocked bypass.
Porting Head: Element Case:	Ductile Iron Steel
Weight of CTF60-5CT: CTF60-8CT: CTF60-14CT:	25 lbs. (11.4 kg) 29 lbs. (13.2 kg) 38 lbs. (17.3 kg)
Element Change Clearance:	4.0" (103 mm)

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

CTF60 Top-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
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

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

Flow Direction: Outside In

Element Nominal 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 mm) O.D. x 14.38" (365 mm) long

Top-Ported Pressure Filter **CTF60**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation

Element Selection
Based on Flow Rate

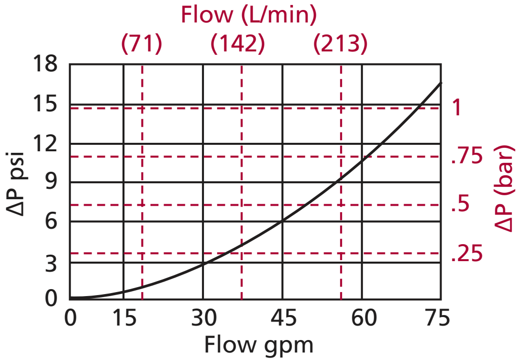
Pressure	Element Series	Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 50 psi (3.4 bar) bypass valve.					
To 6000 psi (415 bar)	Z-Media®	CTZ1	5CTZ1	8CTZ1	14CTZ1	See KC65		
		CTZ3	5CTZ3	8CTZ3	14CTZ3	See KC65		
		CTZ5	5CTZ5	8CTZ5	14CTZ5	See KC65		
		CTZ10	5CTZ10	8CTZ10	14CTZ10			
		CTZ25	5CTZ25	8CTZ25				
	Flow	gpm	0	15	30	45	60	75
		(L/min)	0	60	110	170	230	280

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

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

CTF60 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP at 70 gpm (115 L/min) for CTF6014CTZ10F20D9 using 150 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 14 psi [0.95 bar]

$\Delta P_{element}$ = 70 x .14 x (150÷150) = 9.8 psi

or

= [265 x (.20÷54.9) x (44÷32) = .68 bar]

ΔP_{total} = 14 + 9.8 = 23.8 psi

or

= [.96 + .68 = 1.64 bar]

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP 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.

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

CTF60 Top-Ported Pressure Filter

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						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
CTF60	8	CTZ5		S20		D9	= CTF608CTZ5S20D9

BOX 1

Filter Series
CTF60
CTFN60 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Element Length (in.)
5
8
14

BOX 3

Element Part Number	
CTZ1	= 1 μ Excellement® Z-Media® (synthetic)
CTZ3	= 3 μ Excellement® Z-Media® (synthetic)
CTZ5	= 5 μ Excellement® Z-Media® (synthetic)
CTZ10	= 10 μ Excellement® Z-Media® (synthetic)
CTZ25	= 25 μ Excellement® Z-Media® (synthetic)
CTZX1	= 1 μ Excellement® Z-Media® (high collapse center tube)
CTZX3	= 3 μ Excellement® Z-Media® (high collapse center tube)
CTZX5	= 5 μ Excellement® Z-Media® (high collapse center tube)
CTZX10	= 10 μ Excellement® Z-Media® (high collapse center tube)
CTZX25	= 25 μ Excellement® Z-Media® (high collapse center tube)

BOX 4

Seal Material	
Omit	= Buna N
V	= Viton®
H	= EPR

BOX 5

Inlet Port	
P20	= 1¼" NPTF
S20	= SAE-20
F20	= 1¼" SAE 4-bolt flange Code 62
B20	= ISO 228 G-1¼"

BOX 6

Options	
Omit	= None
UU	= Series 1215 ^{7}/16" UNF Schroeder Check Test Points installed in the filter head (upstream & downstream)
DR	= Drain on bowl
30	= 30 psi bypass setting
40	= 40 psi bypass setting
50	= 50 psi bypass setting

BOX 7

Dirt Alarm® Options		
	Omit =	None
Visual	D9 =	Visual pop-up
Electrical	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
	MS12SS=	Electrical w/ 5 pin Brad Harrison 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 Harrison male connector
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
	MS17SSLCT =	Low current MS17T
Electrical Visual	MS13SS =	Supplied w/ threaded connector & light
	MS14SS =	Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	MS13SSDCT =	MS13 (see above), direct current, w/ thermal lockout
	MS13SSDCLCT =	Low current MS13DCT
	MS14SSDCT =	MS14 (see above), direct current, w/ thermal lockout
	MS14SSDCLCT =	Low current MS14DCT

NOTES:

Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3 and 4.

Box 4. Viton® is a registered trademark of DuPont Dow Elastomers.

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

Box 7. All Dirt Alarm® Indicators must be Stainless Steel. Standard indicator setting is 50 psi. For replacement indicators, contact the factory.

Top-Ported Pressure Filter **VF60**

Model No. of filter in photograph is VF609VZ10S.

Features and Benefits

- Top-ported high pressure filter
- Threaded bowl for easy element servicing
- Offered in pipe, SAE straight thread and ISO 228 porting
- Various dirt alarm options available

70 gpm
265 L/min
6000 psi
415 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

PULP & PAPER

AGRICULTURE

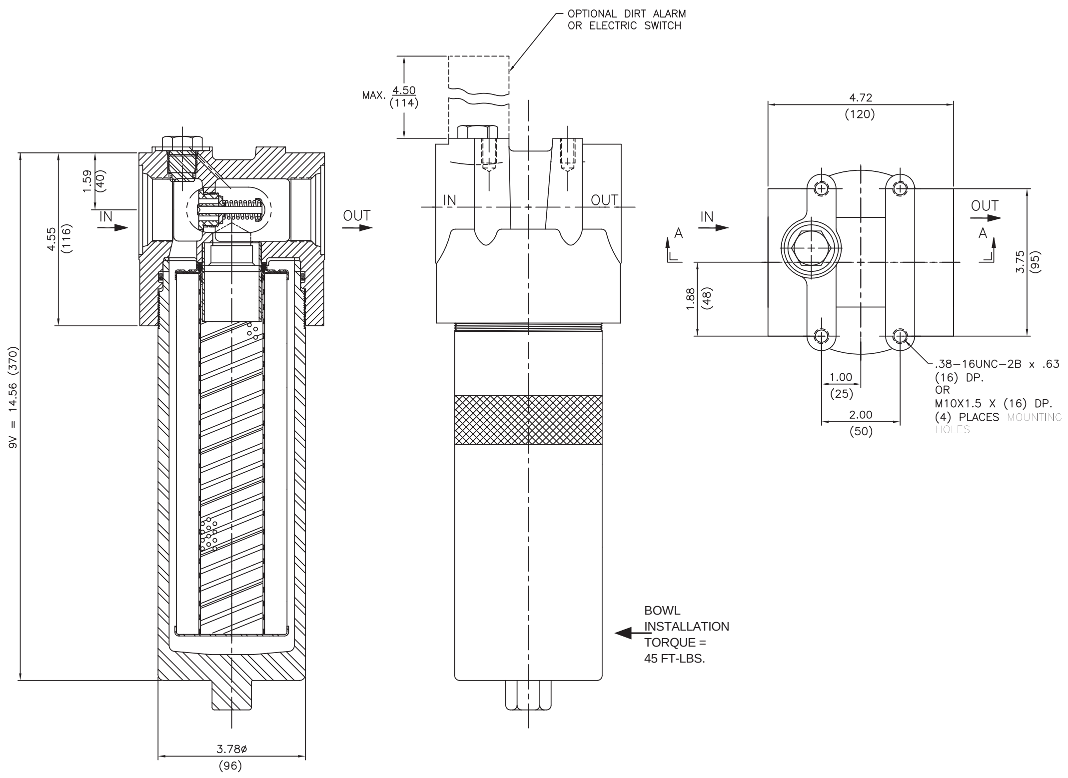
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	15,500 psi (1070 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	3300 psi (230 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.5 bar) Full Flow: 65 psi (4.5 bar)
Porting Head: Element Case:	Ductile Iron Steel
Weight of VF60-9V:	24.0 lbs. (10.9 kg)
Element Change Clearance:	4.0" (103 mm)

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

VF60 Top-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 $\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)
9V3	25
9V10	12
9VZ1	55
9VZ3	57
9VZ5	62
9VZ10	60
9VZ25	61

Element Collapse Rating:	150 psid (10 bar) for standard elements
Flow Direction:	Outside In
Element Nominal Dimensions:	9V: 2.9" (75 mm) O.D. x 9.5" (240 mm) long

Top-Ported Pressure Filter VF60

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 50 psi (3.5 bar) bypass valve.	
To 6000 psi (415 bar)	Z-Media®	9VZ1	9VZ1	Contact Factory
		9VZ3	9VZ3	
		9VZ5	9VZ5	
		9VZ10	9VZ10	
		9VZ25	9VZ25	
Flow		gpm	0 10 20 30 40 50 60 70	
		(L/min)	0 50 100 150 200 265	

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

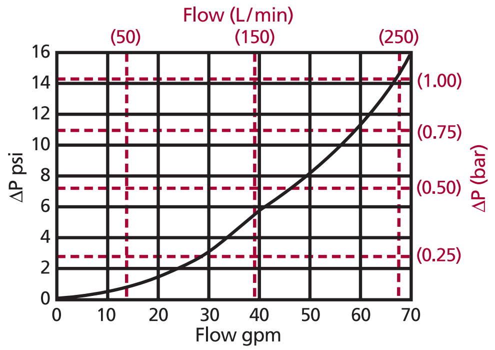
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

VF60 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	9V
9V3	.32
9V10	.24
9VZ1	.34
9VZ3	.21
9VZ5	.13
9VZ10	.11
9VZ25	.06

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

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

Exercise:

Determine ΔP at 40 gpm (150 L/min) for VF609VZ3SD5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 6.0 psi [.38 bar]
$\Delta P_{element}$ = 40 x .21 x (200÷150) = 11.2 psi
or
= [150 x (.21÷54.9) x (44÷32) = .79 bar]
ΔP_{total} = 6.0 + 11.2 = 17.2 psi
or
= [.38 + .79 = 1.17 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

VF60 Top-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder VF60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
VF60					

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
VF60	9	VZ1		S		= VF609VZ1S

BOX 1

Filter Series
VF60

BOX 2

Element Length (in)
9

BOX 3

Element Size and Media	
V3 =	V size 3 μ E media (cellulose)
V10 =	V size 10 μ E media (cellulose)
VZ1 =	V size 1 μ Excellement® Z-Media® (synthetic)
VZ3 =	V size 3 μ Excellement® Z-Media® (synthetic)
VZ5 =	V size 5 μ Excellement® Z-Media® (synthetic)
VZ10 =	V size 10 μ Excellement® Z-Media® (synthetic)
VZ25 =	V size 25 μ Excellement® Z-Media® (synthetic)
VM150 =	V size 150 μ M media (reusable metal)

BOX 4

Seal Material
Omit = Buna N
V = Viton®
H = EPR

BOX 5

Inlet Port
P = 1¼" NPTF
S = SAE-20
B = ISO 228 G-1¼"

BOX 6

Dirt Alarm® Options		
	Omit =	None
Visual	D5 =	Visual pop-up
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 9VZ1V E media (cellulose) elements are only available with Buna N seals.

Box 4. Viton® 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™ 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

300 gpm
1135 L/min

6000 psi
415 bar

Model No. of filter in photograph is LW6039ZPZ5VB32DPG.

Applications

MINING TECHNOLOGY

WASTE WATER TREATMENT

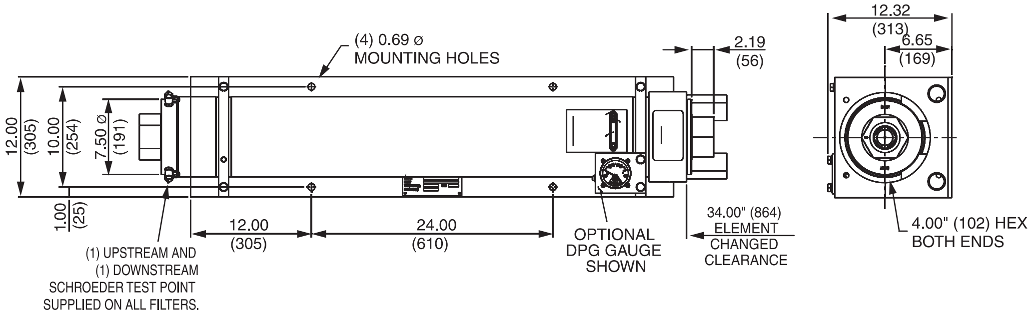
POWER GENERATION

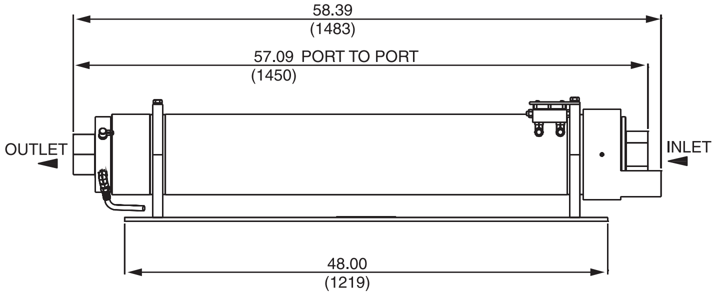
Filter Housing Specifications

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

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

LW60 High-Flow, High-Pressure Longwall Filter





Metric dimensions in ( ).

Element Performance Information

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

Dirt Holding Capacity

Element	DHC (gm)
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 designed for use with 95/5 fluids in mining longwall applications

Fluid Compatibility

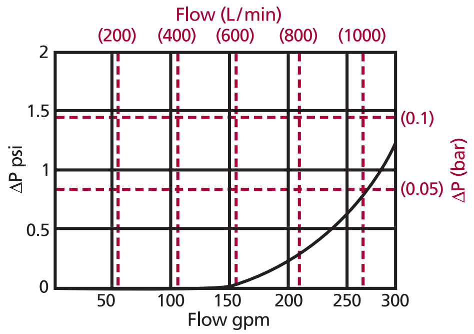
Element Selection
Based on
Flow Rate

	Element		
Pressure	**Series**	**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.**
To 6000 psi (415 bar)	Z-Media®	39ZPZ3V	39ZPZ3V
		39ZPZ5V	39ZPZ5V
		39ZPZ10V	39ZPZ10V
		39ZPZ25V	39ZPZ25V
	Flow	gpm	0 100 150 200 250 300
		(L/min)	0 400 600 800 1000 1135

Pressure Drop Information
Based on
Flow Rate
and Viscosity

$\Delta P_{housing}$

LW60 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

39ZPZ3V	.06
39ZPZ5V	.05
39ZPZ10V	.04
39ZPZ25V	.01

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.

Please note that 95/5 fluid has a lower viscosity than 150 SUS and therefore pressure drops for 95/5 will actually be lower.

Notes

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

Exercise:

Determine ΔP at 250 gpm (950 L/min) for LW6039ZPZ3VB32 using 150 SUS (32 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 0.7 psi [.05 bar]
$\Delta P_{element}$ = 250 x .06 x (150÷150) = 15.0 psi
or
= [950 x (.06 ÷54.9) x (32÷32) = 1.1 bar]
ΔP_{total} = 0.7+ 15.0 = 15.7 psi
or
= [0.05 + 1.1 = 1.15 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder LW60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LW60				

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
LW60	39ZPZ3V	B32		DPG	**= LW6039ZPZ3VB32DPG**

BOX 1

Filter Series
LW60

BOX 2

Element Part Number
39ZPZ3V = 3 μ Excellement® Z-Media® (synthetic)
39ZPZ5V = 5 μ Excellement® Z-Media® (synthetic)
39ZPZ10V = 10 μ Excellement® Z-Media® (synthetic)
39ZPZ25V = 25 μ Excellement® Z-Media® (synthetic)

BOX 3

Porting
B32 = ISO 228 G-2" (2-11 BSPP)

BOX 4

Bypass Settings
Omit = 50 psi cracking
30 = 30 psi cracking

BOX 5

Dirt Alarm® Options
DPG = Differential pressure gauge

How to Build a Valid Model Number for a Schroeder LWN60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LWN60				

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
LWN60	39ZPMX25V	B32		DPG	**= LWN6039ZPMX25VB32DPG**

BOX 1

Filter Series
LWN60 (Non-bypassing: requires MX high collapse elements)

BOX 2

Element Part Number
39ZPMX25V = 25 μ Excellement® Z-Media® (high collapse center tube)

BOX 3

Porting
B32 = ISO 228 G-2" (2-11 BSPP)

BOX 4

Bypass Settings
Omit = Blocked

BOX 5

Dirt Alarm® Options
DPG = Differential pressure gauge

Base-Ported Pressure Filter **KF30**

100/150 gpm
380/570 L/min

3000 psi
210 bar

Model No. of filter in photograph is KF301K10SD.

Features and Benefits

- Base-ported pressure filter
- Can be installed in vertical or horizontal position
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- No-Element indicator option available
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Offered in conventional subplate porting
- Same day shipment model available
- 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.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

PULP & PAPER

AGRICULTURE

MOBILE VEHICLES

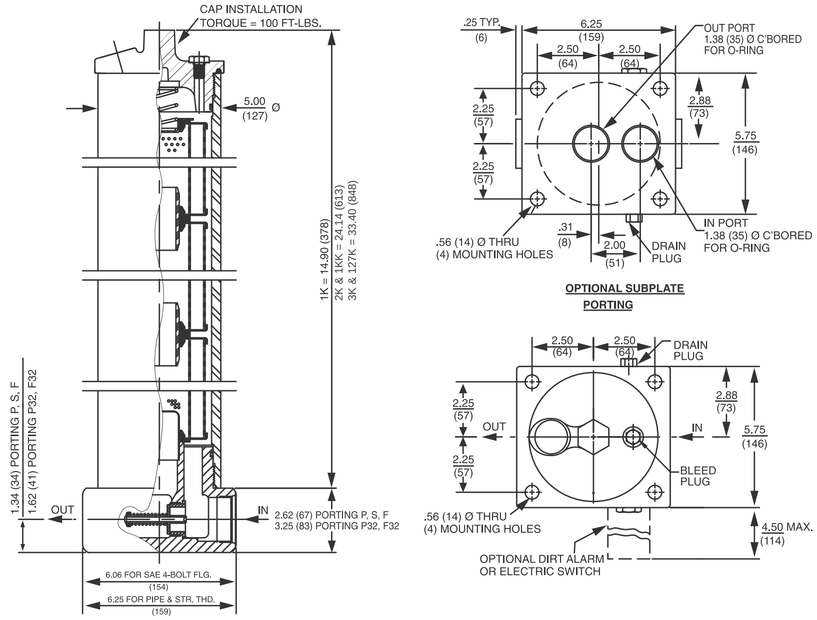
WASTE WATER TREATMENT

Filter Housing Specifications

Flow Rating:	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 (32 cSt) fluids**
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	12,000 psi (830 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2500 psi (170 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) Non-bypassing model has a blocked bypass.
Porting Base & Cap:	Ductile Iron
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

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

KF30 Base-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	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 terminal pressure

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

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

Base-Ported Pressure Filter KF30

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® Media
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 stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element 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.						
To 3000 psi (210 bar)	E Media	K3	1K3	2K3†	3K3	See MKF50			
		K10	1K10	2K10†	3K10†	3K10†	See MKF50		
		K25	1K25	2K25†					
	Z-Media®	KZ1	1KZ1	2KZ1†	3KZ1†				
		KZ3	1KZ3/KAS3/KKAS3/27KAS3	2KZ3†	3KZ3†				
		KZ5	1KZ5/KAS5/KKAS5/27KAS5	2KZ5†	3KZ5†				
		KZ10	1KZ10/KAS10/KKAS10/27KAS10	2KZ10†	3KZ10†				
		KZ25	1KZ25	2KZ25†					
Flow		gpm	0	25	50	75	100	125	150
		(L/min)	0	100	200	300	400	500	570

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

▨ requires 2" porting (P32 or F32)

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

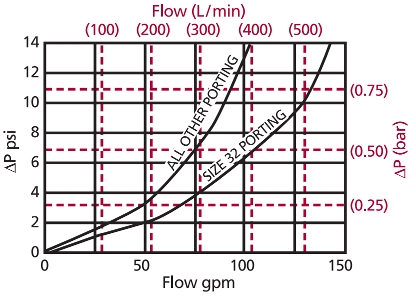
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KF30 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K/KK	3K/27K
K3	.25	.12	.08
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
KZX10	.08	.04	.03

	1K	2K
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).

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

Exercise:

Determine ΔP at 75 gpm (285 L/min) for KF302K10PD using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 7.0 psi [.50 bar]

$\Delta P_{element}$ = 75 x .05 x (200÷150) = 5.0 psi

or

= [285 x (.05÷54.9) x (44÷32) = .35 bar]

ΔP_{total} = 7.0 + 5.0 = 12.0 psi

or

= [.50 + .35 = .85 bar]

KF30 Base-Ported Pressure Filter

Filter Model Number Selection

Same Day Shipment Model available with GeoSeal®

See inside back cover for details.

How to Build a Valid Model Number for a Schroeder KF30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KF30 –	–	–	–	–	–	–	–	–	

Example: *NOTE: Only boxes 8 and 10 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	
KF30 –	1K –	Z –	10 –	–	–	S –	–	D5 –		= KF301KZ10SD5

BOX 1

Filter Series
KF30
KFN30 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number & Size of Elements	
1	K, KK, 27K
2	K
3	K

BOX 3

Media Type	
Omit =	E Media (Cellulose)
AS =	Anti-Stat Media (synthetic)
Z =	Excellement® Z-Media® (synthetic)
ZW =	Aqua-Excellement® ZW Media
ZX =	Excellement® Z-Media® (High Collapse centertube)
W =	W Media (water removal)
M =	Media (reusable metal mesh) N size only

BOX 4

MIcron Rating		
1	= 1 Micron	(Z, ZW, ZX media)
3	= 3 Micron	(AS,E, Z, ZW, ZX media)
5	= 5 Micron	(AS, Z, ZW, ZX media)
10	= 10 Micron	(AS,E,M, Z, ZW, ZX media)
25	= 25 Micron	(E, M, Z, ZW, ZX media)
60	= 60 Micron	(M media)
150	= 150 Micron	(M media)
260	= 260 Micron	(M media)

BOX 5

Seal Material

Omit = Buna N

V = Viton®

H = EPR

H.5 = Skydrol® compatibility

BOX 6

Magnet option

Omit = None

M = Magnet inserts (not available w/ indicator in cap)

BOX 7

Porting

P = 1 ½" NPTF

P32 = 2" NPTF

S = SAE-24

F = 1 ½" SAE 4-bolt flange Code 61

F32 = 2" SAE 4-bolt flange Code 61

O = Subplate

B24 = ISO 228 G-1 ½"

BOX 8

Options

Omit = None

X = Blocked bypass

50 = 50 psi bypass setting

L = Two ¼" NPTF inlet & outlet female test ports

U = Series 1215 7⁄16 UNF Schroeder Check Test Point installed in cap (upstream)

UU = Series 1215 7⁄16 UNF Schroeder Check Test Point installed in block (upstream and downstream)

BOX 9

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
	D5C =	D5 in cap
	D9 =	All stainless D5
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	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 =	MS16 (see above) w/ thermal lockout
	MS16LCT =	Low current MS16T
	MS17LCT =	Low current MS17T
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

BOX 10

Additional Options

Omit = None

N = No-Element Indicator (not available w/ KFN30 or housings w/ indicator in cap)

G509 = Dirt Alarm and drain opposite standard

G588 = Electric Switch and drain opposite standard

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. 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® is a registered trademark of DuPont Dow Elastomers. Skydrol® 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 non-bypassing 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.

Base-Ported Pressure Filter **TF50**

40 gpm
150 L/min

5000 psi
345 bar

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.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

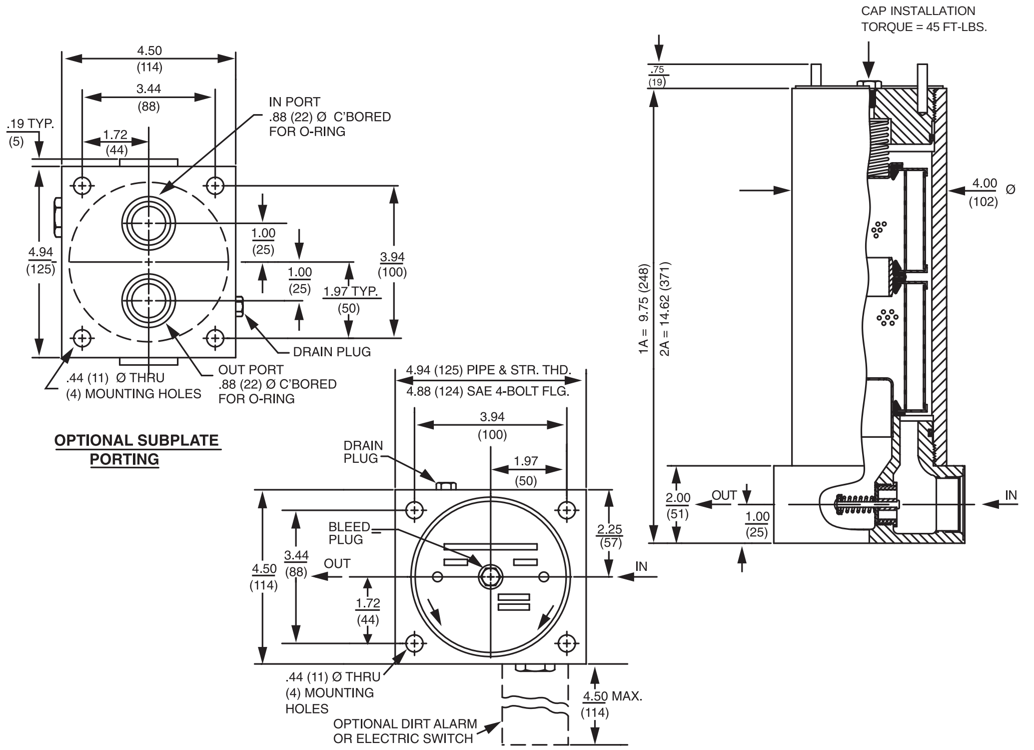
STEEL MAKING

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 40 gpm (150 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
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)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 69 psi (4.8 bar) Non-bypassing model has a blocked bypass.
Porting Base:	Ductile Iron
Element Case & Cap:	Steel
Weight of TF50-1A:	24.4 lbs. (11.1 kg)
Weight of TF50-2A:	29.8 lbs. (13.5 kg)
Element Change Clearance:	8.50" (215 mm)

TF50 Base-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)
A3	16
A10	13
AZ1	25
AZ3	26
AZ5	30
AZ10	28
AZ25	28
CCZX3	26*
CCZX10	28*

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

Flow Direction: Outside In

Element Nominal 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

*Based on 100 psi terminal pressure

Base-Ported Pressure Filter **TF50**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element 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.
To 5000 psi (345 bar)	E Media	A3	1A3 2A3 See KF50
		A10	1A10 2A10
		A25	1A25
	Z-Media®	AZ1	1AZ1 2AZ1 See KF50
		AZ3	1AZ3 2AZ3
		AZ5	1AZ5 2AZ5
		AZ10	1AZ10 & 2AZ10
		AZ25	1AZ25 & 2AZ25
Flow		gpm	0 5 10 15 20 25 30 35 40
		(L/min)	0 50 100 150

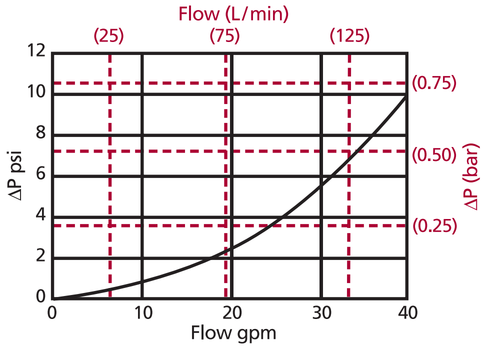
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on Flow Rate and Viscosity

ΔP$_{\text{housing}}$

TF50 ΔP$_{\text{housing}}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

ΔP$_{\text{element}}$

ΔP$_{\text{element}}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1A	2A
A3	.53	.27
A10	.36	.18
A25	.05	.03
AZ1	.70	.35
AZ3	.50	.25
AZ5	.32	.16
AZ10	.25	.13
AZ25	.14	.07
CCZX3	.29	
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).

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

Notes

ΔP$_{\text{filter}}$ **= ΔP**$_{\text{housing}}$ **+ ΔP**$_{\text{element}}$

Exercise:

Determine ΔP at 20 gpm (75 L/min) for TF502AZ3SMS using 200 SUS (44 cSt) fluid.

Solution:

ΔP$_{\text{housing}}$ = 2.5 psi [.22 bar]

ΔP$_{\text{element}}$ = 20 x .25 x (200÷150) = 6.7 psi
or
= [75 x (.25÷54.9) x (44÷32) = .47 bar]

ΔP$_{\text{total}}$ = 2.5 + 6.7 = 9.2 psi
or
= [.22 + .47 = .69 bar]

TF50 Base-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder TF50:

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7		BOX 8		BOX 9
TF50	–		–		–		–		–		–		–		–	

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	
TF50	–	1	–	AZ5	–		–		–	S	–		–	D5	–		**= TF501AZ5SD5**

BOX 1

Filter Series
TF50
TFN50 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number of Elements
1
2

BOX 3

Element Part Number	
A3	= 3 µ E media (cellulose)
A10	= 10 µ E media (cellulose)
A25	= 25 µ E media (cellulose)
AZ1	= 1 µ Excellement® Z-Media® (synthetic)
AZ3	= 3 µ Excellement® Z-Media® (synthetic)
AZ5	= 5 µ Excellement® Z-Media® (synthetic)
AZ10	= 10 µ Excellement® Z-Media® (synthetic)
AZ25	= 25 µ Excellement® Z-Media® (synthetic)
AM10	= 10 µ M media (reusable metal)
AM25	= 25 µ M media (reusable metal)
AM60	= 60 µ M media (reusable metal)
AM150	= 150 µ M media (reusable metal)
CCZX1	= 1 µ Excellement® Z-Media® (high collapse center tube)
CCZX3	= 3 µ Excellement® Z-Media® (high collapse center tube)
CCZX10	= 10 µ Excellement® Z-Media® (high collapse center tube)

BOX 4

Seal Material

Omit = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

BOX 5

Magnet Option

Omit = None
M = Magnet inserts (not available w/ indicator in cap or TFN50)

BOX 6

Porting

P = 1" NPTF
S = SAE-16
F = 1" SAE 4-bolt flange Code 61
O = Subplate
B = ISO 228 G-1"

BOX 7

Options

Omit = None
X = Blocked bypass
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
50 = 50 psi bypass setting (not available w/ TFN50)
60 = 60 psi bypass setting
75 = 75 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Series 1215 7⁄16 UNF Schroeder Check Test Point installation in cap (upstream)
UU = Series 1215 7⁄16 UNF Schroeder Check Test Point installation in block (upstream and downstream)

BOX 8

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
	D5C =	D5 in cap*
	D9 =	All stainless D5
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	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 =	MS16 (see above) w/ thermal lockout
	MS16LCT =	Low current MS16T
	MS17LCT =	Low current MS17T
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

BOX 9

Additional Options

Omit = None
N = No-Element indicator (not available with TFN50)
G509 = Dirt alarm and drain opposite standard
G588 = Electrical switch and drain opposite standard

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® is a registered trademark of DuPont Dow Elastomers. Skydrol® 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 non-bypassing 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.

Base-Ported Pressure Filter **KF50**

Model No. of filter in photograph is KF501K10SD.

Features and Benefits

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

100/150 gpm
380/570 L/min

5000 psi
345 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

STEEL MAKING

PULP & PAPER

AGRICULTURE

MOBILE VEHICLES

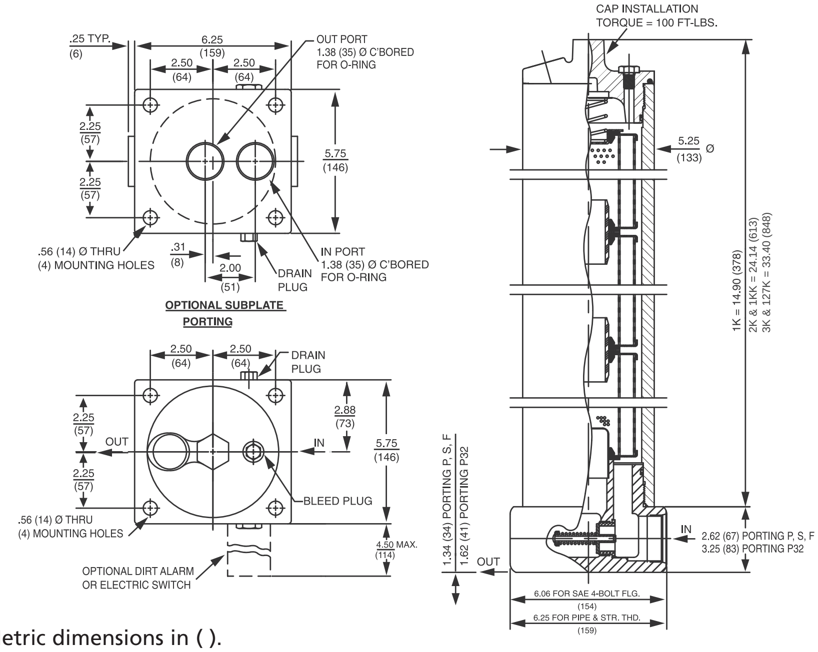
WASTE WATER TREATMENT

Filter Housing Specifications

Flow Rating:	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 (32 cSt) fluids**
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
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)
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.
Porting Base & Cap: Element Case:	Ductile Iron Steel
Weight of KF50-1K: Weight of KF50-2K: Weight of KF50-3K:	59.7 lbs. (27.1 kg) 80.7 lbs. (36.6 kg) 102.0 lbs. (46.3 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

KF50 Base-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	108	27K3	162				
K10	44	KK10	88	27K10	132				
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61		
KZ3/KAS3	115	KKZ3/KKAS3	230	27KZ3/27KAS3	345	KZW3	64	KKZW3	128
KZ5/KAS5	119	KKZ5/KKAS5	238	27KZ5/27KAS5	357	KZW5	63	KKZW5	126
KZ10/KAS10	108	KKZ10	216	27KZ10/27KAS10	324	KZW10	57	KKZW10	114
KZ25	93	KKZ25	186	27KZ25	279	KZW25	79	KKZW25	158
KZX3	40*	KKZX3	80	27KZX3	120				
KZX10	49*	KKZX10	98	27KZX10	147				

*Based on 100 psi terminal pressure

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

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

Base-Ported Pressure Filter KF50

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® Media (synthetic)
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 stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Flow Capacity Selection

Based on Pressure Drops

Pressure	Element		Flow capacity selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve.						
	Series	Part No.							
To 5000 psi (345 bar)	E Media	K3	1K3	2K3†	3K3	See MKF50			
		K10	1K10	2K10†	3K10†	3K10†	See MKF50		
		K25	1K25	2K25†					
	Z-Media®	KZ1	1KZ1	2KZ1†	3KZ1†				
		KZ3	1KZ3/KAS3/KKAS3/27KAS3	2KZ3†	3KZ3†				
		KZ5	1KZ5/KAS5/KKAS5/27KAS5		2KZ5†	3KZ5†			
		KZ10	1KZ10/KAS10/KKAS10/27KAS10		2KZ10†	3KZ10†			
		KZ25	1KZ25		2KZ25†				
	Flow	gpm	0	25	50	75	100	125	150
		(L/min)	0	100	200	300	400	500	570

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

▨ requires 2" porting (P32)

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

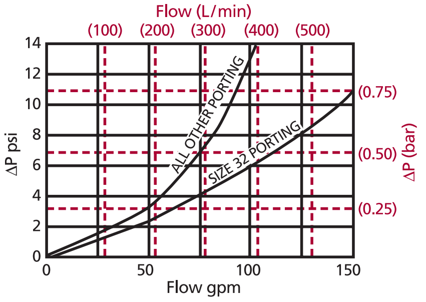
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KF50 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP 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

or

= [190 x (.10÷54.9) x (44÷32) = .48 bar]

ΔP_{total} = 3.0 + 6.7 = 9.7 psi

or

= [.20 + .48 = .68 bar]

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K/KK	3K/27K
K3	.25	.12	.08
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
KZX10	.08	.04	.03

	1K	2K
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).

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

KF50 Base-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KF50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KF50 –	–	–	–	–	–	–	–	–	

Example: *NOTE: Only boxes 8 and 10 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	
KF50	1K	Z	10			S		D5		= KF501KZ10SD5

BOX 1

Filter Series
KF50
KFN50 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number & Size of Elements	
1	K, KK, 27K
2	K
3	K

BOX 3

Media Type	
Omit	E Media (Cellulose)
Z	Excellement® Z-Media® (synthetic)
AS	Anti-Stat Media (synthetic)
ZW	Aqua-Excellement™ ZW Media
ZX	Excellement® Z-Media® (High Collapse centertube)
W	W Media (water removal)
M	Media (reusable metal mesh)

BOX 4

MIcron Rating		
1	= 1 Micron	(Z, ZW, ZX media)
3	= 3 Micron	(AS,E, Z, ZW, ZX media)
5	= 5 Micron	(AS, Z, ZW, ZX media)
10	= 10 Micron	(AS,E,M, Z, ZW, ZX media)
25	= 25 Micron	(E,M, Z, ZW, ZX media)
60	= 60 Micron	(M media)
150	= 150 Micron	(M media)
260	= 260 Micron	(M media)

BOX 5

Seal Material

Omit = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

BOX 6

Magnet Options

Omit = None
M = Magnet inserts (not available w/ indicator in cap)

BOX 7

Porting

P = 1½" NPTF
P32 = 2" NPTF
S = SAE-24
F = 1½" SAE 4-bolt flange Code 62
O = Subplate
B24 = ISO 228 G-1½"

BOX 8

Options

Omit = None
X = Blocked bypass
50 = 50 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Series 1215 7⁄16 UNF Schroeder Check Test Point installed in cap (upstream)
UU = Series 1215 7⁄16 UNF Schroeder Check Test Point installed in block (upstream and downstream)

BOX 9

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
	D5C =	D5 in cap
	D9 =	All stainless D5
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	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 =	MS16 (see above) w/ thermal lockout
	MS16LCT =	Low current MS16T
	MS17LCT =	Low current MS17T
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

BOX 10

Additional Options

Omit = None
N = No-Element Indicator (not available w/ KFN50 or housings w/ indicator in cap
G509 = Dirt alarm and drain opposite standard
G588 = Electrical switch and drain opposite standard

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. 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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 7. For option F, bolt depth .75" (19 mm). For option O, O-rings included; hardware not included.

Box 9. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Box 10. Options N, G509 and G588 are not available with KFN50. N option should be used in conjunction with dirt alarm.

Base-Ported Pressure Filter **KC50**

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

Model No. of filter in photograph is KC501KZ10PD.

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 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.

100/150 gpm
380/570 L/min
5000 psi
345 bar

Applications

INDUSTRIAL

MINING TECHNOLOGY

MACHINE TOOL

STEEL MAKING

WASTE WATER TREATMENT

PULP & PAPER

AGRICULTURE

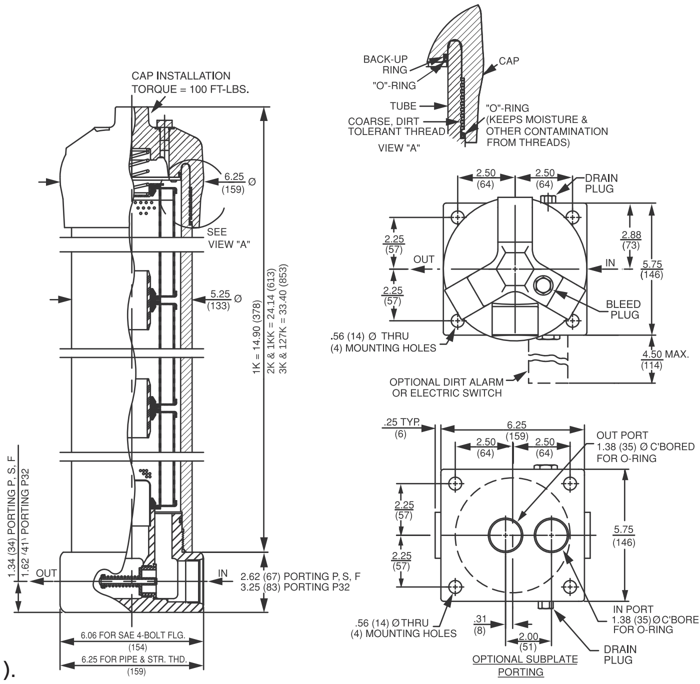
MOBILE VEHICLES

RAILROAD

Filter Housing Specifications

Flow Rating:	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 (32 cSt) fluids**
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
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)
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.
Porting Base & Cap: Element Case:	Ductile Iron Steel
Weight of KC50-1K: Weight of KC50-2K: Weight of KC50-3K:	66.8 lbs. (30.3 kg) 87.8 lbs. (39.8 kg) 109.6 lbs. (49.7 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

KC50 Base-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	β_x ≥ 75	β_x ≥ 100	β_x ≥ 200	$\beta_x(c)$ ≥ 200	$\beta_x(c)$ ≥ 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)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	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 terminal pressure

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

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

Base-Ported Pressure Filter **KC50**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® Media (synthetic)
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 stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element 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.			
To 5000 psi (345 bar)	E Media	K3	1K3	2K3†	3K3	See MKF50
		K10	1K10	2K10†	3K10†	3K10† ▨	See MKF50
		K25	1K25	2K25† ▨		
	Z-Media®	KZ1	1KZ1	2KZ1†	3KZ1† ▨	
		KZ3	1KZ3/KAS3/KKAS3/27KAS3	2KZ3†	3KZ3† ▨	
		KZ5	1KZ5/KAS5/KKAS5/27KAS5	2KZ5†	3KZ5† ▨	
		KZ10	1KZ10/KAS10/KKAS10/27KAS10	2KZ10† ▨	3KZ10† ▨	
		KZ25	1KZ25	2KZ25† ▨		
	Flow	gpm	0, 25, 50, 75, 100, 125, 150			
		(L/min)	0, 100, 200, 300, 400, 500, 570			

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

▨ requires 2" porting (P32)

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

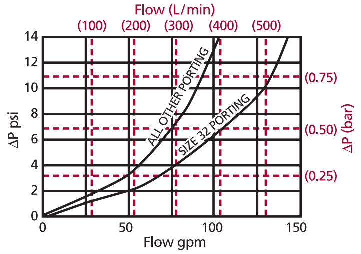
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KC50 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP 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

or

= [190 x (.10÷54.9) x (44÷32) = .48 bar]

ΔP_{total} = 3.0 + 6.7 = 9.7 psi

or

= [.20 + .48 = .68 bar]

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K/KK	3K/27K
K3	.25	.12	.08
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
KZX10	.08	.04	.03

	1K	2K
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).

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

KC50 Base-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KF50:

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7		BOX 8		BOX 9		BOX 10
KC50	–		–		–		–		–		–		–		–		–	

Example: *NOTE: Only boxes 8 and 10 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	
KC50	–	1K	–	Z	–	10	–		–		–	S	–		–	D5	–		= KC501KZ10SD5

BOX 1

Filter Series
KC50
KCN50 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number & Size of Elements	
1	K, KK, 27K
2	K
3	K

BOX 3

Media Type	
Omit	E Media (Cellulose)
Z	Excellement® Z-Media® (synthetic)
AS	Anti-Stat Media (synthetic)
ZW	Aqua-Excellement™ ZW Media
ZX	Excellement® Z-Media® (High Collapse centertube)
W	W Media (water removal)
M	Media (reusable metal mesh)

BOX 4

MIcron Rating		
1	= 1 Micron	(Z, ZW, ZX media)
3	= 3 Micron	(AS,E, Z, ZW, ZX media)
5	= 5 Micron	(AS, Z, ZW, ZX media)
10	= 10 Micron	(AS,E,M, Z, ZW, ZX media)
25	= 25 Micron	(E,M, Z, ZW, ZX media)
60	= 60 Micron	(M media)
150	= 150 Micron	(M media)
260	= 260 Micron	(M media)

BOX 5

Seal Material

Omit = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

BOX 6

Magnet Options

Omit = None
M = Magnet inserts (not available w/ indicator in cap)

BOX 7

Porting

P = 1½" NPTF
P32 = 2" NPTF
S = SAE-24
F = 1½" SAE 4-bolt flange Code 62
O = Subplate
B24 = ISO 228 G-1½"

BOX 8

Options

Omit = None
X = Blocked bypass
50 = 50 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Series 1215 ⁷⁄₁₆ UNF Schroeder Check Test Point installed in cap (upstream)
UU = Series 1215 ⁷⁄₁₆ UNF Schroeder Check Test Point installed in block (upstream and downstream)

BOX 9

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
	D5C =	D5 in cap
	D9 =	All stainless D5
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C=	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 =	MS16 (see above) w/ thermal lockout
	MS16LCT =	Low current MS16T
	MS17LCT =	Low current MS17T
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

BOX 10

Additional Options

Omit = None
N = No-Element Indicator (not available w/ KFN30 or housings w/ indicator in cap)
G509 = Dirt alarm and drain opposite standard
G588 = Electrical switch and drain opposite standard

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. 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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 7. For option F, bolt depth .75" (19 mm). For option O, O-rings included; hardware not included.

Box 8. X and 50 options are not available with KCN50.

Box 9. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Box 10. Options N, G509 and G588 are not available with KCN50. N option should be used in conjunction with dirt alarm.

Base-Ported Pressure Filter **MKF50**

200 gpm
760 L/min

5000 psi
345 bar

Features and Benefits

- Base-ported high pressure dual filter manifold mounted
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in pipe porting (contact factory for other porting options)
- 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 elements can be replaced by single KK or 27K-size elements
- Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 341) for details.

Model No. of filter in photograph is MKF504K10PD5.

Applications

INDUSTRIAL

MINING TECHNOLOGY

AUTOMOTIVE MANUFACTURING

STEEL MAKING

MOBILE VEHICLES

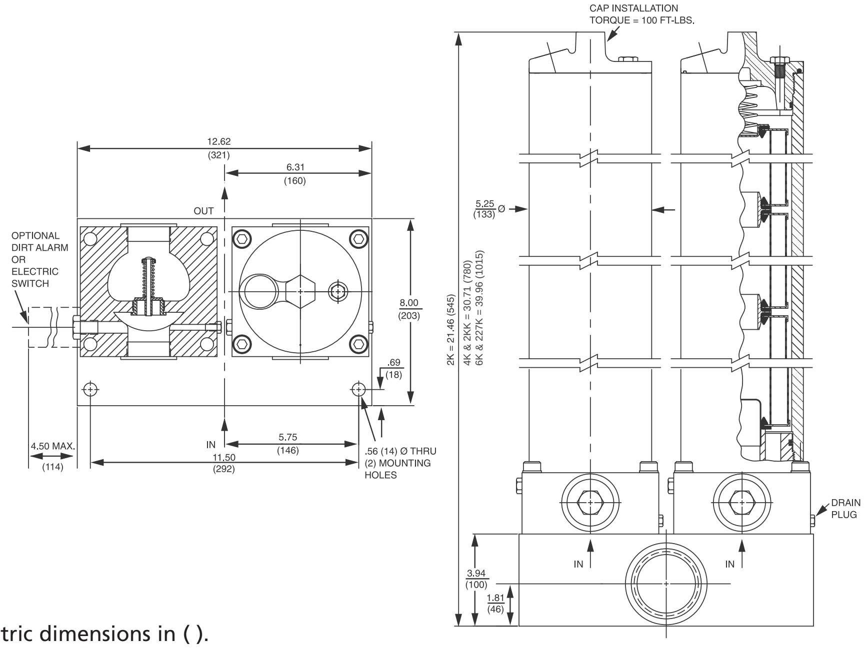
WASTE WATER TREATMENT

POWER GENERATION

Filter Housing Specifications

Flow Rating:	Up to 200 gpm (760 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
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)
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.
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of MKF50-2K:	214.0 lbs. (97.3 kg)
Weight of MKF50-4K:	243.0 lbs. (110.2 kg)
Weight of MKF50-6K:	284.4 lbs. (129.0 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

MKF50 Base-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 $\beta_x^{(c)} \geq 200$	$\beta_x^{(c)} \geq 1000$
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)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	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 terminal pressure

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

Base-Ported Pressure Filter **MKF50**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® Media (synthetic)
Phosphate Esters	All Z-Media® and all 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 stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element 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.	
To 5000 psi (345 bar)	E Media	K3	4K3†	6K3
		K10	4K10† & 6K10†	
		K25	4K25†	
	Z-Media®	KZ1	4KZ1†	6KZ1†
		KZ3	4KZ3†	6KZ3†
		KZ5	4KZ5†	6KZ5†
		KZ10	4KZ10†	6KZ10†
		KZ25	4KZ25†	6KZ25†
	Flow	gpm	0 100 120 140 160 180 200	
		(L/min)	0 400 600 760	

†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.

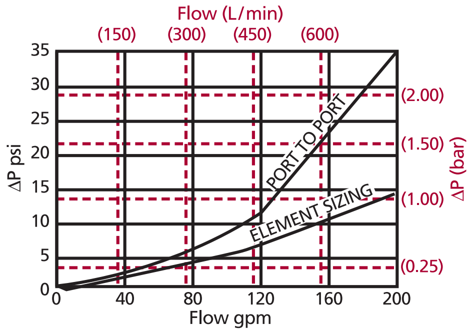
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

MKF50 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

The ΔP 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” ΔP takes into consideration the manifold block. This pressure drop can be significantly higher due to these additional flow constrictions. Although this ΔP does not affect the performance of the filter, it should be considered for overall system design.

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	2K	4K	6K
K3	.12	.06	.04
K10	.05	.02	.02
K25	.01	.01	.01
KZ1	.10	.05	.03
KZ3/KAS3/KKAS3/27KAS3	.05	.03	.02
KZ5/KAS5/KKAS5/27KAS5	.04	.02	.01
KZ10/KAS10/KKAS10/27KAS10	.03	.02	.01
KZ25	.02	.01	.01

	1K	2K
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).

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

MKF50 Base-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MKF50

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
MKF50								

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	BOX 9	
MKF50	2K	Z	10		P		D5		**= MKF502KZ10PD5**

BOX 1

Filter Series
MKF50
MKFN50 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number & Size of Elements	
2	K, KK, 27K
4	K
6	K

BOX 3

Media Type	
Omit	E Media (Cellulose)
Z	Excellement® Z-Media® (synthetic)
AS	Anti-Stat Media (synthetic)
ZW	Aqua-Excellement™ ZW Media
ZX	Excelllement® Z-Media® (High Collapse centertube)
W	W Media (water removal)
M	Media (reusable metal mesh)

BOX 4

MIcron Rating		
1	= 1 Micron	(Z, ZW, ZX media)
3	= 3 Micron	(AS,E, Z, ZW, ZX media)
5	= 5 Micron	(AS, Z, ZW, ZX media)
10	= 10 Micron	(AS,E,M, Z, ZW, ZX media)
25	= 25 Micron	(E,M, Z, ZW, ZX media)
60	= 60 Micron	(M media)
150	= 150 Micron	(M media)
260	= 260 Micron	(M media)

BOX 5

Seal Material

Omit = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

BOX 6

Porting

P = 2½" NPTF

BOX 7

Options

Omit = None
X = Blocked bypass
50 = 50 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Series 1215 7⁄16 UNF Schroeder Check Test Point installed in cap (upstream)

BOX 8

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
	D5C =	D5 in cap
	D9 =	All stainless D5
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C=	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 =	MS16 (see above) w/ thermal lockout
	MS16LCT =	Low current MS16T
	MS17LCT =	Low current MS17T
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

BOX 9

Additional Options

Omit = None
N = No-Element Indicator (not available w/ KFN30 or housings w/ indicator in cap)

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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 7. 50 option is not available with MKFN50.

Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Box 9. N option should be used in conjunction with dirt alarm.

Base-Ported Pressure Filter **KC65**

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

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® Elements. See Section 8 – GeoSeal Filters (page 341) for details.

100 gpm
380 L/min

6500 psi
450 bar

Model No. of filter in photograph is KC651K10FD9.

Applications

INDUSTRIAL

MINING TECHNOLOGY

AUTOMOTIVE MANUFACTURING

STEEL MAKING

MOBILE VEHICLES

PULP & PAPER

AGRICULTURE

WASTE WATER TREATMENT

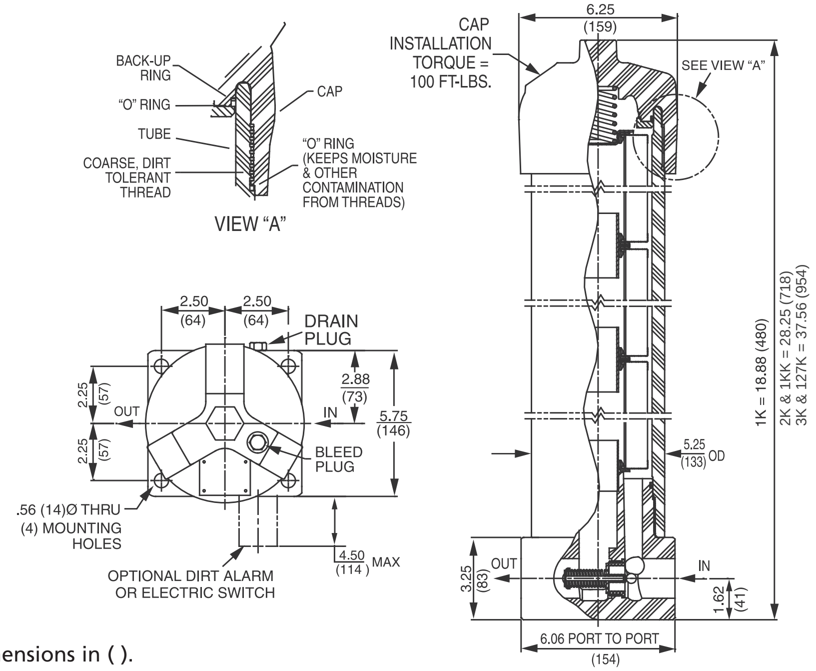
Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6500 psi (450 bar)
Min. Yield Pressure:	19,500 psi (1345 bar), per NFPA T2.6.1
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)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 75 psi (5.2 bar) Non-bypassing model has a blocked bypass.
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of KC65-1K:	80 lbs. (36.3 kg)
Weight of KC65-2K:	102 lbs. (46.3 kg)
Weight of KC65-3K:	124 lbs. (56.3 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

KC65 Base-Ported Pressure Filter

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



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	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 terminal pressure

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

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

Base-Ported Pressure Filter **KC65**

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

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® Media (synthetic)
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 ASP® 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)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element 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.		
To 6500 psi (450 bar)	E Media	K3	1K3	2K3†	3K3
		K10	1K10	2K10†	3K10†
		K25	1K25		
	Z-Media®	KZ1	1KZ1	2KZ1†	3KZ1†
		KZ3	1KZ3/KAS3/KKAS3/27KAS3	2KZ3†	3KZ3†
		KZ5	1KZ5/KAS5/KKAS5/27KAS5	2KZ5†	3KZ5†
		KZ10	1KZ10/KAS10/KKAS10/27KAS10	2KZ10†	
		KZ25	1KZ25	2KZ25†	
Flow		gpm	0 20 40 60 80 100		
		(L/min)	0 150 250 380		

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

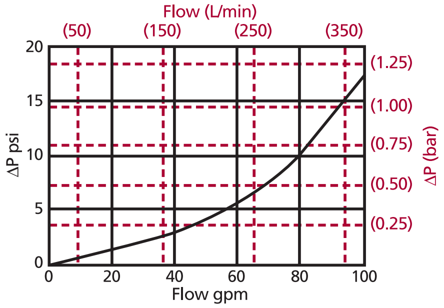
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KC65 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP at 60 gpm (230 L/min) for KC652KZ3FD9 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 8.0 psi [.55 bar]
$\Delta P_{element}$ = 60 x .05 x (200÷150) = 4.0 psi
or
= [230 x (.05÷54.9) x (44÷32) = .29 bar]
ΔP_{total} = 8.0 + 4.0 = 12.0 psi
or
= [.55 + .29 = .84 bar]

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K
K3	.25	.12	.08
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

	1K	2K
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).

KC65 Base-Ported Pressure Filter

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

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KC65:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KC65									

Example: *NOTE: Only boxes 8 and 10 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	
KC65	1K	Z	10			F				= KC651KZ10F

BOX 1

Filter Series
KC65
KCN65 (Non-bypassing: requires ZX high collapse elements)

BOX 2

Number & Size of Elements	
1	K, KK, 27K
2	K
3	K

BOX 3

Media Type	
Omit	E Media (Cellulose)
Z	Excellement® Z-Media® (synthetic)
AS	Anti-Stat Media (synthetic)
ZW	Aqua-Excellement™ ZW Media
ZX	Excelllement® Z-Media® (High Collapse centertube)
W	W Media (water removal)
M	Media (reusable metal mesh)

BOX 4

MIcron Rating		
1	= 1 Micron	(Z, ZW, ZX media)
3	= 3 Micron	(AS,E, Z, ZW, ZX media)
5	= 5 Micron	(AS, Z, ZW, ZX media)
10	= 10 Micron	(AS,E,M, Z, ZW, ZX media)
25	= 25 Micron	(E,M, Z, ZW, ZX media)
60	= 60 Micron	(M media)
150	= 150 Micron	(M media)
260	= 260 Micron	(M media)

BOX 5

Seal Material

Omit = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

BOX 6

Magnet Options

Omit = None
M = Magnet inserts (not available w/ indicator in cap)

BOX 7

Porting

F = 1½" SAE 4-bolt flange Code 62

BOX 8

Options

Omit = None
X = Blocked bypass
50 = 50 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Series 1215 7/16 UNF Schroeder Check Test Point installed in cap (upstream)
UU = Series 1215 7/16 UNF Schroeder Check Test Point installed in block (upstream and downstream)

BOX 9

Dirt Alarm® Options		
	Omit =	None
Visual	D9 =	Visual pop-up
Electrical	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
	MS12SS=	Electrical w/ 5 pin Brad Harrison 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 Harrison male connector
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
	MS17SSLCT =	Low current MS17T
Electrical Visual	MS13SS =	Supplied w/ threaded connector & light
	MS14SS =	Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	MS13SSDCT =	MS13 (see above), direct current, w/ thermal lockout
	MS13SSDCLCT =	Low current MS13DCT
	MS14SSDCT =	MS14 (see above), direct current, w/ thermal lockout
	MS14SSDCLCT =	Low current MS14DCT

BOX 10

Additional Options

Omit = None
N = No-Element Indicator (not available w/ KCN65)
G509 = Dirt alarm and drain opposite standard

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. 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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 7. For option F, bolt depth 1.12" (30 mm).

Box 8. X and 50 options are not available with KCN65.

Box 9. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Box 10. Options N, G509 and G1906 are not available with KCN65. N option should be used in conjunction with dirt alarm.

High-Pressure Sandwich Filter NOF30-05

12 gpm
45 L/min
3000 psi
210 bar

Model No. of filter in photograph is NOF301NNZX305D5.

Features and Benefits

- Sandwich filter configured for D05 subplate
- Withstands high pressure surges, high static pressure loads
- 3000 psi collapse elements

Applications

AUTOMOTIVE MANUFACTURING

MINING TECHNOLOGY

MACHINE TOOL

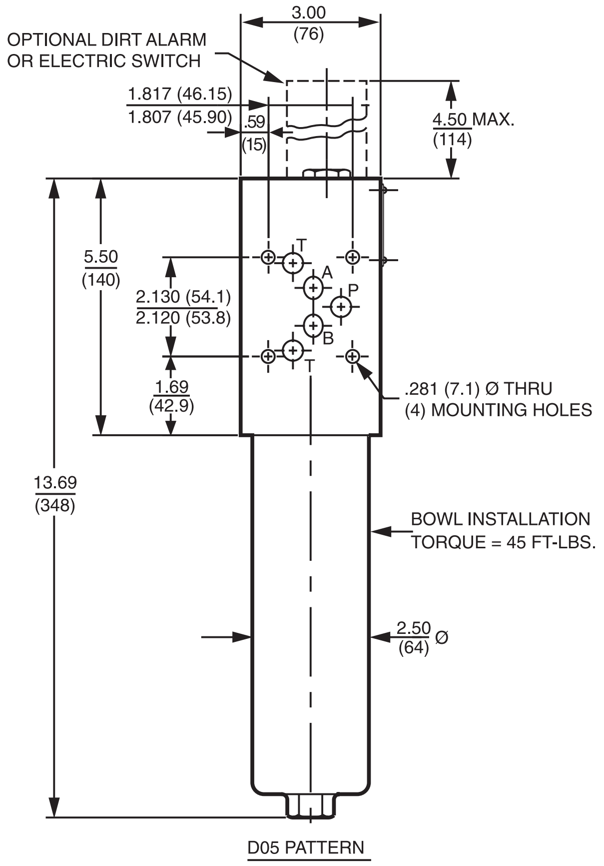
PULP & PAPER

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 12 gpm (45 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	10,000 psi (690 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact Factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Non-Bypass Model:	High collapse elements are standard
Porting Head: Element Case:	Aluminum Aluminum
Weight of NOF30-1NN:	6.6 lbs. (3.0 kg)
Element Change Clearance:	4.50" (115 mm)

NOF30-05 High-Pressure Sandwich Filter



Metric dimensions in ( ).

Element Performance Information

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402 $ß_x \geq 75$	$ß_x \geq 100$	$ß_x \geq 200$	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 $ß_x(c) \geq 200$	$ß_x(c) \geq 1000$
NNZX3	<1.0	<1.0	<2.0	4.7	5.8
NNZX10	7.4	8.2	10.0	8.0	9.8

Dirt Holding Capacity

Element	DHC (gm)
NNZX3	11*
NNZX10	13*

*Based on 100 psi terminal pressure

Element Collapse Rating:	3000 psid (210 bar) for high collapse (ZX) versions
Flow Direction:	Outside In
Element Nominal Dimensions:	1.75" (45 mm) O.D. x 8.00" (200 mm) long

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	3, 10 and 25 μ Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 10 and 25 μ Z-Media® (synthetic)

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid.
To 3000 psi (210 bar)	Z-Media®	NNZX3	1NNZX3
		NNZX10	1NNZX10
		NNZX25	1NNZX25
	Flow	gpm	0 … 12
		(L/min)	0 … 20 … 40 … 45

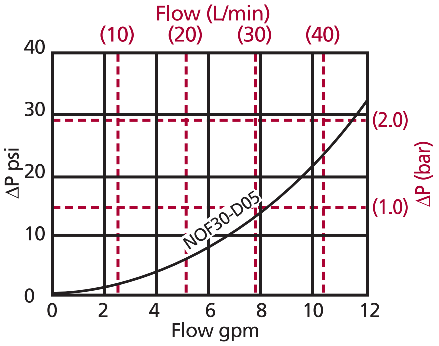
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

NOF30-D05 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

NNZX3	1.00
NNZX10	.52

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

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

Exercise:

Determine ΔP at 8 gpm (30 L/min) for NOF301NNZX1005D5 using 150 SUS (32 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 15.0 psi [1.0 bar]

$\Delta P_{element}$ = 8 x 0.52 x (150÷150) = 4.2 psi
or
= [30 x (0.52 ÷54.9) x (32÷32) = 0.3 bar]

ΔP_{total} = 15.0 + 4.2 = 19.2 psi
or
= [1.0 + 0.3 = 1.3 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

NOF30-05 High-Pressure Sandwich Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder NOF30-05:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
NOF30						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
NOF30	1	NNZX3		05		D5	**= NOF301NNZX305D5**

BOX 1

Filter Series
NOF30

BOX 2

Number of Elements
1

BOX 3

Element Part Number
NNZX3 = NN size 3 μ high collapse media
NNZX10 = NN size 10 μ high collapse media
NNZX25 = NN size 25 μ high collapse media

BOX 4

Seal Material
Omit = Buna N
V = Viton®
W = Buna N

BOX 5

Porting
05 = D05 subplate pattern

BOX 6

Options
Omit = None
90 = Optional indicator setting

BOX 7

Dirt Alarm® Options		
	Omit =	None
Visual	D5 =	Visual pop-up (60 psid indicator setting)
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
Electrical	MS5 =	Electrical w/ 12 in. 18 gauge 4-conductor cable
	MS5LC =	Low current MS
	MS10 =	Electrical w/ DIN connector (male end only)
	MS10LC =	Low current MS10
	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

NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.

Box 4. For options V and W, all aluminum parts are anodized. Viton® is a registered trademark of DuPont Dow Elastomers.

High-Pressure Servo Sandwich Filter NOF50

15 gpm
57 L/min

5000 psi
345 bar

Model No. of filter in photograph is NOF501SVZX3760.

Features and Benefits

- Localized protection at the servo helps to eliminate downtime and protect critical applications from contamination-related servo valve failures
- Sandwich style 4-bolt design – no additional lines to connect
- Designed to protect these commonly installed servo valves: Moog 761 & 62, Vickers SM4-20 and Parker BD15
- High collapse elements, rated to 3000 psi (210 bar)
- Easily applied to new and existing systems
- All steel construction

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

MOBILE VEHICLES

PULP & PAPER

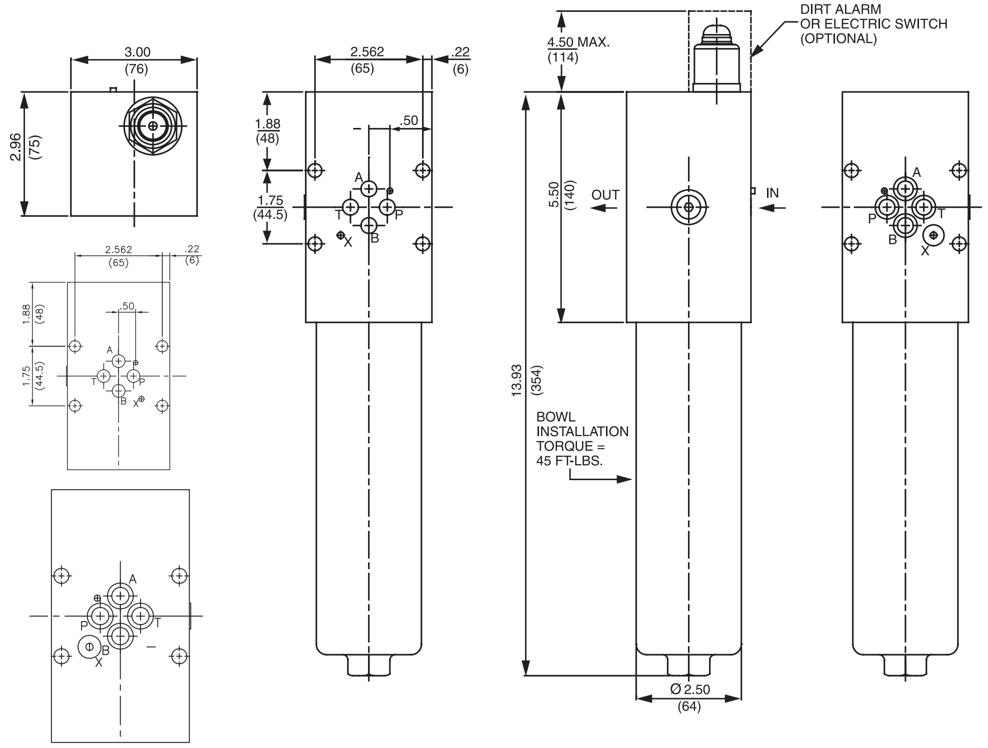
WASTE WATER TREATMENT

Filter Housing Specifications

Flow Rating:	Up to 15 gpm (57 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1034 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	4000 psi (276 bar) per NFPA T2-6.1 R2-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Non-Bypass Model:	Standard with high collapse elements
Porting Head: Element Case:	Steel Steel
Weight of NOF50-1SV:	17 lb. (7.7 kg)
Element Change Clearance:	4.50" (115 mm)

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

NOF50 High-Pressure Servo Sandwich Filter



Metric dimensions in ( ).

Element Performance Information

	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8			Filtration Ratio per ISO 16889	
	Using automated particle counter (APC) calibrated per ISO 4402			Using APC calibrated per ISO 11171	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
SVZX3	<1.0	<1.0	<2.0	4.7	5.8
SVZX10	7.4	8.2	10.0	8.0	9.7

Dirt Holding Capacity

Element	DHC (gm)
SVZX3	11*
SVZX10	13*

Element Collapse Rating: 3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: 1.75" (45 mm) O.D. x 8.0" (200 mm) long

*Based on 100 psi terminal pressure

High-Pressure Servo Sandwich Filter **NOF50**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	3, 10 and 25 μ Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 10 and 25 μ Z-Media® (synthetic)

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid.
To 5000 psi (345 bar)	Z-Media®	SVZX3	1SVZX3
		SVZX10	1SVZX10
		SVZX25	1SVZX25
	Flow	gpm	0 — 15
		(L/min)	0 — 57

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

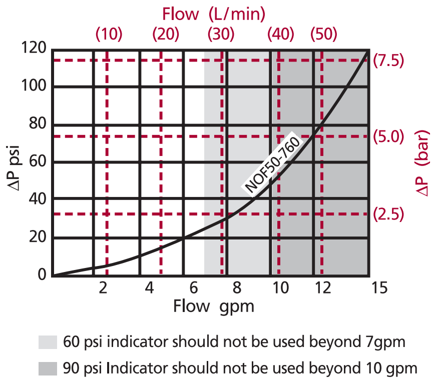
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

ΔP$_{housing}$

NOF50 ΔP$_{housing}$ for fluids with sp gr = 0.86:



ΔP$_{element}$

ΔP$_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

SVZX3	1.00
SVZX10	.52

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

ΔP$_{filter}$ = ΔP$_{housing}$ + ΔP$_{element}$

Exercise:

Determine ΔP at 8 gpm (30 L/min) for NOF501SVZX1076090D5 using 150 SUS (32 cSt) fluid.

Solution:

ΔP$_{housing}$ = 30.0 psi [2.1 bar]
ΔP$_{element}$ = 8 x 0.52 x (150÷150) = 4.2 psi
or
= [30 x (0.52 ÷54.9) x (32÷32) = 0.3 bar]
ΔP$_{total}$ = 30.0 + 4.2 = 34.2 psi
or
= [2.1 + 0.3 = 2.4 bar]

NOF50 High-Pressure Servo Sandwich Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder NOF50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
NOF50	–	–	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
NOF50	1	SVZX3		760			D5	**= NOF501SVZX3760D5**

BOX 1

Filter Series
NOF50

BOX 2

Number of Elements
1

BOX 3

Element Part Number
SVZX3 = S size 3 μ high collapse media
SVZX10 = S size 10 μ high collapse media
SVZX25 = S size 25 μ high collapse media

BOX 4

Seal Material
Omit = Buna N
V = Viton®

BOX 5

Porting
760 = Moog servo configuration
710 = Moog servo configuration

BOX 6

Options
Omit = 60 psid
90 = 90 psid

BOX 7

Optional Test Point
Omit = None
U = Series 1215 7⁄16"-20 UNF Schroeder Check Test Point installation

BOX 8

Dirt Alarm® Options		
	Omit =	None
Visual	D5 =	Visual pop-up (60 psid indicator setting)
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
Electrical	MS5 =	Electrical w/ 12 in. 18 gauge 4-conductor cable
	MS5LC =	Low current MS
	MS10 =	Electrical w/ DIN connector (male end only)
	MS10LC =	Low current MS10
	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

NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.

Box 4. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 6. Please note indicator flow limitations on pressure drop graph, previous page.

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

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

12 gpm
45 L/min

6000 psi
415 bar

Model No. of filter in photograph is FOF601FZX303D5.

Features and Benefits

- Sandwich filter configured for D03 subplate pattern
- Withstands high pressure surges, high static pressure loads
- 3000 psi collapse elements

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

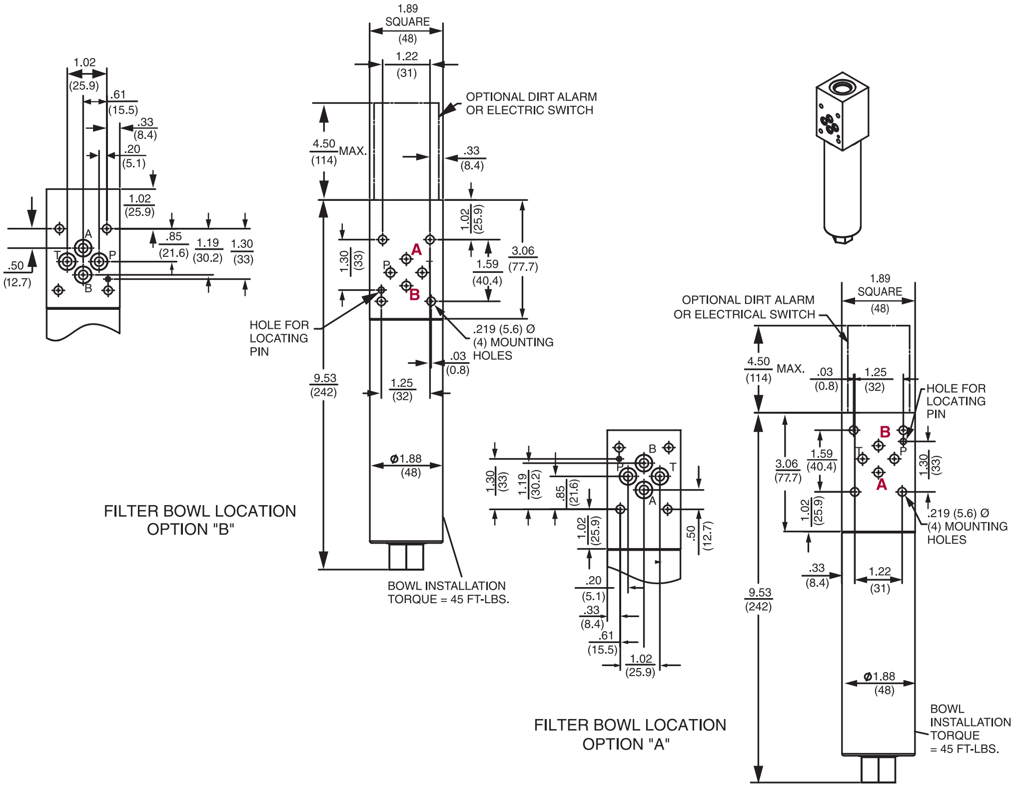
MOBILE VEHICLES

PULP & PAPER

Filter Housing Specifications

Flow Rating:	Up to 12 gpm (45 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	26,000 psi (1790 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	4000 psi (275 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Non-Bypass Model:	Available with high collapse elements
Porting Head: Element Case:	Steel Steel
Weight:	7.3 lbs. (3.3 kg)
Element Change Clearance:	4.50" (115 mm)

FOF60-03 High-Pressure Sandwich Filter



Metric dimensions in ( ).

Element Performance Information

	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	
Element	**$\beta_x \geq 75$**	**$\beta_x \geq 100$**	**$\beta_x \geq 200$**	**$\beta_x(c) \geq 200$**	**$\beta_x(c) \geq 1000$**
FZX3	<1.0	<1.0	<2.0	4.7	5.8
FZX10	7.4	8.2	10.0	8.0	9.8

Dirt Holding Capacity

Element	DHC (gm)
FZX3	3*
FZX10	5.1

Element Collapse Rating: 3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element 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**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	3 and 10 μ Z-Media® (synthetic)

Element Selection
Based on Flow Rate

	Element		Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid.
Pressure	Series	Part No.	
To 6000 psi (415 bar)	Z-Media®	FZX3	FZX3 (0–12 gpm)
		FZX10	FZX10 (0–12 gpm)
	Flow	gpm	0 … 12
		(L/min)	0 … 20 … 40 … 45

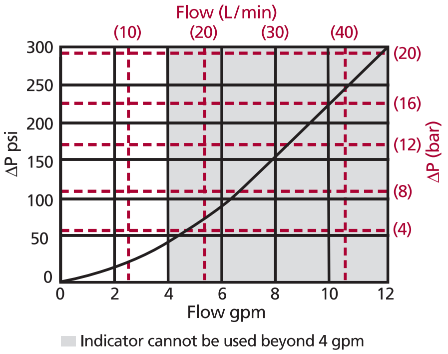
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

FOF60-03 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

FZX3	6.06
FZX10	4.45

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

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

Exercise:

Determine ΔP at 4 gpm (19 L/min) for FOF601FZX1003 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 40.0 psi [2.75 bar]
$\Delta P_{element}$ = 5 x 4.45 x (200÷150) = 29.7 psi
or
= [19 x (4.45 ÷54.9) x (44÷32) = 2.12 bar]
ΔP_{total} = 40.0 + 29.7 = 69.7 psi
or
= [2.75 + 2.12 = 4.87 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
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						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
FOF60	1	FZX3		03	A	D5	**= FOF601FZX303AD5**

BOX 1

Filter Series
FOF60

BOX 2

Number of Elements
1

BOX 3

Element Part Number
FZX3 = F size 3 μ high collapse media
FZX10 = F size 10 μ high collapse media

BOX 4

Seal Material
Omit = Buna N
V = Viton®

BOX 5

Porting
03 = D03 subplate pattern

BOX 6

Filter Bowl Location
A = Bowl adjacent to Port "A"
B = Bowl adjacent to Port "B"
(Refer to drawing on page 138.)

BOX 7

Dirt Alarm® Options		
	Omit =	None
Visual	D5 =	Visual pop-up
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
Electrical	MS5 =	Electrical w/ 12 in. 18 gauge 4-conductor cable
	MS5LC =	Low current MS
	MS10 =	Electrical w/ DIN connector (male end only)
	MS10LC =	Low current MS10
	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

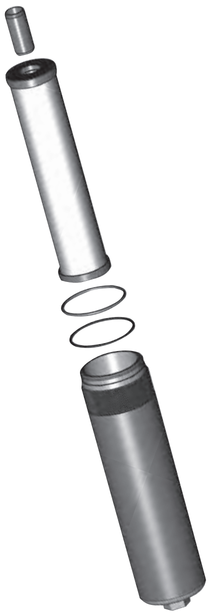
NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.

Box 4. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 7. Dirt Alarm® 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**



20 gpm
75 L/min

3000 psi
210 bar

Features and Benefits

- Allows for effective filtration in customer's manifold

Applications

- INDUSTRIAL
- AUTOMOTIVE MANUFACTURING
- MACHINE TOOL
- STEEL MAKING
- MOBILE VEHICLES
- PULP & PAPER
- AGRICULTURE

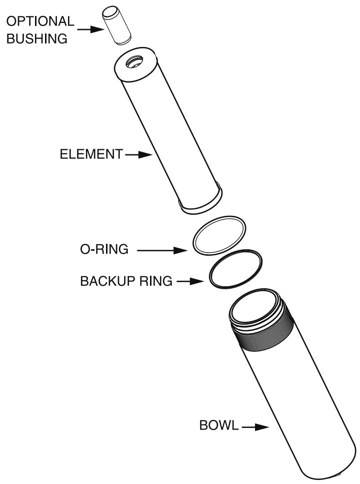
Filter Housing Specifications

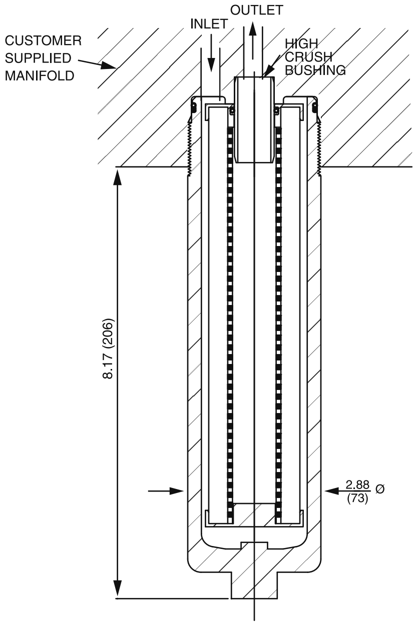
Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)*
Min. Yield Pressure:	10,000 psi (690 bar)*, per NFPA T2.6.1
Rated Fatigue Pressure:	2400 psi (185 bar)*, per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Element Case:	Aluminum
Element Change Clearance:	4.50" (115 mm)

*Only with manifold material properties equivalent to aluminium 6061-T651.

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

NMF30 Manifold Filter Kit





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

Metric dimensions in ( ).

Element Performance Information

	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 Capacity gm
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$	
NNZX3	<1.0	<1.0	<2.0	4.7	5.8	11*
NNZX10	7.4	8.2	10.0	8.0	9.8	13*

*Based on 100 psi terminal pressure

Element Collapse Rating:	3000 psid (210 bar)
Flow Direction:	Outside In
Element Nominal Dimensions:	1.75" (45 mm) O.D. x 8.00" (200 mm) long

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

NNZX3	1.00
NNZX10	.52

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

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

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder NMF30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
NMF30 –	–	–	–	

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
NMF30 –	1 –	NNZX3 –	–		= NMF301NNZX3

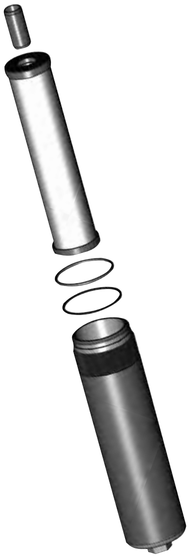
BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Number of Elements	Element Part Number	Seal Material	Bushing
NMF30	1	NNZX3 = NN size 3 μ high collapse media	Omit = Buna N	Omit = Included
		NNZX10 = NN size 10 μ high collapse media	V = Viton®	N = Not included
		NNZX25 = NN size 25 μ high collapse media	W = Buna N	

NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.

Box 4. For options V and W, all aluminum parts are anodized. Viton® is a registered trademark of DuPont Dow Elastomers.

Manifold Filter Kit **RMF60**



30 gpm
115 L/min

6000 psi
415 bar

Features and Benefits

- Allows for effective filtration in customer's manifold

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

MOBILE VEHICLES

PULP & PAPER

AGRICULTURE

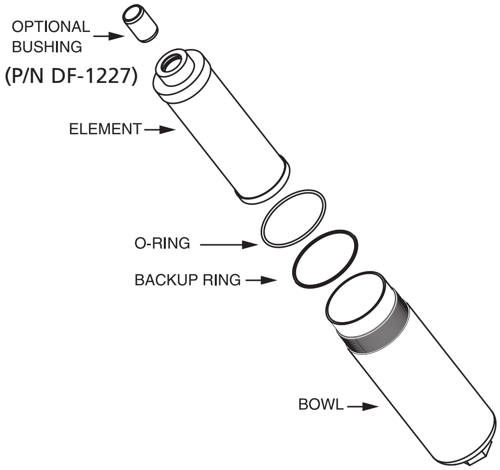
Filter Housing Specifications

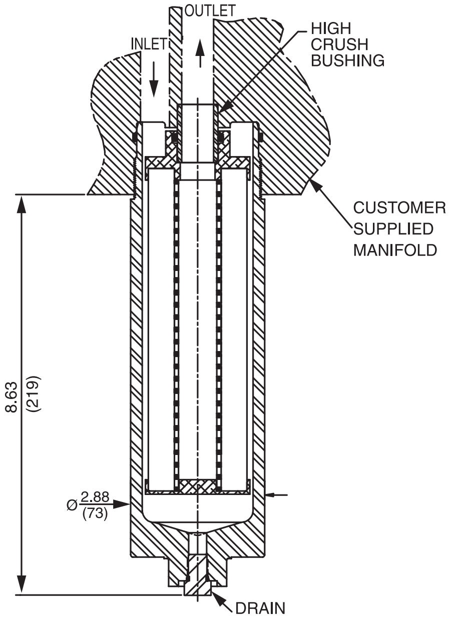
Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)*
Min. Yield Pressure:	18,000 psi (1240 bar)*
Rated Fatigue Pressure:	2300 psi (159 bar)*
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Element Case:	Steel
Element Change Clearance:	3.0" (75 mm)

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

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50-760
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

RMF60 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 Information

Element	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 Capacity gm
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$	
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)

Flow Direction: Outside In

Element Nominal Dimensions: 2.18" (55 mm) O.D. x 8.15" (206 mm) long

Pressure Drop Information Based on Flow Rate and Viscosity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

8RZX3 N/A
8RZX10 N/A
If working in units of bars & L/min, divide above factor by 54.9.

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

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder RMF60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
RMF60				

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
RMF60	8	RZX3			= RMF608RZX3

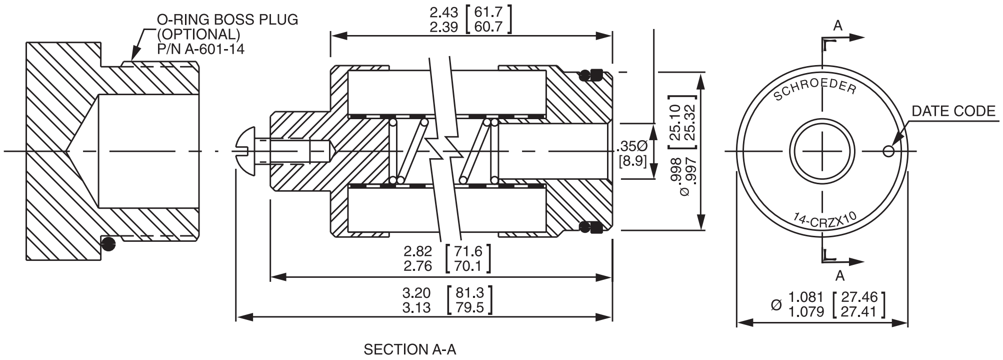
BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Element Length**	**Element Size and Media**	**Seal Material**	**Bushing**
RMF60	8	RZX3 = E size 3 μ Excellement® Z-Media® (high collapse center tube)	Omit = Buna N	Omit = Included
		RZX10 = E size 10 μ Excellement® Z-Media® (high collapse center tube)	V = Viton®	N = Not included
		RZX25 = E size 25 μ Excellement® Z-Media® (high collapse center tube)	H = EPR	

NOTES:

Box 2: Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 8RZX3V

Box 4. Viton® is a registered trademark of DuPont Dow Elastomers.

14-CRZX10



For cavity details, request drawing C-10379 from factory.

Applications/ Features

INDUSTRIAL

MOBILE VEHICLES

- Cartridge filters are designed to be mounted directly in the manifold
- Withstands high pressure surges–3000 psi (210 bar) collapse rating

NOTE: Code 14 denotes SAE straight thread size.

Element Specifications

Model Number	Flow	Pressure
14-CRZX10	6 gpm (23 L/min)	3000 psi (210 bar) collapse

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
ZX10	7.4	8.2	10.0	8.0	9.8

Contact factory for other media options.

Filter Housing Specifications

Max. Operating Pressure:	3000 psi (210 bar)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Element Change Clearance:	14-CRZX10: 4.50" (115 mm)

Model Number Selection

Series	Plug Option
14-CRZX10	Omit = No Plug P = Plug

Element Selection

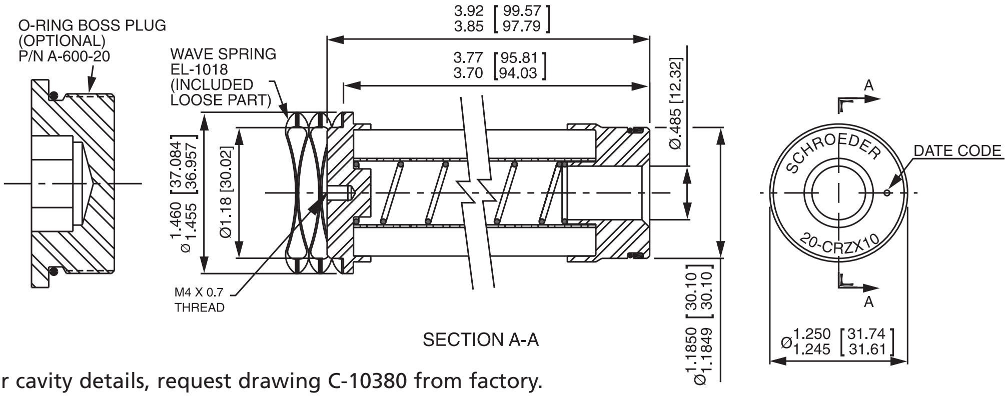
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS petroleum based fluid.
To 3000 psi (210 bar)	Z-Media®	14-CRZX10	14-CRZX10
	Flow	gpm	0 5 10 15
		(L/min)	0 25 50

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

20-CRZX10 Cartridge Element

20-CRZX10



For cavity details, request drawing C-10380 from factory.

Applications/ Features

INDUSTRIAL

MOBILE VEHICLES

- Cartridge filters are designed to be mounted directly in the manifold
- Withstands high pressure surges–3000 psi (210 bar) collapse rating

NOTE: Code 20 denotes SAE straight thread size.

Element Specifications

Model Number	Flow	Pressure
20-CRZX10	12 gpm (45 L/min)	3000 psi (210 bar) collapse

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
ZX10	7.4	8.2	10.0	8.0	9.8

Contact factory for other media options.

Filter Housing Specifications

Max. Operating Pressure:	3000 psi (210 bar)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Element Change Clearance:	20-CRZX10: 3.50" (90 mm)

Model Number Selection

Series	Plug Option
20-CRZX10	Omit = No Plug P = Plug

Element Selection Based on Flow Rate

	Element		
Pressure	Series	Part No.	Element selections are predicated on the use of 150 SUS petroleum based fluid.
To 3000 psi (210 bar)	Z-Media®	20-CRZX10	20-CRZX10
	Flow	gpm	0 5 10 15
		(L/min)	0 25 50

Top-Ported Pressure Filter **HS60**

Model No. of filters in photograph is HS6013HZ3F24

Features and Benefits

- Full flow reverse flow check valve diverts flow past the element in hydrostatic applications
- Top-ported design capable of handling 100 gpm flow
- Offered in SAE straight thread and flange porting
- Thread on bowl with drain plug for easy element service
- 6000 psi cyclic
- Contact factory for higher flow applications

100 gpm
380 L/min

6000 psi
415 bar

Applications

INDUSTRIAL

MACHINE TOOL

OFFSHORE

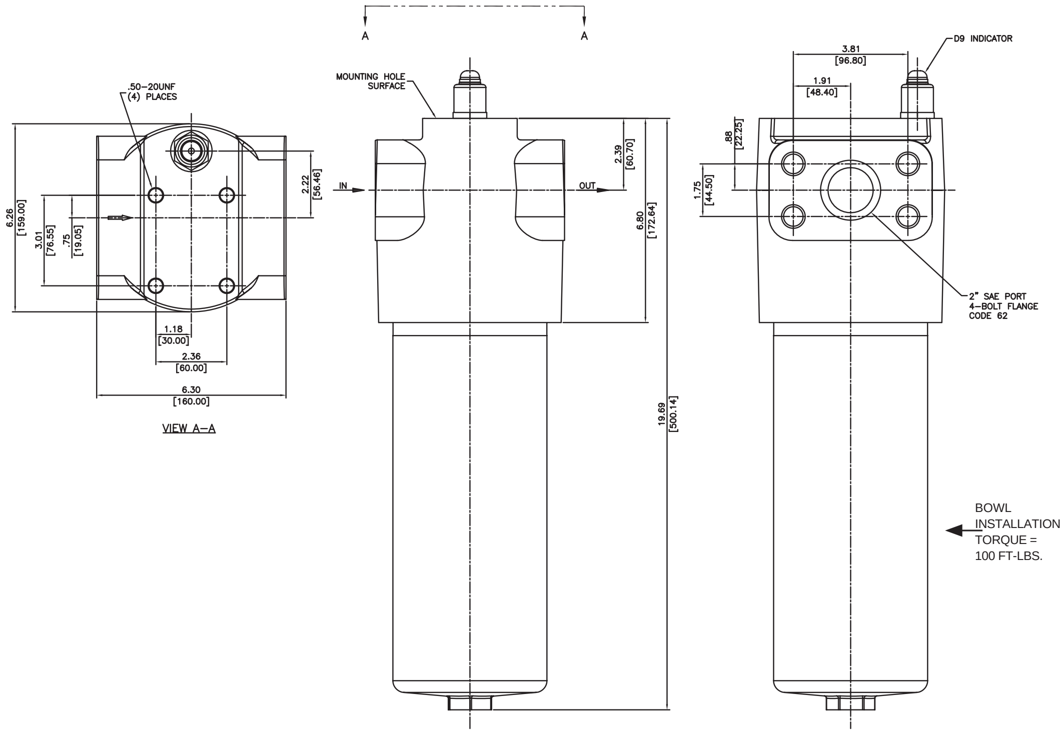
MINING TECHNOLOGY

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min)
Max. Operating Pressure:	6000 psi (415 bar) only for flange ported models
Min. Yield Pressure:	Contact factory
Rated Fatigue Pressure:	6000 psi (415 bar) (only with 4-bolt flange porting)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 87 psi (5.9 bar)
Porting Head:	Ductile Iron
Element Case:	Steel
Weight of HS60-13H:	75 lbs. (34.2 kg)
Element Change Clearance:	4.0" (103 mm)

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

HS60 Top-Ported Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	ß$_x$ ≥ 75	ß$_x$ ≥ 100	ß$_x$ ≥ 200	ß$_x$(c) ≥ 200	ß$_x$(c) ≥ 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 Capacity

Element	DHC (gm)	Element	DHC (gm)
13HZ3	100.7	13HZX3	75.7
13HZ5	113.2	13HZX5	74.1
13HZ10	119.7	13HZX10	81.4
13HZ25	123.5	13HZX25	92.9

Element Collapse Rating:	290 psi (20 bar) for standard elements 3045 psi (210 bar) for high collapse (ZX) versions
Flow Direction:	Outside In
Element Nominal Dimensions:	13HZ : 3.5" (90 mm) O.D. x 13" (325 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation

Element Selection

Based on Flow Rate

Pressure	Element Series	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.
To 6000 psi (415 bar)	Z-Media®	13HZ3	13HZ3
		13HZ5	13HZ5
		13HZ10	13HZ10
		13HZ25	13HZ25
	Z-Media® (High Collapse)	13HZX3	13HZX3
		13HZX5	13HZX5
		13HZX10	13HZX10
		13HZX25	13HZX25
	Flow	gpm	0 20 40 60 80 100
		(L/min)	0 75 150 225 300 380

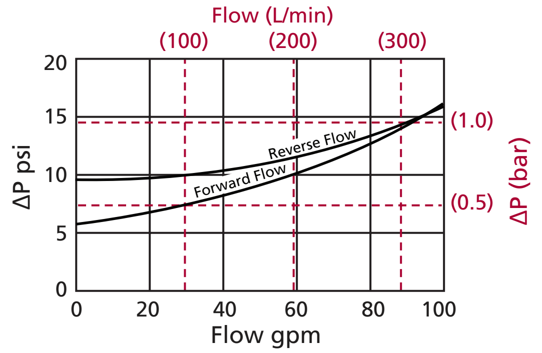
Shown above are the elements most commonly used in this housing.

Pressure Drop Information

Based on Flow Rate and Viscosity

ΔP$_{housing}$

HS60 ΔP$_{housing}$ for fluids with sp gr = 0.86:



ΔP$_{element}$

ΔP$_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 141 SUS (30 cSt):

13HZ3	0.134	13HZX3	0.176
13HZ5	0.098	13HZX5	0.104
13HZ10	0.060	13HZX10	0.054
13HZ25	0.043	13HZX25	0.048

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

Viscosity factor: Divide viscosity by 141 SUS (30 cSt).

sp gr = specific gravity

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

ΔP$_{filter}$ = ΔP$_{housing}$ + ΔP$_{element}$

Exercise:

Determine ΔP at 85 gpm (320 L/min) for HS60... using 141 SUS (30 cSt) fluid.

Solution:

ΔP$_{housing}$ = 13.5 psi [0.93 bar]

ΔP$_{element}$ = 85 x .134 x (141÷141) = 11.39 psi
or
= [320 x (.134÷54.9) x (32÷32) = .79 bar]

ΔP$_{total}$ = 13.5 + 11.39 = 24.89 psi
or
= [.93 + .79 = 1.71 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

HS60 Top-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder HS60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
HS60				

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
HS60	13HZ3		F24	D13	= HS6013HZ3F24D13

BOX 1

Filter Series
HS60
HSN60 (no bypass in forward flow)

BOX 2

Element Part Number
13HZ3 = 3 μ Excellement® Z-Media® (synthetic)
13HZ5 = 5 μ Excellement® Z-Media® (synthetic)
13HZ10 = 10 μ Excellement® Z-Media® (synthetic)
13HZ25 = 25 μ Excellement® Z-Media® (synthetic)
13HZX3 = 3 μ Excellement® Z-Media® (high collapse center tube)
13HZX5 = 5 μ Excellement® Z-Media® (high collapse center tube)
13HZX10 = 10 μ Excellement® Z-Media® (high collapse center tube)
13HZX25 = 25 μ Excellement® Z-Media® (high collapse center tube)

BOX 3

Seal Material
Omit = Buna N
V = Viton®
H = EPR

BOX 4

Porting Options
S24 = SAE-24
F24 = 1½" SAE 4-bolt flange Code 62
F32 = 2"SAE 4-bolt flange Code 62

BOX 5

Dirt Alarm® Options	
	Omit = None
Visual	D13 = Visual pop-up
Electrical	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
	MS12SS= Electrical w/ 5 pin Brad Harrison 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 Harrison male connector
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
	MS17SSLCT = Low current MS17T
Electrical Visual	MS13SS = Supplied w/ threaded connector & light
	MS14SS = Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	MS13SSDCT = MS13 (see above), direct current, w/ thermal lockout
	MS13SSDCLCT = Low current MS13DCT
	MS14SSDCT = MS14 (see above), direct current, w/ thermal lockout
	MS14SSDCLCT = Low current MS14DCT

NOTES:

Box 2. Replacement element part numbers are identical to contents of Boxes 2 and 3.

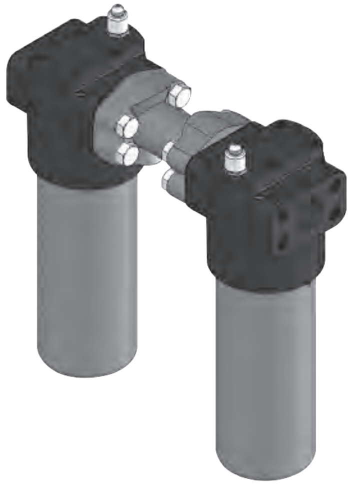
Box 3. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 5. All Dirt Alarm® Indicators must be Stainless Steel. Standard indicator setting is 75 psi. For replacement indicators, contact the factory.

Top-Ported Pressure Filter **MHS60**

100 gpm
380 L/min

6000 psi
415 bar



Model No. of filters in photograph is MHS6013HZ3F24

Features and Benefits

- Bi-directional version of the HS60 includes two housings plumbed in series, allowing for filtration in both directions
- Top-ported design capable of handling 100 gpm flow
- Offered in SAE straight thread and flange porting
- Thread on bowl with drain plug for easy element service
- Available with non-bypass option with high collapse element
- 6000 psi cyclic
- Contact factory for higher flow applications

Applications

INDUSTRIAL

MACHINE TOOL

OFFSHORE

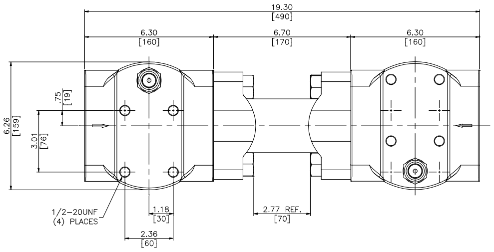
MINING TECHNOLOGY

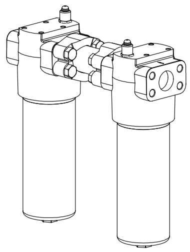
Filter Housing Specifications

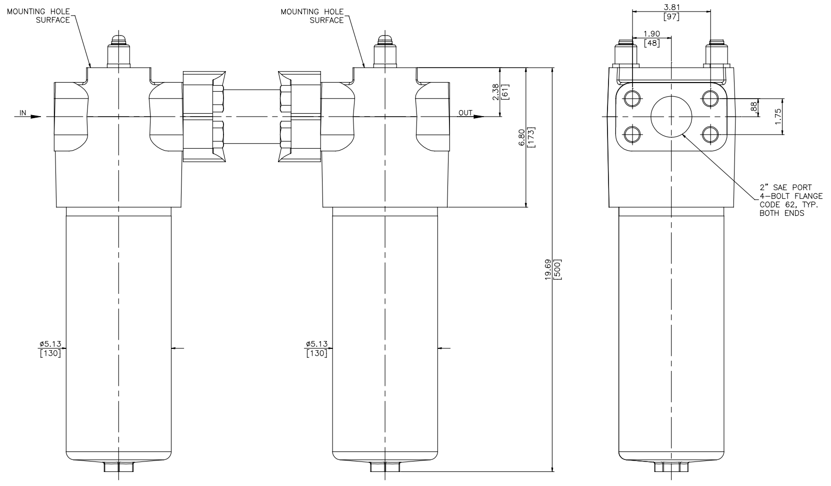
Flow Rating:	Up to 100 gpm (380 L/min)
Max. Operating Pressure:	6000 psi (415 bar) only for flange ported models
Min. Yield Pressure:	Contact factory
Rated Fatigue Pressure:	6000 psi (415 bar) (only with 4-bolt flange porting)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 87 psi (5.9 bar)
Porting Head: Element Case:	Ductile Iron Steel
Weight of MHS60:	160 lbs. (72.6 kg)
Element Change Clearance:	4.0" (103 mm)

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

MHS60 Top-Ported Pressure Filter







Metric dimensions in ( ).

Element Performance Information

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8			Filtration Ratio per ISO 16889	
	Using automated particle counter (APC) calibrated per ISO 4402			Using APC calibrated per ISO 11171	
	$ß_x \geq 75$	$ß_x \geq 100$	$ß_x \geq 200$	$ß_x(c) \geq 200$	$ß_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)
13HZ3	100.7	13HZX3	75.7
13HZ5	113.2	13HZX5	74.1
13HZ10	119.7	13HZX10	81.4
13HZ25	123.5	13HZX25	92.9

Element Collapse Rating: 290 psi (20 bar) for standard elements
3045 psi (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: 13HZ : 3.5" (90 mm) O.D. x 13" (325 mm) long

Top-Ported Pressure Filter **MHS60**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation

Element Selection

Based on Flow Rate

Pressure	Element Series	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.
To 6000 psi (415 bar)	Z-Media®	13HZ3	13HZ3
		13HZ5	13HZ5
		13HZ10	13HZ10
		13HZ25	13HZ25
	Z-Media® (High Collapse)	13HZX3	13HZX3
		13HZX5	13HZX5
		13HZX10	13HZX10
		13HZX25	13HZX25
	Flow	gpm	0 20 40 60 80 100
		(L/min)	0 75 150 225 300 380

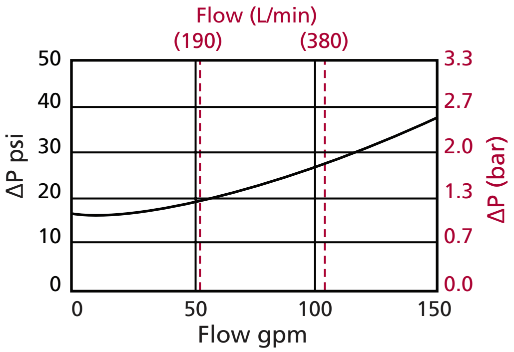
Shown above are the elements most commonly used in this housing.

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

MHS60 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 141 SUS (30 cSt):

13HZ3	0.134	13HZX3	0.176
13HZ5	0.098	13HZX5	0.104
13HZ10	0.060	13HZX10	0.054
13HZ25	0.043	13HZX25	0.048

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

Viscosity factor: Divide viscosity by 141 SUS (30 cSt).

sp gr = specific gravity

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

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

Exercise:

Determine ΔP at 85 gpm (320 L/min) for HS60... using 141 SUS (30 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 13.5 psi [0.93 bar]
$\Delta P_{element}$ = 85 x .134 x (141÷141) = 11.39 psi
or
= [320 x (.134÷54.9) x (32÷32) = .79 bar]
ΔP_{total} = 13.5 + 11.39 = 24.89 psi
or
= [.93 + .79 = 1.71 bar]

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

MHS60 Top-Ported Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MHS60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
MHS60 –		–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
MHS60 –	13HZ3 –	–	F24 –	D13	= **MHS6013HZ3F24D13**

BOX 1

Filter Series
MHS60
MHS60N (Non-bypassing: requires ZX high collapse elements)

BOX 2

Element Part Number	
13HZ3	= 3 μ Excellement® Z-Media® (synthetic)
13HZ5	= 5 μ Excellement® Z-Media® (synthetic)
13HZ10	= 10 μ Excellement® Z-Media® (synthetic)
13HZ25	= 25 μ Excellement® Z-Media® (synthetic)
13HZX3	= 3 μ Excellement® Z-Media® (high collapse center tube)
13HZX5	= 5 μ Excellement® Z-Media® (high collapse center tube)
13HZX10	= 10 μ Excellement® Z-Media® (high collapse center tube)
13HZX25	= 25 μ Excellement® Z-Media® (high collapse center tube)

BOX 3

Seal Material	
Omit	= Buna N
V	= Viton®
H	= EPR

BOX 4

Porting Options	
S24	= SAE-24
F24	= 1½" SAE 4-bolt flange Code 62
F32	= 2"SAE 4-bolt flange Code 62

BOX 5

Dirt Alarm® Options		
	Omit =	None
Visual	D13 =	Visual pop-up
Electrical	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
	MS12SS=	Electrical w/ 5 pin Brad Harrison 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 Harrison male connector
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
	MS17SSLCT =	Low current MS17T
Electrical Visual	MS13SS =	Supplied w/ threaded connector & light
	MS14SS =	Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	MS13SSDCT =	MS13 (see above), direct current, w/ thermal lockout
	MS13SSDCLCT =	Low current MS13DCT
	MS14SSDCT =	MS14 (see above), direct current, w/ thermal lockout
	MS14SSDCLCT =	Low current MS14DCT

NOTES:

Box 1. MHS60 is two HS60's plumbed in series facing one another to ensure filtration in both flow directions.

Box 2. Replacement element part numbers are identical to contents of Boxes 2 and 3.

Box 3. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 5. All Dirt Alarm® Indicators must be Stainless Steel. Standard indicator setting is 75 psi. For replacement indicators, contact the factory.

Hydrostatic Base-Ported Filter **KFH50**

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

70 gpm
265 L/min

5000 psi
345 bar

Model No. of filter in photograph is KFH501K10SD.

Features and Benefits

- Base-ported Hydrostatic high pressure filter
- Hydrostatic transmission filter for reversing loop systems
- Filters in the "in to out" direction, bypasses in reverse direction
- Element changeout from top minimizes oil spillage
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- Integral inlet and outlet female test points option available
- Offered in conventional subplate porting
- Completion of application questionnaire a requirement L-2549 (contact factory)
- Double and triple stacking of K-size elements can be replaced by single KK or 27K-size elements

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

STEEL MAKING

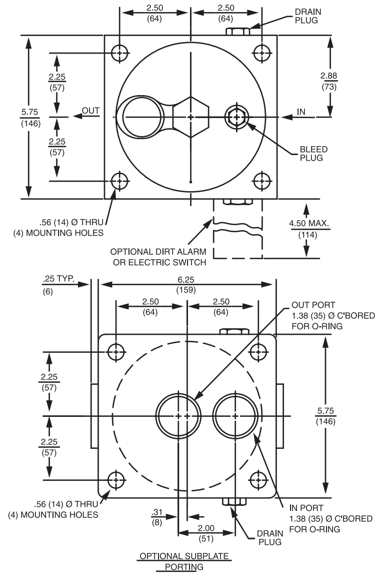
MINING TECHNOLOGY

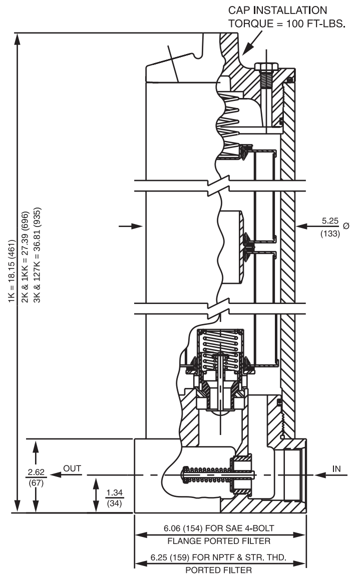
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
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)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 61 psi (4.2 bar)
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of KFH50-1K:	60.0 lbs. (27.2 kg)
Weight of KFH50-2K:	80.3 lbs. (36.4 kg)
Weight of KFH50-3K:	100.5 lbs. (45.6 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

KFH50 Hydrostatic Base-Ported Filter





Metric dimensions in ( ).

Note: Application Questionnaire must be completed and submitted prior to placing order for this filter. Contact factory for details.

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	108	27K3	162				
K10	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*	KKZX3	80	27KZX3	120				
KZX10	49*	KKZX10	98	27KZX10	147				

*Based on 100 psi terminal pressure

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

NF30
NFS30
YF30
CFX30
PLD
DF40
CF40
PF40
LC50
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
TF50
KF50
KC50
MKF50
KC65
NOF30-05
NOF50
FOF60-03
NMF30
RMF60
Cartridge Elements
HS60
MHS60
KFH50

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-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) 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® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element 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.		
To 5000 psi (345 bar)	E Media	K3	1K3	2K3†	
		K10	1K10	2K10†	
		K25	1K25		
	Z-Media®	KZ1	1KZ1		
		KZ3	1KZ3/KAS3/KKAS3/27KAS3	2KZ3†	3KZ3†
		KZ5	1KZ5/KAS5/KKAS5/27KAS5	2KZ5†	
		KZ10	1KZ10/KAS10/KKAS10/27KAS10	2KZ10†	
		KZ25	1KZ25	2KZ25†	
	Flow	gpm	0 10 20 30 40 50 60 70		
		(L/min)	0 50 100 150 200 265		

†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.

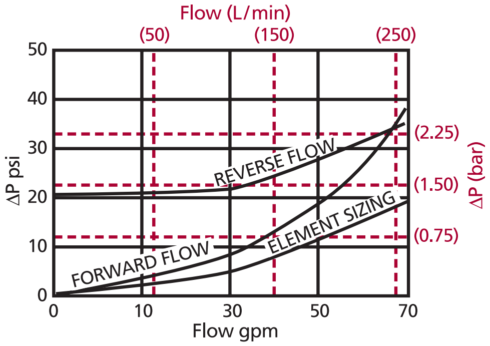
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KFH50 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

The ΔP 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.

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K
K3	.25	.12	.08
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

	1K	2K
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).

KFH50 Hydrostatic Base-Ported Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KFH50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
KFH50							

Example: *NOTE: Only box 6 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
KFH50	1	KZ5		S		D5	G509	**= KFH501KZ5SD5G509**

BOX 1

Filter Series
KFH50

BOX 2

Number of Elements
1
2
3

BOX 3

Element Part Number			
K Length	KK Length	27K Length	
K3	KK3	27K3	= 3 μ E media (cellulose)
K10	KK10	27K10	= 10 μ E media (cellulose)
K25			= 25 μ E media (cellulose)
KZ1	KKZ1	27KZ1	= 1 μ Excellement® Z-Media® (synthetic)
KZ3	KKZ3	27KZ3	= 3 μ Excellement® Z-Media® (synthetic)
KZ5	KKZ5	27KZ5	= 5 μ Excellement® Z-Media® (synthetic)
KZ10	KKZ10	27KZ10	= 10 μ Excellement® Z-Media® (synthetic)
KZ25	KKZ25	27KZ25	= 25 μ Excellement® Z-Media® (synthetic)
KZW1			= 1 μ Aqua-Excellement™ ZW media
KZW3	KKZW3		= 3 μ Aqua-Excellement™ ZW media
KZW5	KKZW5		= 5 μ Aqua-Excellement™ ZW media
KZW10	KKZW10		= 10 μ Aqua-Excellement™ ZW media
KZW25	KKZW25		= 25 μ Aqua-Excellement™ ZW media
KW	KKW	27KW	= W media (water removal)
KM10			= K size 10 μ M media (reusable metal)
KM25			= K size 25 μ M media (reusable metal)
KM60			= K size 60 μ M media (reusable metal)
KM150			= K size 150 μ M media (reusable metal)
KM260			= K size 260 μ M media (reusable metal)

BOX 4

Seal Material
Omit = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

BOX 5

Porting
P = 1½" NPTF
S = SAE-24
F = 1½" SAE 4-bolt flange Code 62
O = Subplate
B = ISO 228 G-1½"

BOX 6

Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports
U = Series 1215 7⁄16 UNF Schroeder Check Test Point installation in cap (upstream)
UU = Series 1215 7⁄16 UNF Schroeder Check Test Point installation in block (upstream and downstream)

BOX 7

Dirt Alarm® Options		
	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
	D5C =	D5 in cap
	D9 =	All stainless D5
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	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 =	MS16 (see above) w/ thermal lockout
	MS16LCT =	Low current MS16T
	MS17LCT =	Low current MS17T
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

BOX 8

Additional Options
Omit = None
G509 = Dirt alarm and drain opposite standard

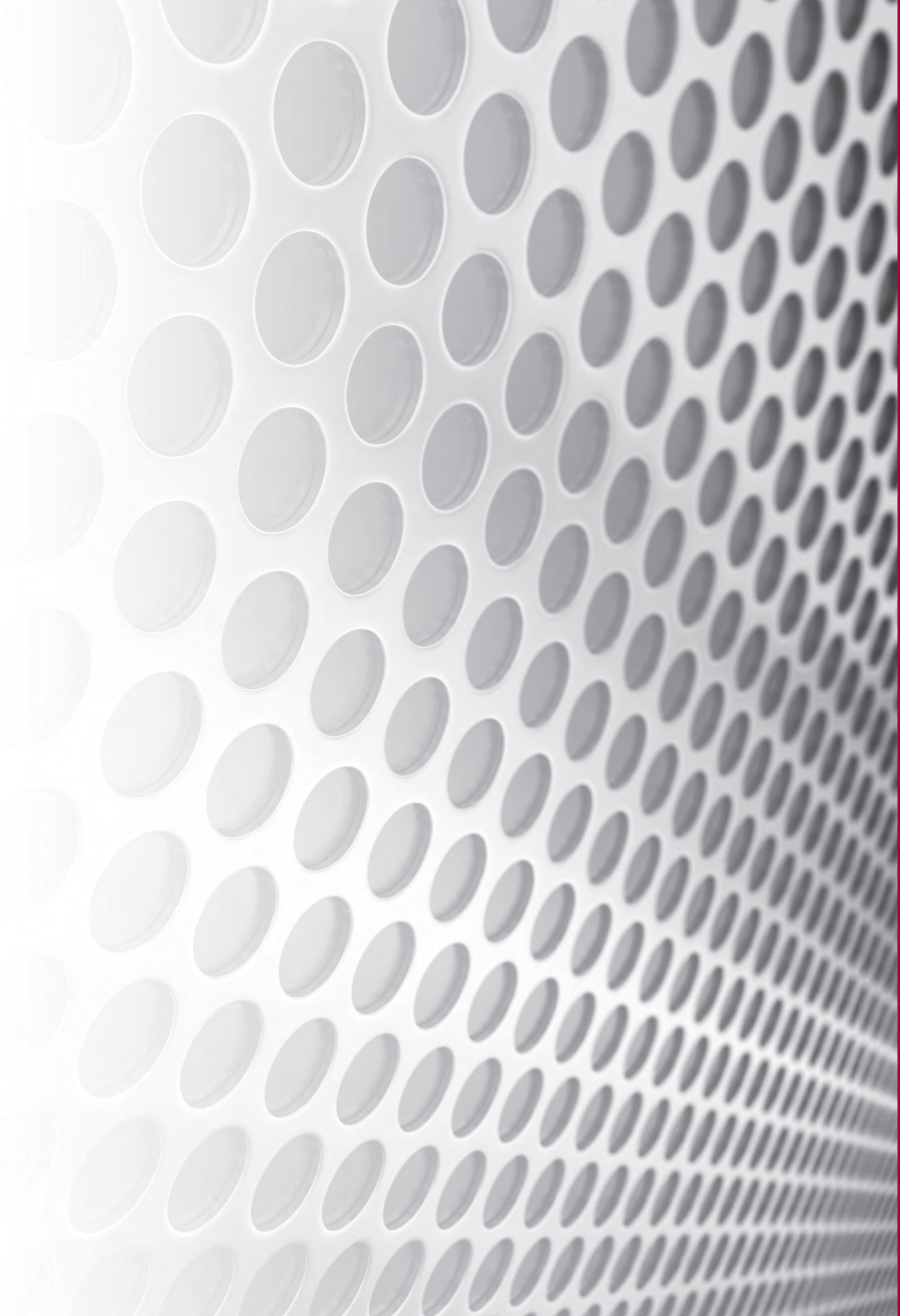
NOTES:

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® is a registered trademark of DuPont Dow Elastomers. Skydrol® 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:
up to 3000 psi

MEDIUM PRESSURE FILTERS

Medium Pressure Filters Selection Guide

Medium Pressure Filters (up to 1500 psi)

	Pressure psi (bar)	Flow gpm (L/min)	Element Length/Size	Page
Top-Ported Medium Pressure Return Line Filters				
GH	725 (50)	35 (130)	6G, 9G	161
GHHF	725 (50)	100 (380)	11G	165
RLT	1000 (69)	70 (265)	9V, 14V	169
KF5	500 (35)	100 (380)	K	173
SRLT	1400 (100)	25 (100)	6R	177
Base-Ported Medium Pressure Filters				
K9	900 (60)	100 (380)	K, KK, 27K	181
2K9	900 (60)	100 (380)	K, KK, 27K	185
3K9	900 (60)	100 (380)	K, KK, 27K	189
QF5	500 (35)	300 (1135)	16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML	193
3QF5	500 (35)	300 (1135)	16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML	197
QFD2	200 (14)	300 (1135)	16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML	201
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

SAME DAY SHIPMENT MODEL AVAILABLE!

HydraSPIN Filter GH

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

Features and Benefits

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

35 gpm
130 L/min

725 psi
50 bar

Applications

- Hydrostatic Charge Circuit
- Closed-loop
- Return Lines
- Cooling Circuit Systems
- Lubrication Systems

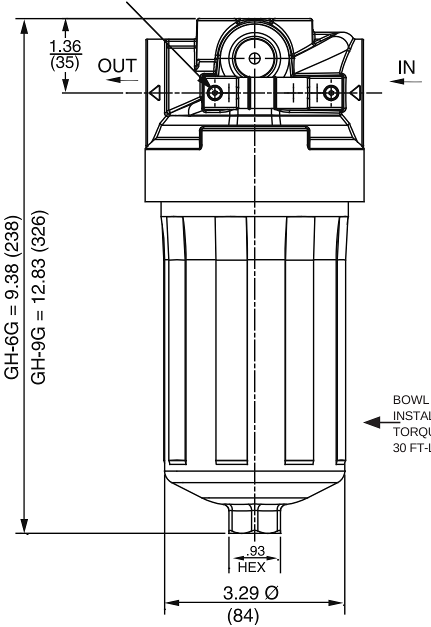
Filter Housing Specifications

Flow Rating:	Up to 35 gpm (130 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 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:	Die Cast Aluminum
Element Case:	Aluminum
Porting Options:	SAE-12 SAE-16 ISO 228 G-¾" ISO 228 G-1"
Weight of GH-6G:	3.2 lbs. (1.4 kg)
Weight of GH-9G:	3.8 lbs. (1.7 kg)
Element Change Clearance:	2" (50 mm)

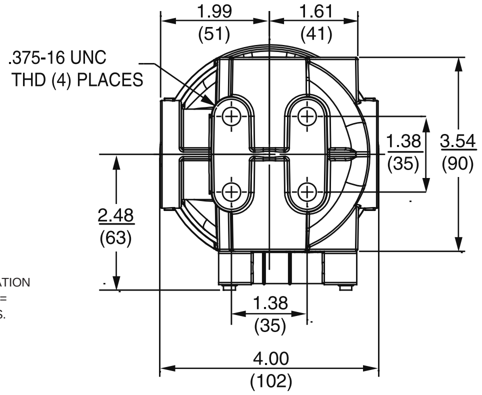
GH HydraSPIN Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Torque screws to 5.3 in-lb. (0.6 Nm)



BOWL INSTALLATION TORQUE = 30 FT-LBS.



Metric dimensions in ( ).

Element Performance Information

		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	
Media Type	Element	$\beta_X \geq 75$	$\beta_X \geq 100$	$\beta_X \geq 200$	$\beta_X(c) \geq 200$	$\beta_X(c) \geq 1000$
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 Capacity

Media Type	Element	DHC (gm)
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

Element Collapse Rating:	250 psid (17.2 bar) for standard and non-bypassing elements
Flow Direction:	Outside In
Element Nominal Dimensions:	6G: 3.25" (82 mm) O.D. x 5.7" (144 mm) long 9G: 3.25" (82 mm) O.D. x 9.0" (229 mm) long

HydraSPIN Filter GH

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® (synthetic) and H media (Hydraspin)

Element Selection Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid, SAE-12 porting, and a 25 psi (1.7 bar) bypass valve.		
To 725 psi (50 bar)	E Media	G3	6G3	9G3	Contact Factory
		G10	6G10	9G10	Contact Factory
		G25	6G25 & 9G25		
	Z-Media®	GZ3	Contact Factory		
		GZ5	6GZ5	9GZ5	Contact Factory
		GZ10	6GZ10	9GZ10	
		GZ25	Contact Factory		
	Hydraspin Media	GH10	Contact Factory		
	Flow	gpm	0 10 15 20 25 30 35		
		(L/min)	0 50 75 95 125 135		

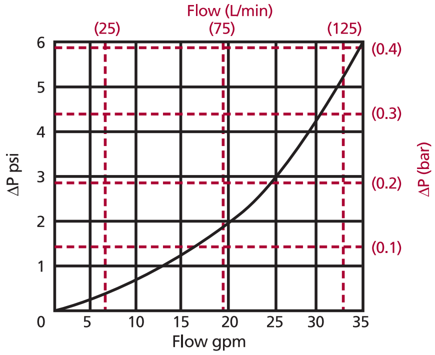
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information Based on Flow Rate and Viscosity

$\Delta P_{housing}$

GH $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

6G3	.60	**9G3**	.35				
6G10	.40	**9G10**	.24	**6GH10**	CF	**9GH10**	CF
6G25	.08	**9G25**	.05				
6GZ3	CF	**9GZ3**	CF	**6GP3**	CF	**9GP3**	CF
6GZ5	.6	**9GZ5**	.35	**6GP5**	.45	**9GP5**	.26
6GZ10	.27	**9GZ10**	.16	**6GP10**	.27	**9GP10**	.16
6GZ25	CF	**9GZ25**	CF	**6GP25**	CF	**9GP25**	CF

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

Viscosity factor: 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.

Notes

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

Exercise:

Determine ΔP at 20 gpm (76 L/min) for GH6GZ10S16L using 200 SUS (44 cSt) fluid.

Solution:

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

$\Delta P_{element}$ = 20 x .27 x (200÷150) = 7.2 psi
or
= [76 x (.27÷54.9) x (44÷32) = .51 bar]

ΔP_{total} = 2.1 + 7.2 = 9.3 psi
or
= [.15 + .51 = .66 bar]

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder GH:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
GH						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
GH	6	GZ10	50		S12	L	= GH6GZ1050S12L

BOX 1

Filter Series
GH

BOX 2

Element Length (in)
6
9

BOX 3

Element Part Number	
G3	= 3 μ E media (cellulose)
G10	= 10 μ E media (cellulose)
G25	= 25 μ E media (cellulose)
GZ3	= 3 μ Excellement® Z-Media® (synthetic)
GZ5	= 5 μ Excellement® Z-Media® (synthetic)
GZ10	= 10 μ Excellement® Z-Media® (synthetic)
GZ25	= 25 μ Excellement® Z-Media® (synthetic)
GH10	= 10 μ Excellement® Hydraspin media

BOX 4

Bypass Setting
Omit = 25 psid
50 = 50 psid
N = Non-bypassing

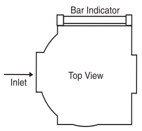
BOX 5

Element Seal Material
Omit = Buna N

BOX 6

Inlet Port
S12 = SAE-12
S16 = SAE-16
B12 = ISO 228 G-¾"
B16 = ISO 228 G-1"

BOX 7

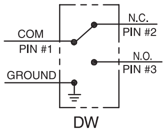
Dirt Alarm® Options		
	Omit = None	Indicator Location Option L
Visual	L = Bar indicator, left side std	
	R = Bar indicator, right side std	
	B = Bar indicators, left and right side	
	VA = Visual pop-up w/auto reset	
	VM = Visual pop-up w/manual reset	
Electrical	Omit = None	
	M = Drilled, tapped, plugged	
	DTC = DC 2 wire, normally closed (NC)	
	DTO = DC 2 wire, normally open (NO)	
	DW = AC/DC 3-wire (NO or NC)	

VA = Auto Reset

Indicator P/N 1292113 (VM2B.1) (NOTE: Only available with 50 psid bypass)

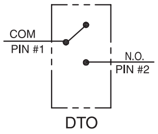
VM = Manual Reset

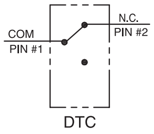
Indicator P/N 1293450 (VM2BM.1) (NOTE: Only available with 50 psid bypass)



DW = AC/DC 3-wire

Indicator P/N 1277426 (VM1C.0) (NO or NC) for 25 psi bypass
Indicator P/N 1297773 (VM2.5C.0) (NO or NC) for 50 psi bypass





DTO, DTC = DC 2-wire

Consult factory for indicator P/N for 25 psi bypass
Indicator P/N 1294401 (VM1CD.0/-2M0-OE, NC) for 50 psi bypass
1298354 (VM1CD.0/-2M0, NO) for 50 psi bypass

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4. Replacement elements contain bypass. For 50 psid setting or non-bypassing version, element part number includes suffix. Examples: 6GZ1050, 9GZ10N.

Box 7. VA and VM indicators are available with 50 psid bypass element only.

Top-Ported Medium Pressure Filter **GHHF**

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
725 psi
50 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MOBILE VEHICLES

STEEL MAKING

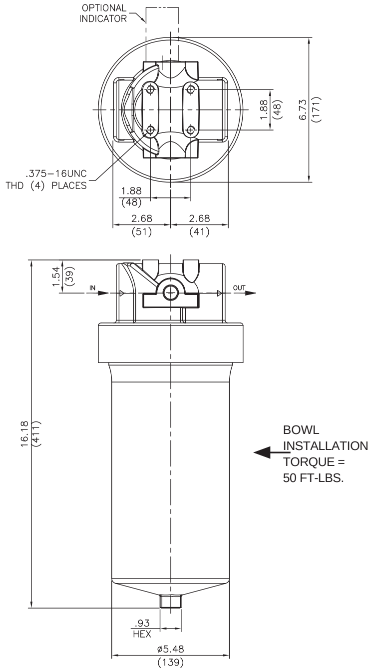
PULP & PAPER

AGRICULTURE

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min)
Max. Operating Pressure:	725 psi (50 bar)
Min. Yield:	2600 psi (179 bar)
Rated Fatigue Pressure:	725 psi (50 bar)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.5 bar) 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)

GHHF Top-Ported Medium Pressure Filter



Metric dimensions in ( ).

Element Performance Information

		Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
Media Type	Element	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
Traditional Excellement® Z-Media®	11GZ1	<4.0	4.5
	11GZ3	4.6	5.8
	11GZ5	5.9	7.8
	11GZ10	11.4	13.2
	11GZ25	15.8	17.5

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

Dirt Holding Capacity

Media Type	Element	DHC (gm)
Traditional Excellement® Z-Media®	11GZ1	158
	11GZ3	136
	11GZ5	160
	11GZ10	152
	11GZ25	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

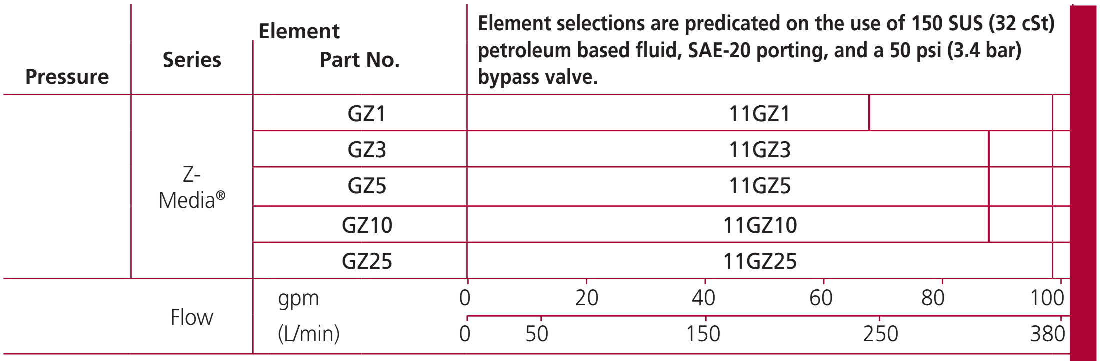
Top-Ported Medium Pressure Filter GHHF

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	Z-Media® (synthetic), H media (Hydraspin) and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® Media (synthetic)

Element Selection

Based on Flow Rate



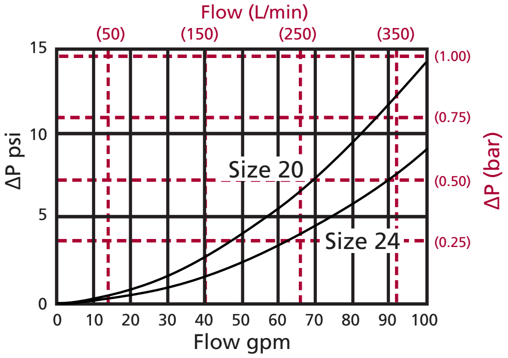
Shown above are the elements most commonly used in this housing.

Pressure Drop Information

Based on Flow Rate and Viscosity

ΔP$_{housing}$

GH ΔP$_{housing}$ for fluids with sp gr = 0.86:



ΔP$_{element}$

ΔP$_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

11GZ1/11GAS1 0.33 **11GZ3/11GAS3** 0.23
11GZ5/11GAS5 0.22 **11GZ10/11GAS10** 0.22
11GZ25/11GAS25 0.17

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

Viscosity factor: 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.

Notes

ΔP$_{filter}$ = ΔP$_{housing}$ + ΔP$_{element}$

Exercise:

Determine ΔP at 80 gpm (303 L/min) for GHHF11GZ10S24 using 200 SUS (44 cSt) fluid.

Solution:

ΔP$_{housing}$ = 6psi [.41 bar]

ΔP$_{element}$ = 80 x .22 x (200÷150) = 23.5 psi
or
= [303 x (.22÷54.9) x (44÷32) = 1.66 bar]

ΔP$_{total}$ = 6 + 23.5 = 29.5 psi
or
= [.41 + 1.66 = 2.07 bar]

GHHF Top-Ported Medium Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder GHHF:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
GHHF							

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
GHHF	11G	Z	10			S20	L	**= GHHF11GZ10S20L**

BOX 1

Filter Series
GHHF

BOX 2

Element Length (in)
11G

BOX 3

Element Media
AS = Anti-Static Pleat Media (synthetic)
Z = Excellement® Z-Media® (synthetic)
H = Excellement® HydraSpin Media

BOX 4

Micron Rating
1 = (AS and Z media)
3 = (AS and Z media)
5 = (AS and Z media)
10 = (AS, Z and H media)
25 = (AS and Z media)

BOX 5

Element Seal Material
Omit = Buna N

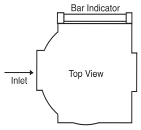
BOX 6

Bypass Setting
Omit = 50 psid

BOX 7

Inlet Port
S20 = SAE-20
S24 = SAE-24
P20 = 1.25" NPTF
P24 = 1.5" NPTF

BOX 8

	Dirt Alarm® Options	
	Omit = None	Indicator Location Option L
Visual	L = Bar indicator, left side std	
	R = Bar indicator, right side std	
	B = Bar indicators, left and right side	
	D10 = Visual pop-up w/auto reset	
	D5 = Visual pop-up w/manual reset	
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	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	

NOTES:

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

SAME DAY SHIPMENT MODEL AVAILABLE!

Medium Pressure Filter RLT

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

70 gpm
265 L/min
1000 psi
69 bar

Model No. of filter in photograph is RLT9VZ10P20D5.

Features and Benefits

- Durable, compact design
- Quick and easy cartridge element changeouts
- Available in 9" and 14" element lengths
- Lightweight at 8 pounds
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Available with NPTF inlet and outlet female test ports
- WRLT model for water service also available – refer to Section 7 of this catalog
- Various Dirt Alarm® options
- Same day shipment model available

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

PULP & PAPER

AGRICULTURE

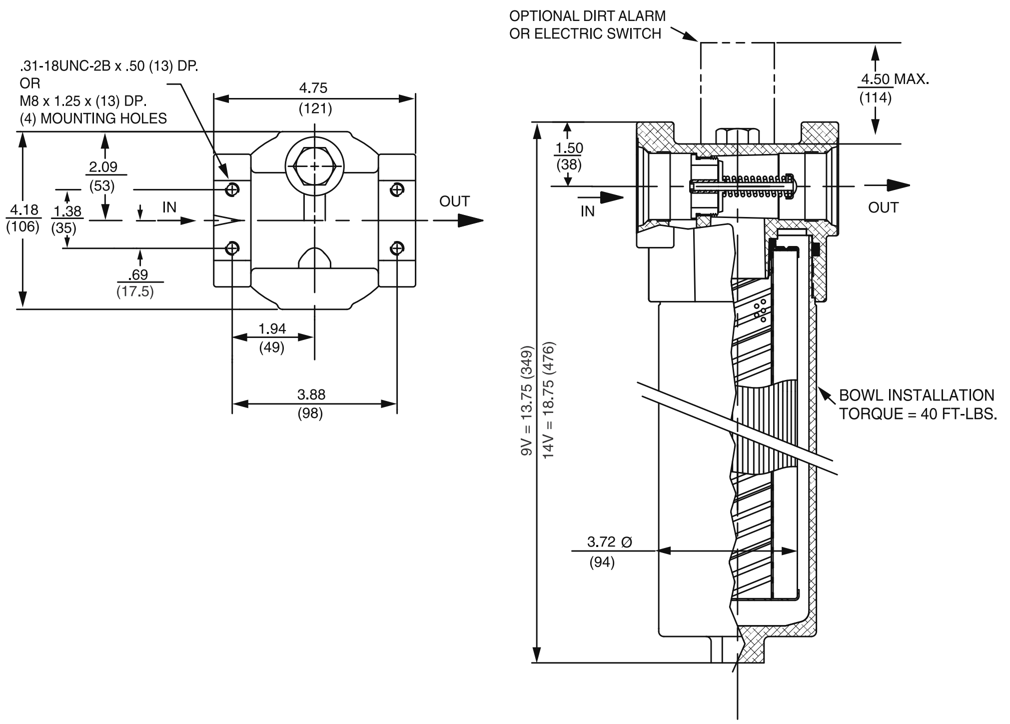
MOBILE VEHICLES

Filter Housing Specifications

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
Max. Operating Pressure:	1000 psi (69 bar)
Min. Yield Pressure:	4200 psi (290 bar) , per NFPA T2.6.1
Rated Fatigue Pressure:	415 psi (29 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) 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:	Aluminum
Element Case:	Aluminum
Weight of RLT-9V:	6.7 lbs. (3.0 kg)
Weight of RLT-14V:	8.0 lbs. (3.6 kg)
Element Change Clearance:	9V & 14V: 2.75" (70 mm)

RLT Medium Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$ß_x \geq 75$	$ß_x \geq 100$	$ß_x \geq 200$	$ß_x(c) \geq 200$	$ß_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)
9V3	25	14V3	38
9V10	12	14V10	25
9VZ1	55	14VZ1	102
9VZ3	57	14VZ3	105
9VZ5	62	14VZ5	115
9VZ10	52	14VZ10	104
9VZ25	48	14VZ25	94

Element Collapse Rating: 150 psid (10 bar)
500 psid (34.5 bar) for hydrostatic high collapse (9V5Z10 element) version

Flow Direction: Outside In

Element Nominal Dimensions: 9V: 3.0" (75 mm) O.D. x 9.5" (240 mm) long
14V: 3.0" (75 mm) O.D. x 14.5" (370 mm) long

SAME DAY SHIPMENT MODEL AVAILABLE!

Medium Pressure Filter RLT

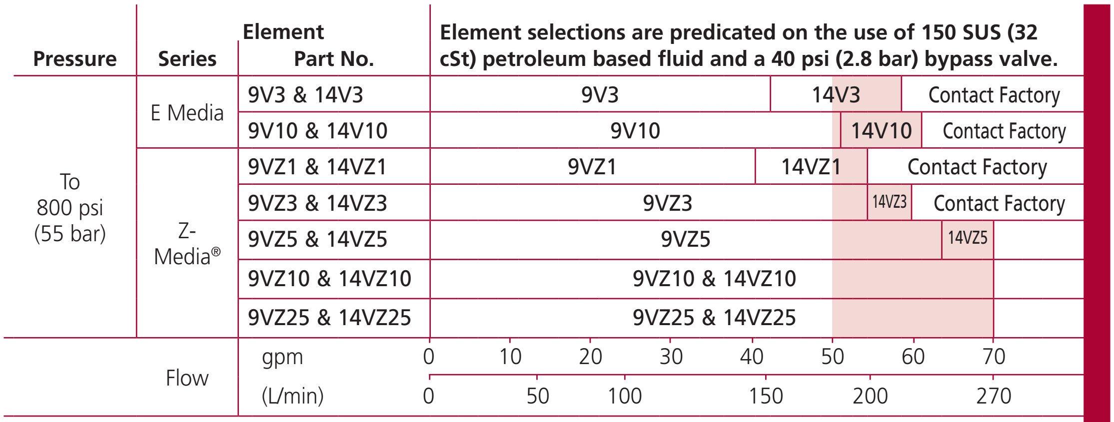
GH
GHHF
RLT
KF5
SRLT
K9
2K9
3K9
QF5
3QF5
QFD2
QFD5
QF15
QLF15
SSQLF15

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate



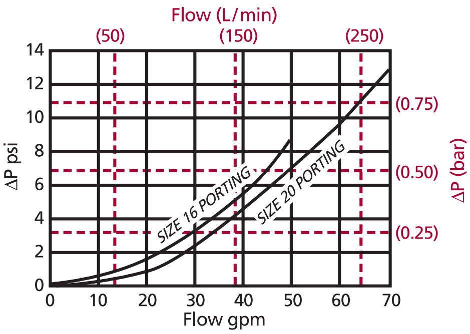
Shown above are the elements most commonly used in this housing. ▨ **requires size 20 porting**

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

RLT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	9V		14V
9V3	.32	**14V3**	.19
9V10	.24	**14V10**	.15
9VZ1	.34	**14VZ1**	.21
9VZ3	.21	**14VZ3**	.17
9VZ5	.13	**14VZ5**	.09
9VZ10	.11	**14VZ10**	.08
9VZ25	.06	**14VZ25**	.05

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

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

Exercise:

Determine ΔP at 40 gpm (150 L/min) for RLT9VZ5S16D5 using 200 SUS (44 cSt) fluid.

Solution:

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

$\Delta P_{element}$ = 40 x .13 x (200÷150) = 6.9 psi
or
= [150 x (.13÷54.9) x (44÷32) = .49 bar]

ΔP_{total} = 5.5 + 6.9 = 12.4 psi
or
= [.35 + .49 = .84 bar]

Filter Model Number Selection

Same Day Shipment Model
See inside back cover for details.

How to Build a Valid Model Number for a Schroeder RLT:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
RLT						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
RLT	9	VZ10		S20	D5		= RLT9VZ10S20D5

BOX 1

Filter Series
RLT (See Section 7 for Water Service version)
RLTN (Non-bypassing: requires V5Z high collapse elements)

BOX 2

Element Length (in)
9
14

BOX 3

Element Size and Media

V3 = V size 3 μ E media (cellulose)
V10 = V size 10 μ E media (cellulose)
VZ1 = V size 1 μ Excellement® Z-Media® (synthetic)
VZ3 = V size 3 μ Excellement® Z-Media® (synthetic)
VZ5 = V size 5 μ Excellement® Z-Media® (synthetic)
VZ10 = V size 10 μ Excellement® Z-Media® (synthetic)
VZ25 = V size 25 μ Excellement® Z-Media® (synthetic)
VW = V size W media (water removal)
V5Z10 = V size 10 μ Excellement® media, 500 psid collapse
V5Z25 = V size 25 μ Excellement® media, 500 psid collapse

BOX 4

Seal Material

Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® Compatibility

BOX 5

Porting Options

P16 = 1" NPTF
P20 = 1¼" NPTF
S16 = SAE-16
S20 = SAE-20
F20 = 1¼" SAE 4-bolt flange Code 61
B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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

BOX 7

Additional Options

Omit = None
L = Two ¼" NPTF inlet and outlet female test ports

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 9VZ10V

Box 3. E media elements are only available with Buna N seals.
V5Z10 and V5Z25 are only available with RLTN 9".

Box 4. 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® is a registered trademark of DuPont Dow Elastomers.
Skydrol® is a registered trademark of Solutia Inc.

Box 5. B porting supplied with metric mounting holes.

Medium Pressure Filter **KF5**

Model No. of filter in photograph is KF51KZ10SD5.

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® options
- Allows consolidation of inventoried replacement elements by using K-size elements
- Also available with DirtCatcher® elements (KD & KKD)
- Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 342) for details.

100 gpm
380 L/min
500 psi
35 bar

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

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MINING TECHNOLOGY

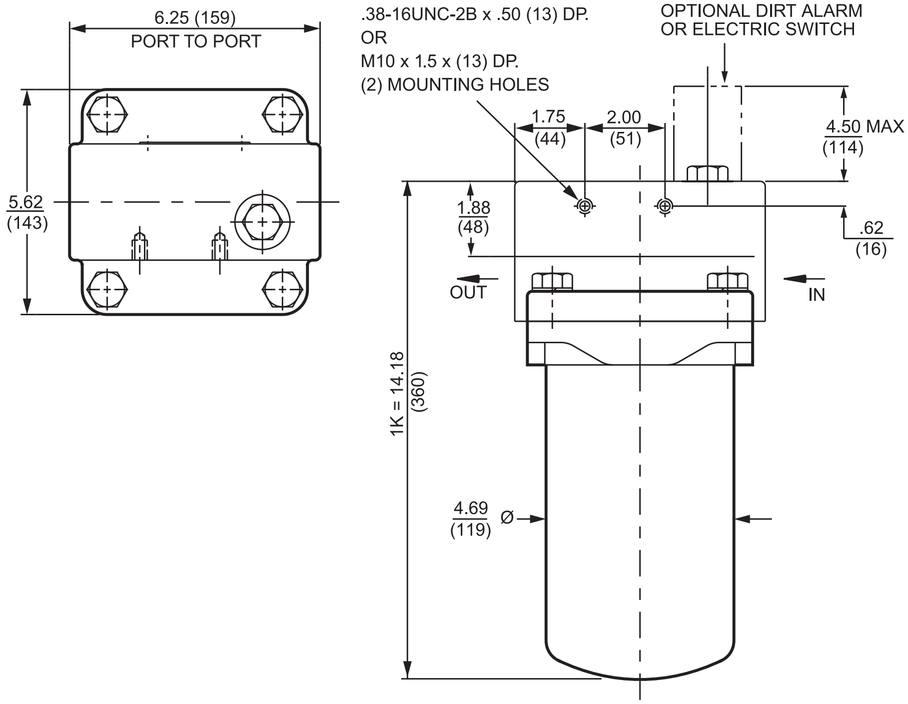
STEEL MAKING

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	500 psi (35 bar)
Min. Yield Pressure:	1500 psi (100 bar) , per NFPA T2.6.1
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 Information

Element	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	
	$\beta_X \geq 75$	$\beta_X \geq 100$	$\beta_X \geq 200$	$\beta_X(c) \geq 200$	$\beta_X(c) \geq 1000$
K3	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 Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54				
K10	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 elements
Flow Direction:	Outside In
Element Nominal Dimensions:	3.9" (99 mm) O.D. x 9.0" (230 mm) long

Medium Pressure Filter **KF5**

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® (synthetic), 3, 5 and 10 μ ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic), 3, 5 and 10 μ ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 μ E media (cellulose) with H (EPR) seal designation, 3, 5 and 10 μ ASP® media (synthetic)
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation and W media (water removal) with H.5 seal designation (EPR seals & stainless steel wire mesh in element, and light oil coating on housing exterior), 3, 5 and 10 μ ASP® media (synthetic)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Series	Element 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.
To 500 psi (34 bar)	E Media	K3	1K3 — KF5 housing uses only one K-size element.
		K10	1K10
		K25	1K25
	Z-Media®	KZ1	1KZ1
		KZ3/KAS3	1KZ3
		KZ5/KAS5	1KZ5
		KZ10/KAS10	1KZ10
		KZ25	1KZ25
	Flow	gpm	0 20 40 60 80 100
		(L/min)	0 50 150 250 380

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

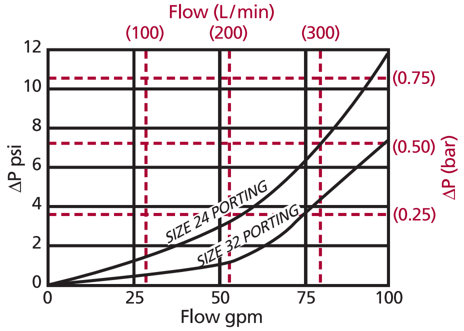
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KF5 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

K3	.25				
K10	.09				
K25	.02				
KZ1	.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).

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

Notes

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

Exercise:

Determine ΔP at 50 gpm (189 L/min) for KF51KZ10P24D5 using 200 SUS (44 cSt) fluid.

Solution:

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

$\Delta P_{element}$ = 50 x .05 x (200÷150) = 3.3 psi
or
= [189 x (.05÷54.9) x (44÷32) = .24 bar]

ΔP_{total} = 3.0 + 3.3 = 6.3 psi
or
= [.20 + .24 = .44 bar]

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KF5:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
KF5	–	–	–	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
KF5	1K	Z	10			S24		D5	= **KF51KZ10S24D5**

BOX 1

Filter Series
KF5 (See Section 7 for Water Service version)
KFN5 (Non-bypassing: requires ZX or MXX high collapse elements)

BOX 2

Number & Size of Elements
1K

BOX 3

Media Type	
Omit =	E media (Cellulose)
AS =	Anti-Static Pleated media
Z =	Excellement® Z-Media® (Synthetic)
ZW =	Aqua-Excellement® ZW media
ZX =	Excellement® Z-Media® (High Collapse Centertube)
W =	Water Removal media
M =	M media (Reusable Metal)
MXX =	M media (reusable metal mesh; high collapse centertube)
DZ =	DirtCatcher® Excellement® Z-Media®

BOX 4

Micron Rating		
1 =	1 μ	(Z, ZW, ZX and DZ media)
3 =	3 μ	(E, AS, Z, ZW, ZX and DZ media)
5 =	5 μ	(AS, Z, ZW, ZX and DZ media)
10 =	10 μ	(E, AS, Z, ZW,ZX, M and DZ media)
25 =	25 μ	(E, Z, ZW, ZX, M, MXX and DZ media)
60 =	60 μ	(M media)

BOX 5

Seal Material
Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® Compatibility

BOX 6

Magnetic Option
Omit = None
M = Magnet Inserts

BOX 7

Porting Options
P24 = 1½" NPTF
P32 = 2" NPTF
S24 = SAE-24
S32 = SAE-32
F24 = 1½" SAE split 4-bolt flange Code 61
B24 = ISO 228 G-1½"

BOX 8

Test Port Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports

BOX 9

Dirt Alarm® Options	
	Omit = None
Visual	D = Pointer D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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	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

NOTES:

Box 2. Replacement element part 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 on elements, and light oil coating on housing exterior.
Viton® is a registered trademark of DuPont Dow Elastomers.
Skydrol® is a registered trademark of Solutia Inc.

Box 7. B porting supplied with metric mounting holes.

SAME DAY SHIPMENT MODEL AVAILABLE!

Medium Pressure Filter SRLT

Model No. of filter in photograph is SRLT6RZ10S12D5.

Features and Benefits

- Smaller, compact version of the RLT
- Quick and easy cartridge element changeouts
- Lightweight at 3 pounds
- Offered in pipe, SAE straight thread and ISO 228 porting
- Available with NPTF inlet and outlet female test ports
- Various Dirt Alarm® options
- Same day shipment model available

25 gpm
100 L/min
1400 psi
100 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

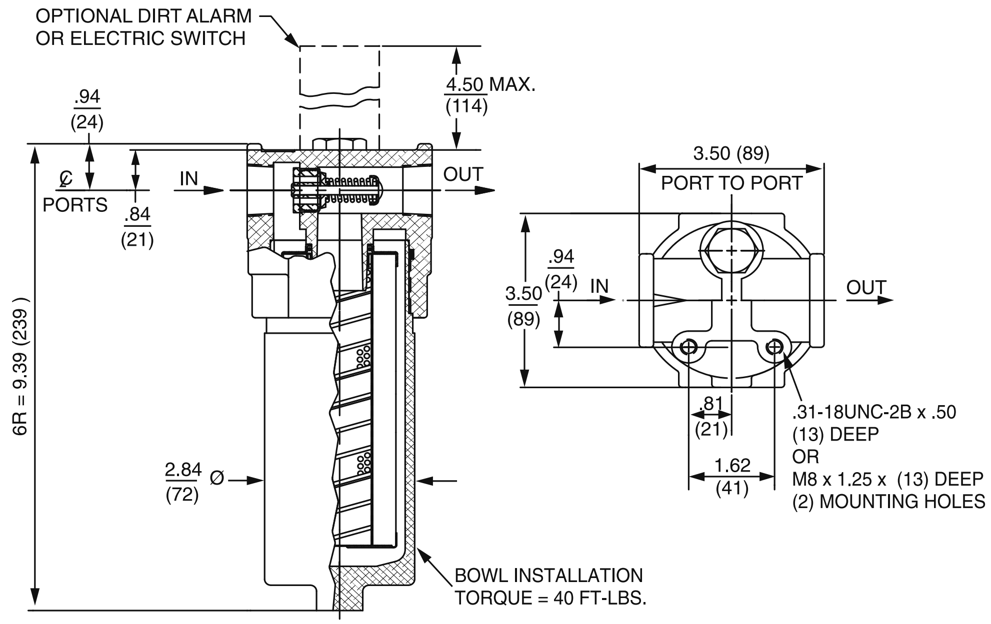
MACHINE TOOL

STEEL MAKING

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 25 gpm (100 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	1400 psi (100 bar)
Min. Yield Pressure:	4000 psi (276 bar), per NFPA T2.6.1
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: 55 psi (3.8 bar)
Porting Head:	Aluminum
Element Case:	Aluminum
Weight of SRLT-6R:	3.0 lbs. (1.4 kg)
Element Change Clearance:	2.75" (70 mm)



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)
6R3	5
6R10	6
6RZ1	15
6RZ3	15
6RZ5	17
6RZ10	14
6RZ25	25

Element 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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Series	Element 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.	
To 1400 psi (100 bar)	E Media	6R3	6R3	See RLT
		6R10	6R10	See RLT
	Z-Media®	6RZ1	6RZ1	See RLT
		6RZ3	6RZ3	See RLT
		6RZ5	6RZ5	See RLT
		6RZ10	6RZ10	See RLT
		6RZ25	6RZ25	
	Flow	gpm	0 5 10 15 20 25	
		(L/min)	0 25 50 75 100	

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

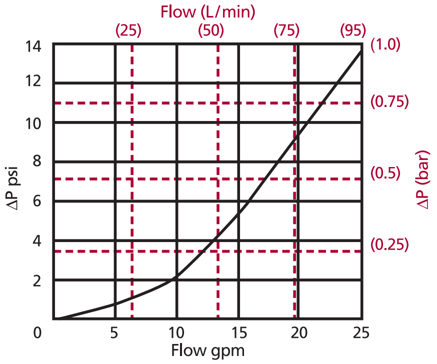
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

SRLT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

6R3	.45
6R10	.38
6RZ1	1.11
6RZ3	.55
6RZ5	.50
6RZ10	.46
6RZ25	.14

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

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

Exercise:

Determine ΔP at 15 gpm (57 L/min) for SRLT6R3P12D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 5.0 psi [.37 bar]

$\Delta P_{element}$ = 15 x .45 x (200÷150) = 9 psi
or
= [57 x (.45÷54.9) x (44÷32) = .64 bar]

ΔP_{total} = 5.0 + 9.0 = 14.0 psi
or
= [.37 + .64 = 1.01 bar]

SRLT Medium Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model
See inside back cover for details.

How to Build a Valid Model Number for a Schroeder SRLT:

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7
SRLT	–		–		–		–		–		–	

Example: *NOTE: One option per box*

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7	
SRLT	–	6	–	RZ10	–		–	S12	–		–	D5	**= SRLT6RZ10S12D5**

BOX 1

Filter Series

SRLT

BOX 2

Length of Element (in)

6

BOX 3

Element Size and Media

R3 = R size 3 μ E media (cellulose)
R10 = R size 10 μ E media (cellulose)

RZ1 = R size 1 μ Excellement® Z-Media® (synthetic)
RZ3 = R size 3 μ Excellement® Z-Media® (synthetic)
RZ5 = R size 5 μ Excellement® Z-Media® (synthetic)
RZ10 = R size 10 μ Excellement® Z-Media® (synthetic)
RZ25 = R size 25 μ Excellement® Z-Media® (synthetic)

RW = R size W media (water removal)

BOX 4

Seal Material

Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® Compatibility

BOX 5

Porting

P12 = ¾" NPTF
S12 = SAE-12
B12 = ISO 228 G-¾"

BOX 6

Additional Options

Omit = None
L = Two ⅛" NPTF inlet and outlet female test ports
30 = 30 psi bypass setting
40 = 40 psi bypass setting
50 = 50 psi bypass setting
60 = 60 psi bypass setting

BOX 7

Dirt Alarm® Options

	Omit	= None
Visual	D5	= Visual pop-up
Visual with Thermal Lockout	D8	= Visual w/ thermal lockout
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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 6R3V

Box 3. E media elements are only available with Buna N seals.

Box 4. 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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

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

SAME DAY SHIPMENT MODEL AVAILABLE!

Medium Pressure Filter K9

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

100 gpm
380 L/min
900 psi
60 bar

Features and Benefits

- 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® options
- 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.

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

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

MOBILE VEHICLES

AGRICULTURE

POWER GENERATION

PULP & PAPER

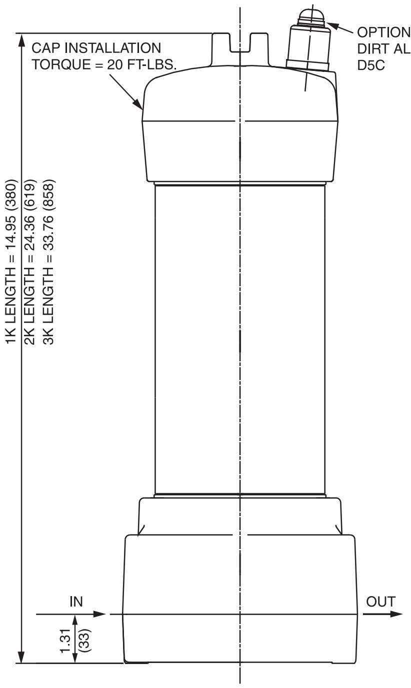
Filter Housing Specifications

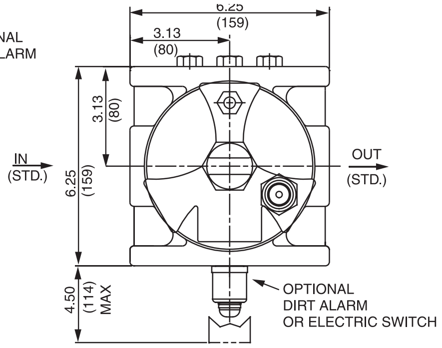
Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	900 psi (60 bar)
Min. Yield Pressure:	3200 psi (220 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	750 psi (52 bar) per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 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

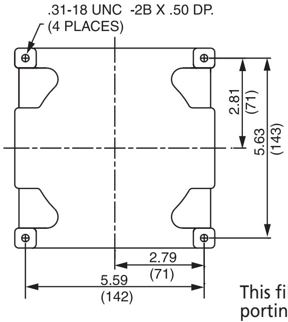
K9 Medium Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

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







Metric dimensions in ( ).

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

Element Performance Information

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 $\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	108	27K3	162				
K10	44	KK10	88	27K10	132				
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61		
KZ3/KAS3	115	KKZ3/KKAS3	230	27KZ3/27KAS3	345	KZW3	64	KKZW3	128
KZ5/KAS5	119	KKZ5/KKAS5	238	27KZ5/27KAS5	357	KZW5	63	KKZW5	126
KZ10/KAS10	108	KKZ10/KKAS10	216	27KZ10/27KAS10	324	KZW10	57	KKZW10	114
KZ25	93	KKZ25	186	27KZ25	279	KZW25	79	KKZW25	158

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

Flow Direction: Outside In

Element Nominal Dimensions:
K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long
KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long
27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

SAME DAY SHIPMENT MODEL AVAILABLE!

Medium Pressure Filter K9

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® (synthetic), 3, 5 and 10 μ ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic), 3, 5 and 10 μ ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 μ E media (cellulose) with H (EPR) seal designation, 3, 5 and 10 μ ASP® media (synthetic)
Skydrol®	3, 5, 10 and 25 μ Z-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), 3, 5 and 10 μ ASP® Media (synthetic)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection Based on Flow Rate

Pressure	Element Series	Element 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.
To 900 psi (60 bar)	E Media	K3	1K3 2K3† 3K3
		K10	1K10
		K25	1K25
	Z-Media®	KZ1	1KZ1 2KZ1†
		KZ3	1KZ3/KAS3/KKZ3/27KAS3
		KZ5	1KZ5/KAS5/KKZ5/27KAS5
		KZ10	1KZ10/KAS10/KKZ10/27KAS10
		KZ25	1KZ25
	Flow	gpm	0 20 40 60 80 100
		(L/min)	0 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.

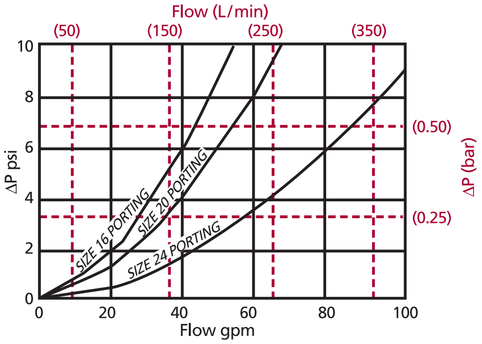
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information Based on Flow Rate and Viscosity

$\Delta P_{housing}$

K9 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:
Determine ΔP at 80 gpm (303 L/min) for K93KZ3BP20NP20ND5C using 200 SUS (44 cSt) fluid.

Solution:

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

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

ΔP_{total} = 6.0 + 3.2 = 9.2 psi
or
= [.41 + .23 = .64 bar]

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K
K3	.25	.12	.08
K10	.09	.05	.03
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
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).

Medium Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

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

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder 2K9:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
K9							

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
K9	1K	Z	10	B	P16 N P16 N		D5	= K91KZ10BP16NP16ND5

BOX 1

Filter Series
K9

BOX 2

Number & Size of Elements
1 K,KK,27K
2 K
3 K

BOX 3

Media Type
Omit = E-media (cellulose)
Z = Excellement® Z-Media®
AS = Anti-Stat Pleat media (synthetic)
ZW = Aqua-Excellement® ZW media
ZX = Excellement® Z-Media® (high collapse centertube)
W = W media (water removal)
M = media (reusable metal mesh)

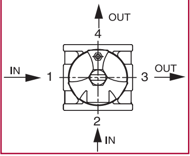
BOX 4

Micron Rating
1 = 1 μ Z, ZW, ZX media
3 = 3 μ AS, E, Z, ZW, ZX media
5 = 5 μ AS, Z, ZW, ZX media
10 = 10 μ AS, E, M, Z, ZW, ZX media
25 = 25 μ E, M, Z, ZW, ZX media
60 = 60 μ M media
150 = 150 μ M media
260 = 260 μ M media

BOX 5

Seal Material
B = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® Compatibility

Porting Options



BOX 6 Specification of all 4 ports is required

Porting			
Port 1 (standard)	Port 2	Port 3	Port 4
N = None	N = None	N = None	N = None
P16 = 1" NPTF P20 = 1¼" NPTF P24 = 1½" NPTF	P16 = 1" NPTF P20 = 1¼" NPTF P24 = 1½" NPTF	P16 = 1" NPTF P20 = 1¼" NPTF P24 = 1½" NPTF	P16 = 1" NPTF P20 = 1¼" NPTF P24 = 1½" NPTF
S16 = SAE-16 S20 = SAE-20 S24 = SAE-24	F16 = 1" SAE 4-bolt flange Code 61 F20 = 1¼" SAE 4-bolt flange Code 61 F24 = 1½" SAE 4-bolt flange Code 61	S16 = SAE-16 S20 = SAE-20 S24 = SAE-24	F16 = 1" SAE 4-bolt flange Code 61 F20 = 1¼" SAE 4-bolt flange Code 61 F24 = 1½" SAE 4-bolt flange Code 61
B16 = ISO 228 G-1" B20 = ISO 228 G-1¼" B24 = ISO 228 G-1½"	S16 = SAE-16 S20 = SAE-20 S24 = SAE-24	B16 = ISO 228 G-1" B20 = ISO 228 G-1¼" B24 = ISO 228 G-1½"	S16 = SAE-16 S20 = SAE-20 S24 = SAE-24
	B16 = ISO 228 G-1" B20 = ISO 228 G-1¼" B24 = ISO 228 G-1½"		B16 = ISO 228 G-1" B20 = ISO 228 G-1¼" B24 = ISO 228 G-1½"

BOX 7

Options
Omit = None
X = Blocked bypass
U = Test point in cap (upstream)
UU = Test points in 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
75 = 75 psi bypass setting

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up D5C = D5 in cap
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = 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 = 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

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® is a registered trademark of DuPont Dow Elastomers.
Skydrol® is a registered trademark 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).

Single Pass Filter Kit **2K9**

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

100 gpm
380 L/min

900 psi
60 bar

Custom 2K9, contact factory for details.

Features and Benefits

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

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

MOBILE VEHICLES

AGRICULTURE

POWER GENERATION

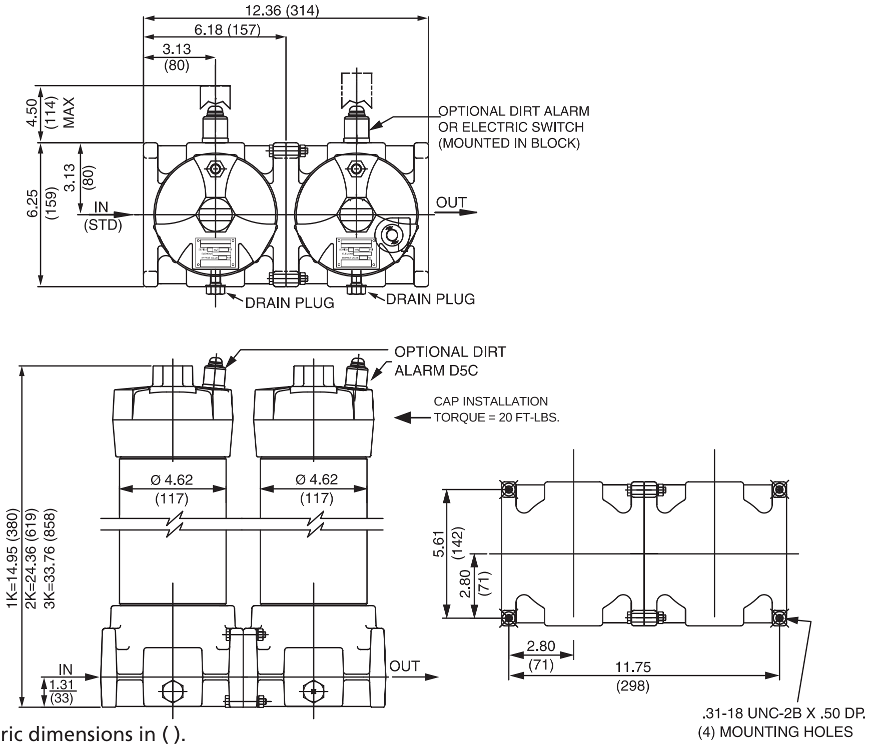
PULP & PAPER

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	900 psi (60 bar)
Min. Yield Pressure:	3200 psi (220 bar), per NFPA T2.6.1
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

2K9 Single Pass Filter Kit

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



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
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

Single Pass Filter Kit **2K9**

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media®, 3, 5 and 10 μ ASP® media (synthetic)
Phosphate Esters	All Z-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) 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 μ ASP® Media (synthetic)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

	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.	
Pressure	**Series**	**Part No.**		
To 900 psi (60 bar)	Z-Media®	KZ1	1KZ1	2KZ1†
		KZ3	1KZ3/KAS3/KKAS3/27KAS3	
		KZ5	1KZ5/KAS5/KKAS5/27KAS5	
		KZ10	1KZ10/KAS10/KKAS10/27KAS10	
		KZ25	1KZ25	
	Flow	gpm	0 20 40 60 80 100	
		(L/min)	0 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.

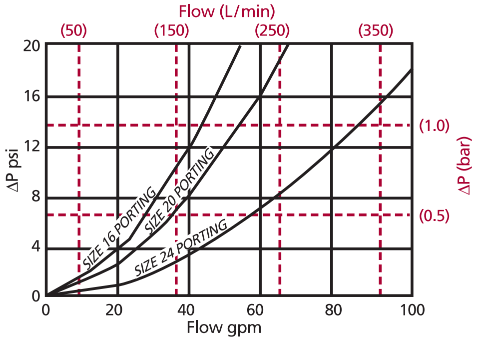
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

2K9 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP 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
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).

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

Exercise:

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

Solution:

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

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

$\Delta P_{element2}$ = 80 x .05 = 4.0 psi [0.3 bar]

ΔP_{total} = 12.0 + 2.4 + 4.0 = 18.4 psi [1.3 bar]

2K9 Single Pass Filter Kit

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

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder 2K9:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
2K9	–	–	–	–	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
2K9	1	09	D	B	B	P16	P16	D5		= 2K9109DBBP16P16D5

BOX 1

Filter Series

2K9

BOX 2

Number of Elements

1
2
3

BOX 3

Length of Elements

09 = K-Size Element
18 = KK Size Element
27 = 27K Size Element

BOX 4

First Housing Element Micron Rating

A = 1 μ Z-Media®
B = 3 μ Z-Media®
C = 5 μ Z-Media®
D = 10 μ Z-Media®
E = 25 μ Z-Media®
F = W Water Removal
G = 1 μ ZW-media
H = 3 μ ZW-media
J = 5 μ ZW-media
K = 10 μ ZW-media
L = 25 μ ZW-media

M = 3 μ AS-media
N = 5 μ AS-media
O = 10 μ AS-media

BOX 5

Second Housing Element Micron Rating

A = 1 μ Z-Media®
B = 3 μ Z-Media®
C = 5 μ Z-Media®
D = 10 μ Z-Media®
E = 25 μ Z-Media®
F = W Water Removal
G = 1 μ ZW-media
H = 3 μ ZW-media
J = 5 μ ZW-media
K = 10 μ ZW-media
L = 25 μ ZW-media

M = 3 μ AS-media
N = 5 μ AS-media
O = 10 μ AS-media

BOX 6

Seal Material

B = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® Compatible

BOX 7

"In" Porting

P16 = 1" NPTF
P20 = 1¼" NPTF
P24 = 1½" NPTF

B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"
B24 = ISO 228 G-1½"

F16 = 1" SAE 4-bolt flange Code 61
F20 = 1¼" SAE 4-bolt flange Code 61
F24 = 1½" SAE 4-bolt flange Code 61

S16 = SAE-16
S20 = SAE-20
S24 = SAE-24

BOX 8

"Out" Porting

P16 = 1" NPTF
P20 = 1¼" NPTF
P24 = 1½" NPTF

B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"
B24 = ISO 228 G-1½"

F16 = 1" SAE 4-bolt flange Code 61
F20 = 1¼" SAE 4-bolt flange Code 61
F24 = 1½" SAE 4-bolt flange Code 61

S16 = SAE-16
S20 = SAE-20
S24 = SAE-24

BOX 9

Dirt Alarm® Options		
	Omit =	None
Visual	D5 =	Visual pop-up
	D5C =	D5 in cap
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	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 =	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

BOX 10

Options

Omit = None
U = Test point in cap (upstream)
UU = Test points in block (upstream and downstream)

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 & 5. Replacement element part numbers are identical to K9 replacement parts. Please reference page 184.

Box 6. 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® is a registered trademark of DuPont Dow Elastomers.
Skydrol® is a registered trademark of Solutia Inc.

Box 10. Option UU not available in combination with indicator in block.

Single Pass Filter Kit 3K9

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

100 gpm
380 L/min

900 psi
60 bar

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

Features and Benefits

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

Model No. of filter in photograph is 3K9127EDBBP20P20UUD5C.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

MOBILE VEHICLES

AGRICULTURE

POWER GENERATION

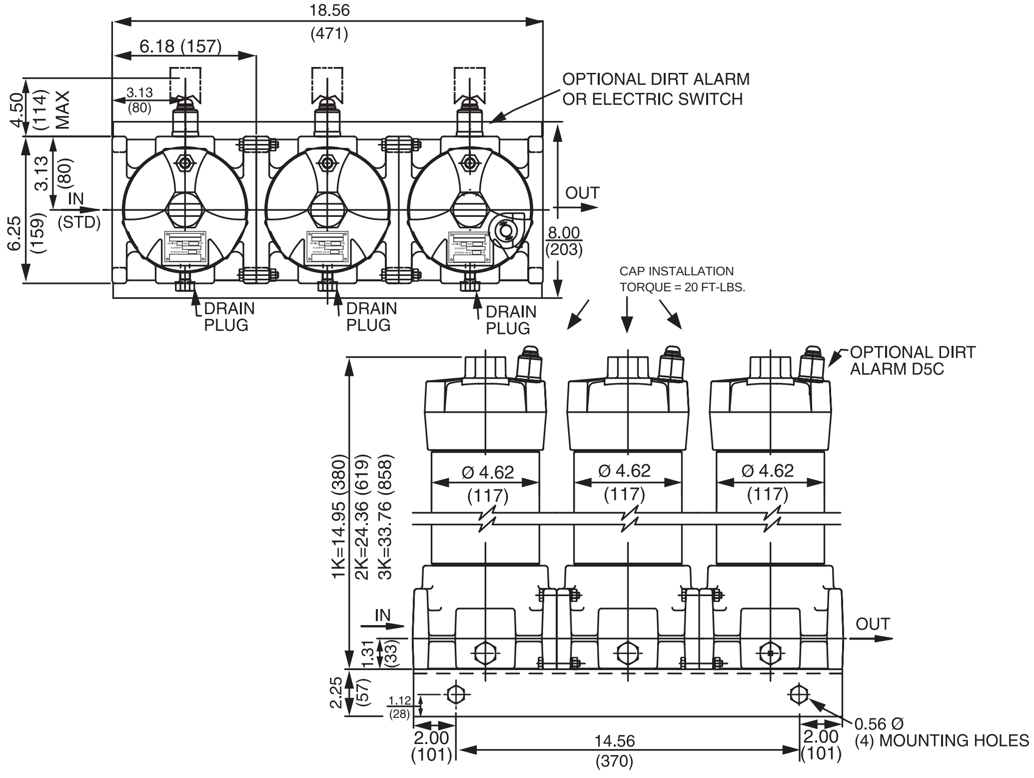
PULP & PAPER

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	900 psi (60 bar)
Min. Yield Pressure:	3200 psi (220 bar), per NFPA T2.6.1
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

3K9 Single Pass Filter Kit

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



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
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

Single Pass Filter Kit 3K9

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 μ E media (cellulose) with H (EPR) seal designation and all ASP® Media (synthetic)
Skydrol®	3, 5, 10 and 25 μ Z-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) and all ASP® media (synthetic)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element 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.	
To 900 psi (60 bar)	Z-Media®	KZ1	1KZ1	2KZ1†
		KZ3	1KZ3/KAS3/KKAS3/27KAS3	
		KZ5	1KZ5/KAS5/KKAS5/27KAS5	
		KZ10	1KZ10/KAS3/KKAS3/27KAS3	
		KZ25	1KZ25	
	Flow	gpm	0 20 40 60 80 100	
		(L/min)	0 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.

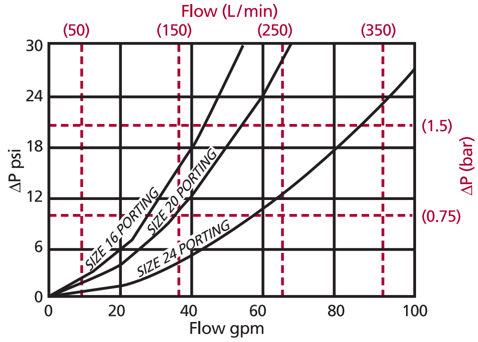
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

K9 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:
Determine ΔP 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 x .03 = 2.4 psi [0.2 bar]

$\Delta P_{element3}$ = 80 x .05 = 4.0 psi [0.3 bar]

ΔP_{total} = 18.0 + 1.6 + 2.4 + 4.0 = 26.0 psi [1.8 bar]

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP 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
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).

3K9 Single Pass Filter Kit

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

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder 3K9:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
3K9										

Example: *NOTE: One option per box*

BOX 1	BOX2	BOX3	BOX4	BOX 5	BOX 6	BOX 7	BOX 8	BOX9	BOX 10	BOX11	
3K9	1	09	E	C	A	B	P16	P16	D5		=3K9109ECABP16P16D5

BOX 1

Filter Series
3K9

BOX 2

No. of Elements
1
2
3

BOX 3

Length of Elements
09 = K Size Element
18 = KK Size Element
27 = 27K Size Element

BOX 4

First Housing
A = 1 μ Z-Media®
B = 3 μ Z-Media®
C = 5 μ Z-Media®
D = 10 μ Z-Media®
E = 25 μ Z-Media®
F = W media (water removal)
G = 1 μ ZW-media
H = 3 μ ZW-media
J = 5 μ ZW-media
K = 10 μ ZW-media
L = 25 μ ZW-media
M = 3 μ AS-media
N = 5 μ AS-media
O = 10 μ AS media

BOX 5

Second Housing
A = 1 μ Z-Media®
B = 3 μ Z-Media®
C = 5 μ Z-Media®
D = 10 μ Z-Media®
E = 25 μ Z-Media®
F = W media (water removal)
G = 1 μ ZW-media
H = 3 μ ZW-media
J = 5 μ ZW-media
K = 10 μ ZW-media
L = 25 μ ZW-media
M = 3 μ AS-media
N = 5 μ AS-media
O = 10 μ AS media

BOX 6

Third Housing
A = 1 μ Z-Media®
B = 3 μ Z-Media®
C = 5 μ Z-Media®
D = 10 μ Z-Media®
E = 25 μ Z-Media®
F = W media (water removal)
G = 1 μ ZW-media
H = 3 μ ZW-media
J = 5 μ ZW-media
K = 10 μ ZW-media
L = 25 μ ZW-media
M = 3 μ AS-media
N = 5 μ AS-media
O = 10 μ AS media

BOX 7

Seal Material
B = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® Compatibility

BOX 8

"In" Porting
P16 = 1" NPTF
P20 = 1¼" NPTF
P24 = 1½" NPTF
B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"
B24 = ISO 228 G-1½"
F16 = 1" SAE 4-bolt flange Code 61
F20 = 1¼" SAE 4-bolt flange Code 61
F24 = 1½" SAE 4-bolt flange Code 61
S16 = SAE-16
S20 = SAE-20
S24 = SAE-24

BOX 9

"Out" Porting
P16 = 1" NPTF
P20 = 1¼" NPTF
P24 = 1½" NPTF
B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"
B24 = ISO 228 G-1½"
F16 = 1" SAE 4-bolt flange Code 61
F20 = 1¼" SAE 4-bolt flange Code 61
F24 = 1½" SAE 4-bolt flange Code 61
S16 = SAE-16
S20 = SAE-20
S24 = SAE-24

BOX 10

Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up D5C = D5 in cap
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = 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 = 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

BOX 11

Options
Omit = None
U = Test point in cap (upstream)
UU = Test points in block (upstream and downstream)

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, 5 & 6 . Replacement element part 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® is a registered trademark of DuPont Dow Elastomers.
Skydrol® is a registered trademark of Solutia Inc.

Box 11. Option UU not available in combination with indicator in block.

300 gpm
1135 L/min

500 psi
35 bar

Model No. of filter in photograph is QF539QZ10P32.

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® seals
- Offered in pipe, SAE straight thread, and flange porting
- Optional inlet and outlet test points
- WQF5 model for water service also available
- Various Dirt Alarm® options

Viton® is a registered trademark of DuPont Dow Elastomers.

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

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

MINING TECHNOLOGY

POWER GENERATION

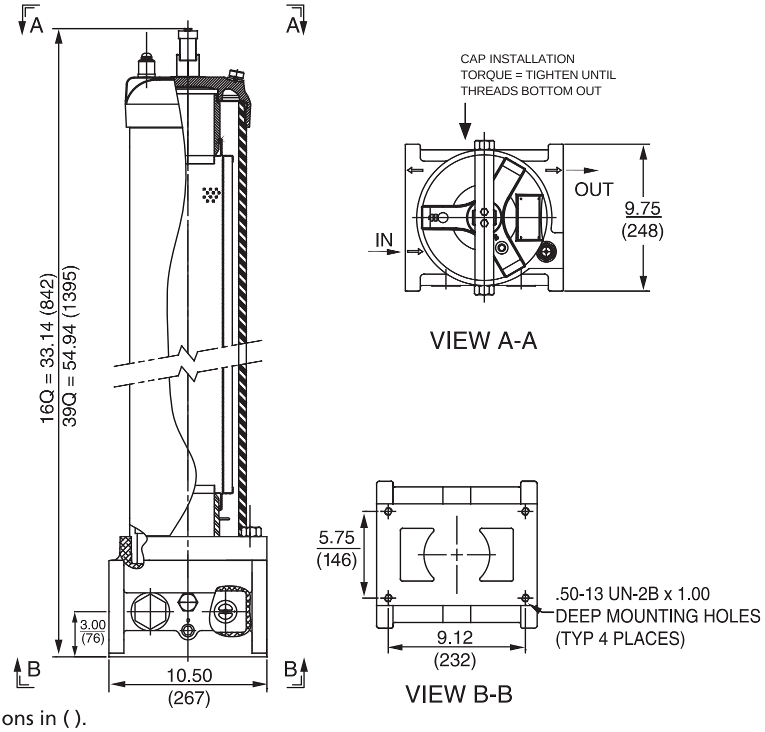
PULP & PAPER

BULK FUEL FILTRATION

Filter Housing Specifications

Flow Rating:	Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	500 psi (35 bar)
Min. Yield Pressure:	2500 psi (172 bar), per NFPA T2.6.1-R1-2005
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 QF539:	185 lbs. (84 kg)
Element Change Clearance:	16Q 12.0" (205 mm) 39Q 33.8" (859 mm)

QF5 In-Line Filter



Metric dimensions in ( ).

Element Performance Information

		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	
	Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
16Q	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/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
39Q	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/PMLZ5/PMLAS5V/AS5V	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10/PMLAS10V/AS10V	7.4	8.2	10.0	8.0	10.0

Dirt Holding Capacity

	Element	**DHC (gm)**	**Element**	**DHC (gm)**	**Element**	**DHC (gm)**
16Q	Z1	276	CLQFZ1	307	PMLZ1	307
	Z3/AS3V	283	CLQFZ3	315	PMLZ3/PMLAS3V	315
	Z5/AS5V	351	CLQFZ5	364	PMLZ5/PMLAS5V	364
	Z10/AS10V	280	CLQFZ10	306	PMLZ10/PMLAS10V	330
	Z25	254	CLQFZ25	278	PMLZ25	299
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3/AS3V	1001	CLQFZ3	1293	PMLZ3/PMLAS3	1525
	Z5/AS5V	954	CLQFZ5	1302	PMLZ5/PMLAS5	1235
	Z10/AS10V	940	CLQFZ10	1214	PMLZ10/PMLAS10	1432
	Z25	853	CLQFZ25	1102	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar), QCLQF: 100 psid (7 bar)

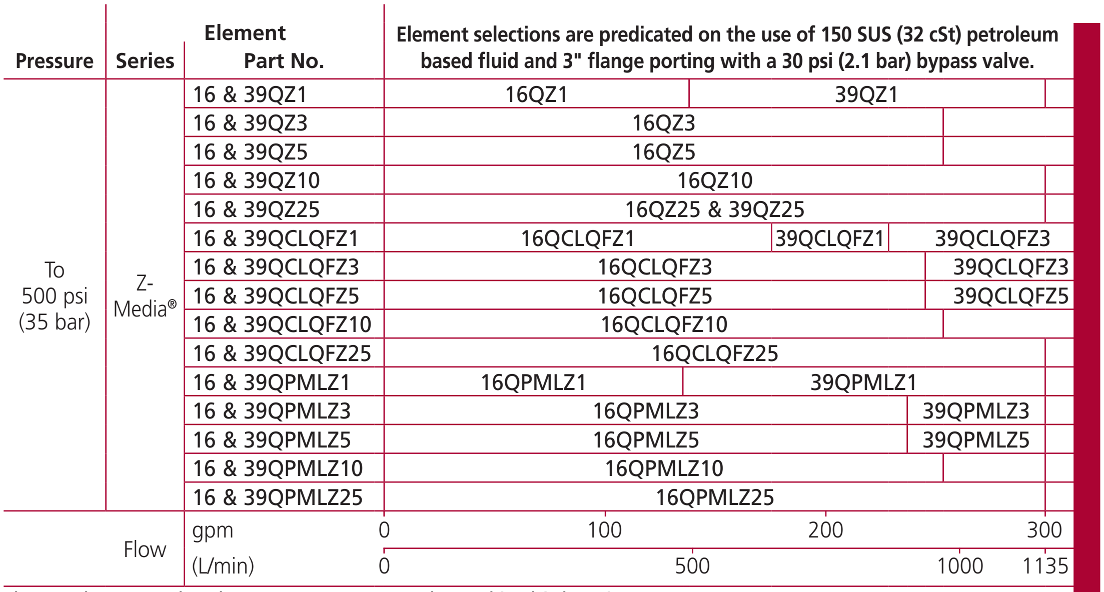
Flow Direction: Outside In

Element Nominal Dimensions: 39Q: 6.0" (150 mm) O.D. x 38.70" (985 mm) long
39QCLQF: 6.0" (150 mm) O.D. x 40.01" (1016 mm) long
39QPML: 6.0" (150 mm) O.D. x 37.80" (960 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® and all ASP® Media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and all ASP® media (synthetic)
Skydrol®	3, 5, 10 and 25 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) and all ASP® media (synthetic)

Element Selection
Based on
Flow Rate



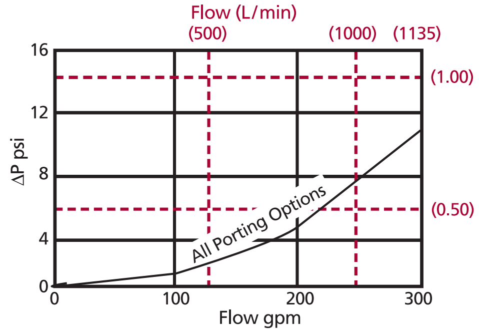
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on
Flow Rate
and Viscosity

$\Delta P_{housing}$

QF5 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:
Determine ΔP at 150 gpm (570 L/min) for QF516QZ3VF40D5 using 200 SUS (44 cSt) fluid.

Solution:

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

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

ΔP_{total} = 3.0 + 8.0 = 11.0 psi
or
= [.21 + .57 = .78 bar]

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

16QZ1	.09	**39QZ1**	.03
16QZ3/ **16QAS3V**	.04	**39QZ3/** **39QAS3V**	.01
16QZ5/ **16QAS5V**	.04	**39QZ5/** **39QAS5V**	.01
16QZ10/ **16QAS10V**	.03	**39QZ10/** **39QAS10V**	.01
16QZ25	.01	**39QZ25**	.01
16QCLQFZ1	.07	**39QCLQFZ1**	.03
16QCLQFZ3	.05	**39QCLQFZ3**	.02
16QCLQFZ5	.05	**39QCLQFZ5**	.02
16QCLQFZ10	.04	**39QCLQFZ10**	.01
16QCLQFZ25	.03	**39QCLQFZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3/ **16QPMLAS3V**	.05	**39QPMLZ3/** **39QPMLAS3V**	.02
16QPMLZ5/ **16QPMLAS5V**	.05	**39QPMLZ5/** **39QPMLAS5V**	.02
16QPMLZ10/ **16QPMLAS10V**	.04	**39QPMLZ10/** **39QPMLAS10V**	.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).

QF5 In-Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder QF5:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
QF5								

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
QF5	39	Q	Z	3		P32		DPG	**=QF539QZ3P32DPG**

BOX 1

Filter Series
QF5

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

Media Type
Z = Excellement® Z-Media® (synthetic)
AS = Anti-Stat Pleat media (synthetic)
W = W Media (water removal)

BOX 5

Micron Rating
1 = 1 μ Z-Media®
3 = 3 μ AS and Z-Media®
5 = 5 μ AS and Z-Media®
10 = 10 μ AS and Z-Media®
25 = 25 μ Z-Media®

BOX 6

Housing Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 7

Porting	
P32 = 2"NPTF	F32 = 2" SAE 4-bolt flange Code 61
P40 = 2½"NPTF	F40 = 2½"SAE 4-bolt flange Code 61
P48 = 3"NPTF	
S32 = SAE-32	F48 = 3" SAE 4-bolt flange Code 61

BOX 8

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 9

Dirt Alarm® 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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5 plus the letter V.
Example: 39QZ10V

Box 3. QCLQF are CoreCentric® 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.

In-Line Filter **3QF5**

300 gpm
1135 L/min

500 psi
35 bar

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® seals
- Offered in pipe, SAE straight thread, and flange porting
- Optional inlet and outlet test points
- Various Dirt Alarm® options

Model No. of filter in photograph is 3QF539QEDBP40P40.

Viton® is a registered trademark of DuPont Dow Elastomers.

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

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

MINING TECHNOLOGY

POWER GENERATION

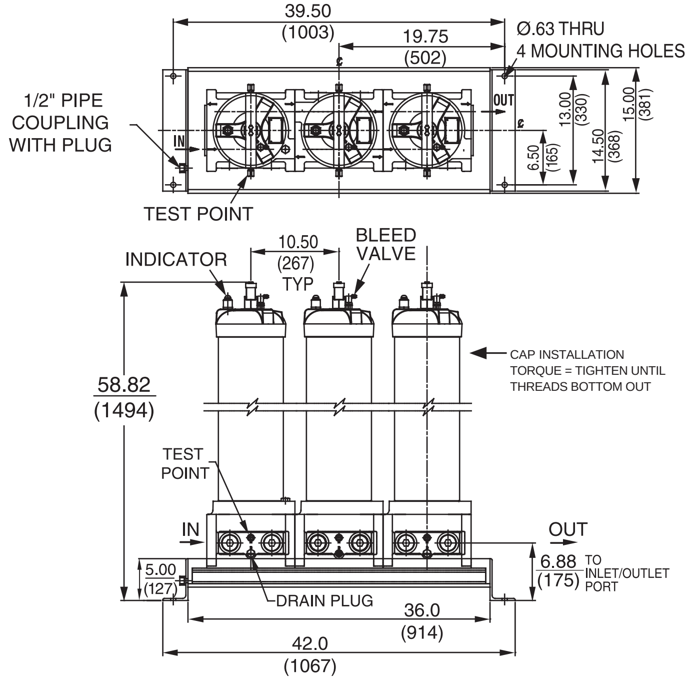
PULP & PAPER

BULK FUEL FILTRATION

Filter Housing Specifications

Flow Rating:	Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	500 psi (35 bar)
Min. Yield Pressure:	2500 psi (172 bar), per NFPA T2.6.1
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)

3QF5 In-Line Filter



Metric dimensions in ( ).

Element Performance Information

Element		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	
		$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
39Q	Z1/CLQFZ1/PMLZ1/	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3/ AS3V/PMLAS3V	<1.0	<1.0	<2.0	<4.0	4.8
	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 Capacity

Element		DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3/AS3V	1001	CLQFZ3	1293	PMLZ3/PMLAS3	1525
	Z5/AS5V	954	CLQFZ5	1302	PMLZ5/PMLAS5	1235
	Z10/AS10V	940	CLQFZ10	1214	PMLZ10/PMLAS10	1432
	Z25	853	CLQFZ25	1102	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar), QCLQF: 100 psid (7 bar)

Flow Direction: Outside In

Element Nominal Dimensions:
16Q: 6.0" (150 mm) O.D. x 16.85" (430 mm) long
16QCLQF: 6.0" (150 mm) O.D. x 18.21" (463 mm) long
16QPML: 6.0" (150 mm) O.D. x 16.00" (405 mm) long
39QCLQF: 6.0" (150 mm) O.D. x 40.01" (1016 mm) long
39QPML: 6.0" (150 mm) O.D. x 37.80" (960 mm) long

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and all ASP® media (synthetic)
Skydrol®	3, 5, 10 and 25 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) and all ASP® media (synthetic)

Element Selection

Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass valve.	
To 500 psi (35 bar)	Z-Media®	16 & 39QZ1	16QZ1	39QZ1
		16 & 39QZ3	16QZ3	
		16 & 39QZ5	16QZ5	
		16 & 39QZ10	16QZ10	
		16 & 39QZ25	16QZ25 & 39QZ25	
		16 & 39QCLQFZ1	16QCLQFZ1	39QCLQFZ1
		16 & 39QCLQFZ3	16QCLQFZ3	39QCLQFZ3
		16 & 39QCLQFZ5	16QCLQFZ5	39QCLQFZ5
		16 & 39QCLQFZ10	16QCLQFZ10	
		16 & 39QCLQFZ25	16QCLQFZ25	
		16 & 39QPMLZ1	16QPMLZ1	39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3	39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5	39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10	
		16 & 39QPMLZ25	16QPMLZ25	
	Flow	gpm	0 100 200 300	
		(L/min)	0 500 1000 1135	

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

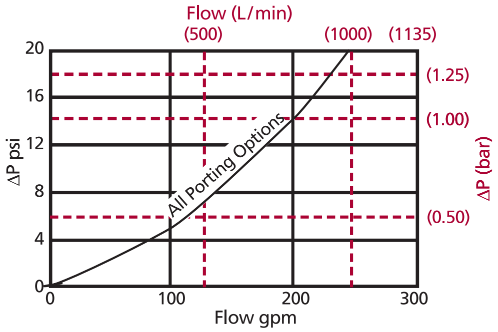
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

3QF5 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

16QZ1	.09	**39QZ1**	.03
16QZ3/16QAS3V	.04	**39QZ3/39QAS3V**	.01
16QZ5/16QAS5V	.04	**39QZ5/39QAS5V**	.01
16QZ10/16QAS10V	.03	**39QZ10/39QAS10V**	.01
16QZ25	.01	**39QZ25**	.01
16QCLQFZ1	.07	**39QCLQFZ1**	.03
16QCLQFZ3	.05	**39QCLQFZ3**	.02
16QCLQFZ5	.05	**39QCLQFZ5**	.02
16QCLQFZ10	.04	**39QCLQFZ10**	.01
16QCLQFZ25	.03	**39QCLQFZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3/ **16QPMLAS3V**	.05	**39QPMLZ3/** **39QPMLAS3V**	.02
16QPMLZ5/ **16QPMLAS5V**	.05	**39QPMLZ5/** **39QPMLAS5V**	.02
16QPMLZ10/ **16QPMLAS10V**	.04	**39QPMLZ10/** **39QPMLAS10V**	.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).

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

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

Solution:

$\Delta P_{housing}$ = 9.5 psi [.67 bar]

$\Delta P_{element1}$ = 150 x .01 x (200 ÷ 150) = 2.0 psi or [570 x (.01 ÷ 54.9) x (44 ÷ 32) = .14 bar]

$\Delta P_{element2}$ = 150 x .03 x (200 ÷ 150) = 6.0 psi or [570 x (.03 ÷ 54.9) x (44 ÷ 32) = .42 bar]

$\Delta P_{element3}$ = 150 x .04 x (200 ÷ 150) = 8.0 psi or [570 x (.04 ÷ 54.9) x (44 ÷ 32) = .56 bar]

ΔP_{total} = 9.5 + 2.0 + 6.0 + 8.0 = 25.5 psi or [.67 + .14 + .42 + .56 = 1.79 bar]

3QF5 In-Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder 3QF5:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
3QF5	–	–	–	–	–	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11	
3QF5	39	Q	E	D	B	V	P32	P32	50	DPG	= 3QF539QEDBVP32P3250DPG

Element Performance Information

BOX 1

Filter Series
3QF5

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

First Housing Element Media
A = Z1
B = Z3
C = Z5
D = Z10
E = Z25
F = W
G = AS3
H = AS5
J = AS10

BOX 5

Second Housing Element Media
A = Z1
B = Z3
C = Z5
D = Z10
E = Z25
F = W
G = AS3
H = AS5
J = AS10

BOX 6

Third Housing Element Media
A = Z1
B = Z3
C = Z5
D = Z10
E = Z25
F = W
G = AS3
H = AS5
J = AS10

BOX 7

Housing Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 8

"IN" Porting
P32 = 2" NPTF
P40 = 2½" NPTF
P48 = 3" NPTF
S32 = SAE-32
F32 = 2" SAE 4-bolt flange Code 61
F40 = 2½" SAE 4-bolt flange Code 61
F48 = 3" SAE 4-bolt flange Code 61

BOX 9

"OUT" Porting
P32 = 2" NPTF
P40 = 2½" NPTF
P48 = 3" NPTF
S32 = SAE-32
F32 = 2" SAE 4-bolt flange Code 61
F40 = 2½" SAE 4-bolt flange Code 61
F48 = 3" SAE 4-bolt flange Code 61

BOX 10

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking
X = Blocked bypass

Dirt Holding Capacity

BOX 11

Dirt Alarm® 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

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® seals. Seal designation in Box 5 applies to housing only.
Viton® is a registered trademark of DuPont Dow Elastomers.

In-Line Filter **QFD2**

Model No. of filter in photograph is QFD216QZ10FA48.

Features and Benefits

- Duplex filter design
- 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
- Integral inlet and outlet test points are standard on all models
- Various Dirt Alarm® options
- Also available in 4, 6 or 8 housing modular designs (contact factory)

300 gpm
1135 L/min

200 psi
14 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

STEEL MAKING

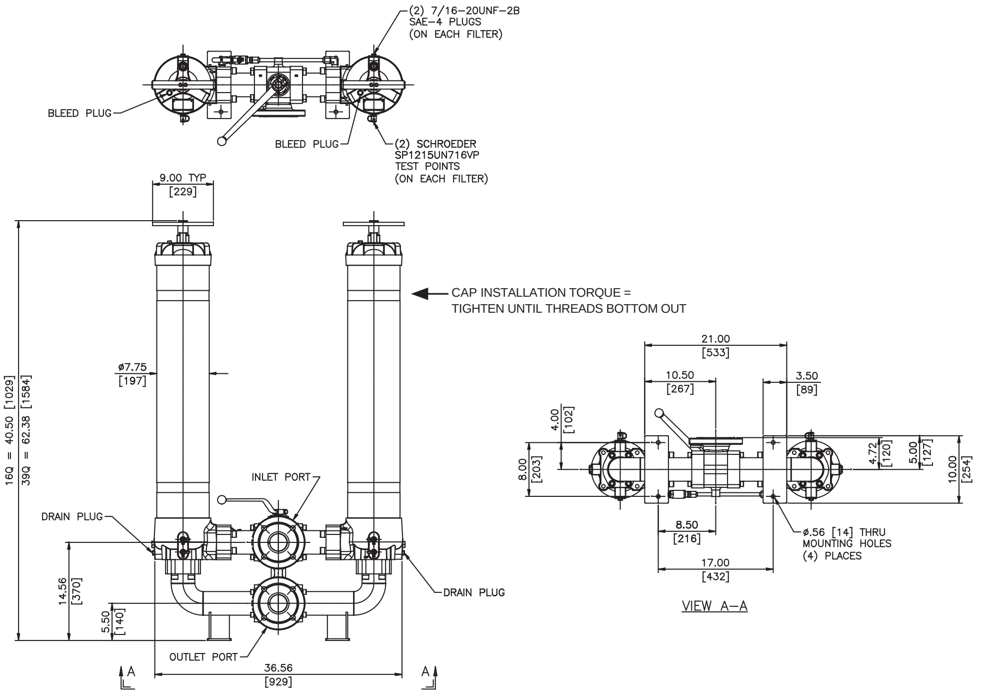
POWER GENERATION

PULP & PAPER

Filter Housing Specifications

Flow Rating:	Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	200 psi (14 bar)
Min. Yield Pressure:	600 psi (41 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact Factory
Temp. Range:	-15°F to 200°F (-26°C to 93°C)
Bypass Setting:	Cracking: 30 psi (2.1 bar) 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)

QFD2 In-Line Filter



Metric dimensions in ( ).

Element Performance Information

		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**	
Element		$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
16Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	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
39Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	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

Dirt Holding Capacity

	Element	**DHC (gm)**	**Element**	**DHC (gm)**	**Element**	**DHC (gm)**
16Q	Z1	276	CLQFZ1	307	PMLZ1	307
	Z3	283	CLQFZ3	315	PMLZ3	315
	Z5	351	CLQFZ5	364	PMLZ5	364
	Z10	280	CLQFZ10	306	PMLZ10	330
	Z25	254	CLQFZ25	278	PMLZ25	299
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3	1001	CLQFZ3	1293	PMLZ3	1525
	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
16QCLQF:	6.0" (150 mm) O.D. x 18.21" (463 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
39QCLQF:	6.0" (150 mm) O.D. x 40.01" (1016 mm) long
39QPML:	6.0" (150 mm) O.D. x 37.80" (960 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic) and all ASP® media (synthetic)

Element Selection

Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass.		
To 200 psi (14 bar)	Z-Media®	16 & 39QZ1	16QZ1	39QZ1	
		16 & 39QZ3	16QZ3	39QZ3	
		16 & 39QZ5	16QZ5	39QZ5	
		16 & 39QZ10	16QZ10	39QZ10	
		16 & 39QZ25	16QZ25 & 39QZ25		
		16 & 39QCLQFZ1	16QCLQFZ1	39QCLQFZ1	
		16 & 39QCLQFZ3	16QCLQFZ3	39QCLQFZ3	
		16 & 39QCLQFZ5	16QCLQFZ5	39QCLQFZ5	
		16 & 39QCLQFZ10	16QCLQFZ10	39QCLQFZ10	
		16 & 39QCLQFZ25	16QCLQFZ25	39QCLQFZ25	
		16 & 39QPMLZ1	16QPMLZ1	39QPMLZ1	
		16 & 39QPMLZ3	16QPMLZ3	39QPMLZ3	
		16 & 39QPMLZ5	16QPMLZ5	39QPMLZ5	
		16 & 39QPMLZ10	16QPMLZ10	39QPMLZ10	
		16 & 39QPMLZ25	16QPMLZ25		
	Flow	gpm	0	200	300
		(L/min)	0	500	1000

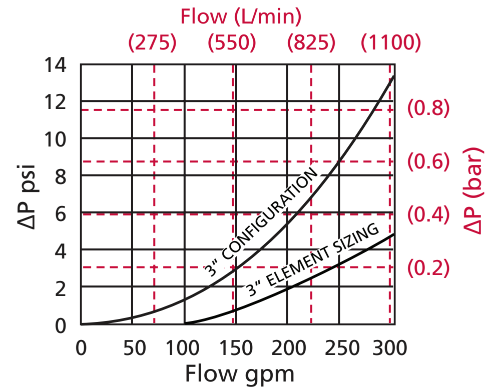
Shown above are the elements most commonly used in this housing.
Note: *For more information, refer to Fluid compatibility: Fire Resistant Fluids, Page 21 and 22*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

QFD2 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

Notes

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

16QZ1	.09	**39QZ1**	.03
16QZ3	.04	**39QZ3**	.01
16QZ5	.04	**39QZ5**	.01
16QZ10	.03	**39QZ10**	.01
16QZ25	.01	**39QZ25**	.01
16QCLQFZ1	.07	**39QCLQFZ1**	.03
16QCLQFZ3	.05	**39QCLQFZ3**	.02
16QCLQFZ5	.05	**39QCLQFZ5**	.02
16QCLQFZ10	.04	**39QCLQFZ10**	.01
16QCLQFZ25	.03	**39QCLQFZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3	.05	**39QPMLZ3**	.02
16QPMLZ5	.05	**39QPMLZ5**	.02
16QPMLZ10	.04	**39QPMLZ10**	.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).

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

Exercise:
Determine ΔP at 150 gpm (570 L/min) for QFD216QZ3FA48D5C using 200 SUS (44 cSt) fluid.

Solution:

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

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

ΔP_{total} = 2.5 + 8.0 = 10.5 psi
or
= [.17 + .57 = .74 bar]

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

QFD2 In-Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder QFD2:

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7		BOX 8		BOX 9
QFD2	–		–		–		–		–		–		–		–	

Example: *NOTE: One option per box*

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7		BOX 8		BOX 9	
QFD2	–	16	–	Q	–	Z	–	3	–		–	FA48	–		–	D5C	= QFD216QZ3FA48D5C

BOX 1

Filter Series
QFD2

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

Media Type
Z = Excellement® Z-Media® (synthetic)
AS = Anti-Stat Pleat media (synthetic)
W = W media (water removal)

BOX 5

Micron Rating
1 = 1 μ Z-Media®
3 = 3 μ AS and Z-Media®
5 = 5 μ AS and Z-Media®
10 = 10 μ AS and Z-Media®
25 = 25 μ Z-Media®

BOX 6

Housing Seal Material
Omit = Buna N

BOX 7

Porting
FA48 = 3" ANSI 150# flange

BOX 8

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking

BOX 9

Dirt Alarm® Options	
	Omit = None
Visual	DPG = Standard differential pressure gauge
	D5 = Visual pop-up
	D5C = D5 in cap
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
	D8C = 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 = 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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5, plus the letter V.
Example: 16QZ1V

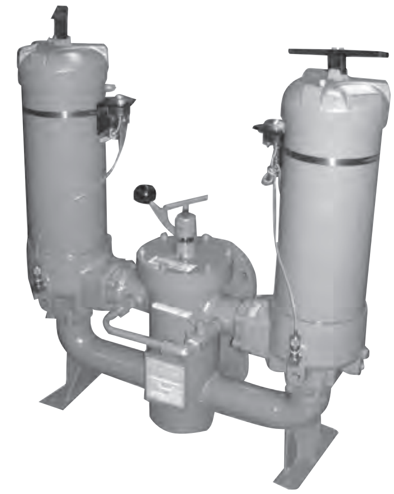
Box 3. QCLQF are coreless elements – housing includes rigid metal core.
QPML are deep-pleated elements with more media and higher dirt holding capacity.

Box 4. For option W, Box 3 must equal Q.

Box 5. All elements for this filter are supplied with Viton® seals. Seal designation in Box 6 applies to housing only.

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

In-Line Filter **QFD5**



Model No. of filter in photograph is QFD516QZ10F48DPG.

Features and Benefits

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

350 gpm
1325 L/min
500 psi
35 bar

Viton® is a registered trademark of DuPont Dow Elastomers.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

MINING TECHNOLOGY

POWER GENERATION

PULP & PAPER

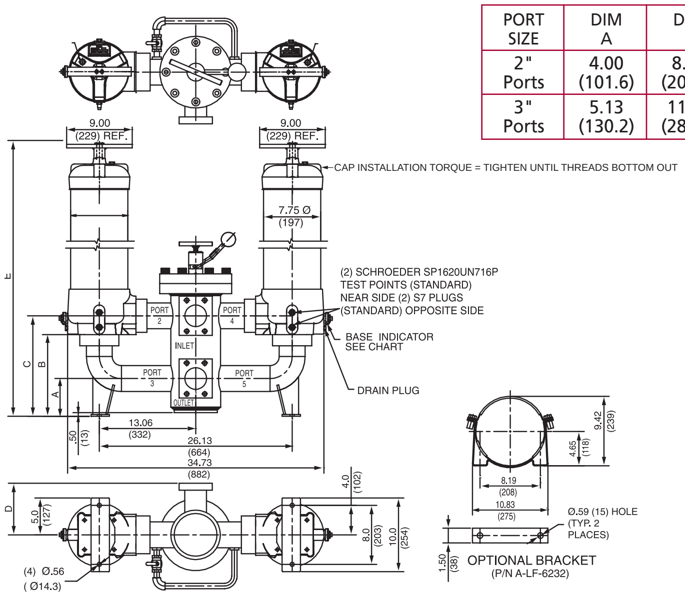
MOBILE VEHICLES

Filter Housing Specifications

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

PORT SIZE	DIM A	DIM B	DIM C	DIM D	DIM E	
					16Q	39Q
2" Ports	4.00 (101.6)	8.19 (208.0)	10.75 (273.1)	4.80 (121.9)	36.50 (927)	58.31 (1481)
3" Ports	5.13 (130.2)	11.07 (281.1)	13.63 (346.1)	7.00 (177.8)	39.38 (1000)	61.19 (1559)



Metric dimensions in ( ).

Element Performance Information

	Element	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	
		$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
16Q	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/PMLZ5/PMLAS5V/AS5V	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10/PMLAS10V/AS10V	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0
39Q	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/PMLZ5/PMLAS5V/AS5V	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10/PMLAS10V/AS10V	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	CLQFZ1	307	PMLZ1	307
	Z3/AS3V	283	CLQFZ3	315	PMLZ3/PMLAS3V	315
	Z5/AS5V	351	CLQFZ5	364	PMLZ5/PMLAS5V	364
	Z10/AS10V	280	CLQFZ10	306	PMLZ10/PMLAS10V	330
	Z25	254	CLQFZ25	278	PMLZ25	299
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3/AS3V	1001	CLQFZ3	1293	PMLZ3/PMLAS3V	1525
	Z5/AS5V	954	CLQFZ5	1302	PMLZ5/PMLAS5V	1235
	Z10/AS10V	940	CLQFZ10	1214	PMLZ10/PMLAS10V	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
	16QCLQF:	6.0" (150 mm) O.D. x 18.21" (463 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
	39QCLQF:	6.0" (150 mm) O.D. x 40.01" (1016 mm) long
	39QPML:	6.0" (150 mm) O.D. x 37.80" (960 mm) long

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and all ASP® media (synthetic)

Element Selection

Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass.	
To 500 psi (35 bar)	Z-Media®	16 & 39QZ1	16QZ1	39QZ1
		16 & 39QZ3	16QZ3	39QZ3
		16 & 39QZ5	16QZ5	39QZ5
		16 & 39QZ10	16QZ10	39QZ10
		16 & 39QZ25	16QZ25 & 39QZ25	
		16 & 39QCLQFZ1	16QCLQFZ1	39QCLQFZ1
		16 & 39QCLQFZ3	16QCLQFZ3	39QCLQFZ3
		16 & 39QCLQFZ5	16QCLQFZ5	39QCLQFZ5
		16 & 39QCLQFZ10	16QCLQFZ10	39QCLQFZ10
		16 & 39QCLQFZ25	16QCLQFZ25	39QCLQFZ25
		16 & 39QPMLZ1	16QPMLZ1	39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3	39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5	39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10	39QPMLZ10
		16 & 39QPMLZ25	16QPMLZ25	
	Flow	gpm	0 200 300 350	
		(L/min)	0 500 1000	

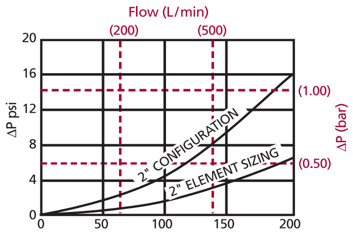
Shown above are the elements most commonly used in this housing.
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.*

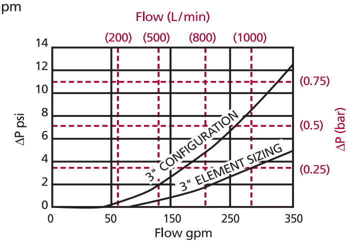
Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

QFD5 $\Delta P_{housing}$ for fluids with sp gr = 0.86:





sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

16QZ1	.09	**39QZ1**	.03
16QZ3/16QAS3V	.04	**39QZ3/39QAS3V**	.01
16QZ5/16QAS5V	.04	**39QZ5/39QAS5V**	.01
16QZ10/16QAS10V	.03	**39QZ10/39QAS10V**	.01
16QZ25	.01	**39QZ25**	.01
16QCLQFZ1	.07	**39QCLQFZ1**	.03
16QCLQFZ3	.05	**39QCLQFZ3**	.02
16QCLQFZ5	.05	**39QCLQFZ5**	.02
16QCLQFZ10	.04	**39QCLQFZ10**	.01
16QCLQFZ25	.03	**39QCLQFZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3/ **16QPMLAS3V**	.05	**39QPMLZ3/** **39QPMLAS3V**	.02
16QPMLZ5/ **16QPMLAS5V**	.05	**39QPMLZ5/** **39QPMLAS5V**	.02
16QPMLZ10/ **16QPMLAS10V**	.04	**39QPMLZ10/** **39QPMLAS10V**	.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).

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

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

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

Solution:

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

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

ΔP_{total} = 2.5 + 8.0 = 10.5 psi
or
= [.17 + .57 = .74 bar]

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								

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
QFD5	16	Q	Z	3		F48		D5C	**=QFD516QZ3F48D5C**

BOX 1

Filter Series
QFD5

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

Media Type

Z = Excellement® Z-Media® (synthetic)

AS = Anti-Stat Pleat media (synthetic)

W = W media (water removal)

BOX 5

Micron Rating

1 = 1 μ Z-Media®
3 = 3 μ AS and Z-Media®
5 = 5 μ AS and Z-Media®
10 = 10 μ AS and Z-Media®
25 = 25 μ Z-Media®

BOX 6

Housing Seal Material

Omit = Buna N
V = Viton®

BOX 7

Porting

F32 = 2" SAE 4-bolt flange Code 61
F32M = 2" SAE 4-bolt flange Code 61
FA32 = 2" ANSI 300# flange
F48 = 3" SAE 4-bolt flange Code 61
F48M = 3" SAE 4-bolt flange Code 61
FA48 = 3" ANSI 300# flange

BOX 8

Bypass Setting

Omit = 30 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 9

Dirt Alarm® Options		
	Omit =	None
Visual	DPG =	Standard differential pressure gauge
	D5 =	Visual pop-up
	D5C =	D5 in cap
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	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 =	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

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**

Features and Benefits

- Also available in L-ported version
- 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
- WQF15 model for water service also available – refer to Section 7 of this catalog
- Various Dirt Alarm® options

450 gpm
1700 L/min

1500 psi
100 bar

Model No. of filter in photograph is QF1516QZ10P24MS10AC.

Viton® is a registered trademark of DuPont Dow Elastomers.

Applications

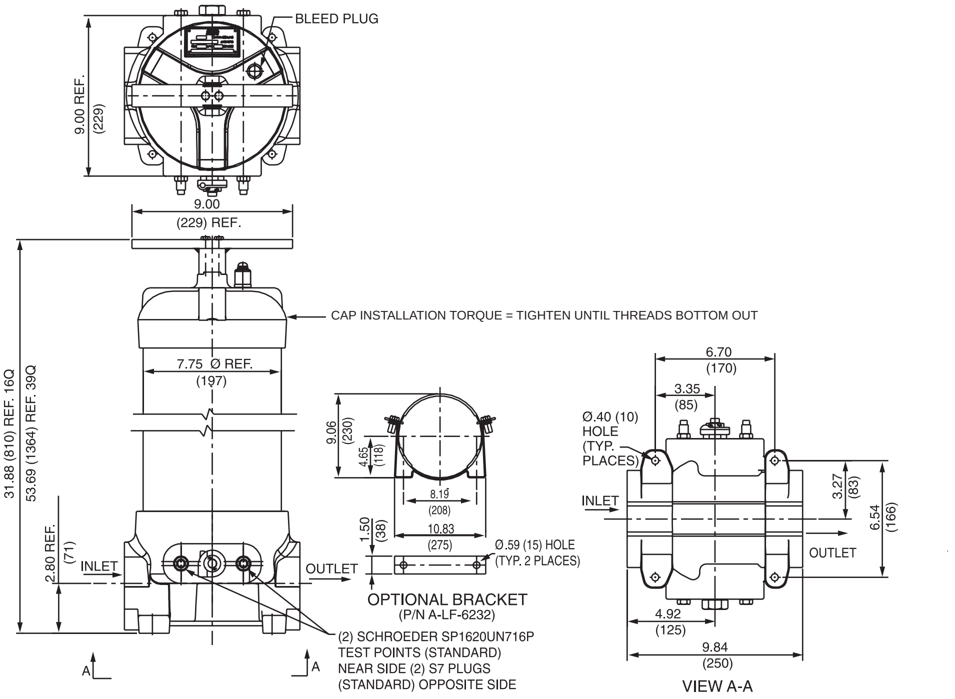
- INDUSTRIAL
- AUTOMOTIVE MANUFACTURING
- MACHINE TOOL
- STEEL MAKING
- MINING TECHNOLOGY
- POWER GENERATION
- PULP & PAPER
- MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 450 gpm (1700 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	1500 psi (100 bar)
Min. Yield Pressure:	4900 psi (340 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	800 psi (55 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2.1 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)

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

QF15 In-Line Filter



Metric dimensions in ( ).

Element Performance Information

Element		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	
		$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
16Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3/AS3V/PMLAS3V	<1.0	<1.0	<2.0	<4.0	4.8
	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
39Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3/AS3V/PMLAS3V	<1.0	<1.0	<2.0	<4.0	4.8
	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 Capacity

Element		DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	CLQFZ1	307	PMLZ1	307
	Z3/AS3V	283	CLQFZ3	315	PMLZ3/PMLAS3V	315
	Z5/AS5V	351	CLQFZ5	364	PMLZ5/PMLAS5V	364
	Z10/AS10V	280	CLQFZ10	306	PMLZ10/PMLAS10V	330
	Z25	254	CLQFZ25	278	PMLZ25	299
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3/AS3V	1001	CLQFZ3	1293	PMLZ3/PMLAS3V	1525
	Z5/AS5V	954	CLQFZ5	1302	PMLZ5/PMLAS5V	1235
	Z10/AS10V	940	CLQFZ10	1214	PMLZ10/PMLAS10V	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
16QCLQF:	6.0" (150 mm) O.D. x 18.21" (463 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
39QCLQF:	6.0" (150 mm) O.D. x 40.01" (1016 mm) long
39QPML:	6.0" (150 mm) O.D. x 37.80" (960 mm) long

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® and 10 µ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and all ASP® media (synthetic)

Element Selection

Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass valve.	
To 1500 psi (100 bar)	Z-Media®	16 & 39QZ1	16QZ1	39QZ1
		16 & 39QZ3	16QZ3	39QZ3
		16 & 39QZ5	16QZ5	39QZ5
		16 & 39QZ10	16QZ10	39QZ10
		16 & 39QZ25	16QZ25 & 39QZ25	
		16 & 39QCLQFZ1	16QCLQFZ1	39QCLQFZ1
		16 & 39QCLQFZ3	16QCLQFZ3	39QCLQFZ3
		16 & 39QCLQFZ5	16QCLQFZ5	39QCLQFZ5
		16 & 39QCLQFZ10	16QCLQFZ10	39QCLQFZ10
		16 & 39QCLQFZ25	16QCLQFZ25	39QCLQFZ25
		16 & 39QPMLZ1	16QPMLZ1	39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3	39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5	39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10	39QPMLZ10
		16 & 39QPMLZ25	16QPMLZ25	39QPMLZ25
	Flow	gpm	0 100 200 300 400 450	
		(L/min)	0 500 1000 1500 1700	

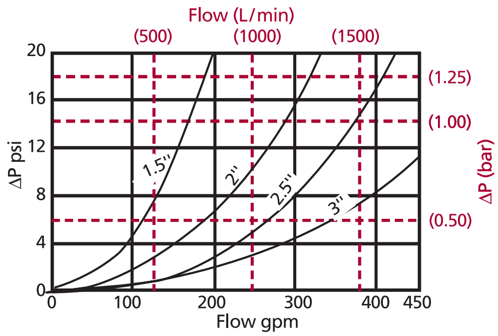
Shown above are the elements most commonly used in this housing.
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

QF15 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:
Determine ΔP at 150 gpm (570 L/min) for QF1516QZ3VF40D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1 psi [.07 bar]

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

ΔP_{total} = 1.0 + 8.0 = 9.0 psi
or
= [.07 + .57 = .64 bar]

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

16QZ1	.09	**39QZ1**	.03
16QZ3/16QAS3V	.04	**39QZ3/39QAS3V**	.01
16QZ5/16QAS5V	.04	**39QZ5/39QAS5V**	.01
16QZ10/16QAS10V	.03	**39QZ10/39QAS10V**	.01
16QZ25	.01	**39QZ25**	.01
16QCLQFZ1	.07	**39QCLQFZ1**	.03
16QCLQFZ3	.05	**39QCLQFZ3**	.02
16QCLQFZ5	.05	**39QCLQFZ5**	.02
16QCLQFZ10	.04	**39QCLQFZ10**	.01
16QCLQFZ25	.03	**39QCLQFZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3/ 16QPMLAS3V	.05	**39QPMLZ3/ 39QPMLAS3V**	.02
16QPMLZ5/ 16QPMLAS5V	.05	**39QPMLZ5/ 39QPMLAS5V**	.02
16QPMLZ10/ 16QPMLAS10V	.04	**39QPMLZ10/ 39QPMLAS10V**	.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).

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder QF15:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
QF15	–	–	–	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
QF15	16	Q	Z	3				D5C	**= QF1516QZ3D5C**

BOX 1

Filter Series
QF15

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

Media Type
Z = Excellement® Z-Media® (synthetic)
AS = Anti-Stat Pleat media (synthetic)
W = W media (water removal)

BOX 5

Micron Rating
1 = 1 μ Z-Media®
3 = 3 μ AS and Z-Media®
5 = 5 μ AS and Z-Media®
10 = 10 μ AS and Z-Media®
25 = 25 μ Z-Media®

BOX 6

Housing Seal Material
Omit = Buna N
V = Viton®

BOX 7

Porting	
P24 = 1½" NPTF P32 = 2" NPTF P40 = 2½" NPTF P48 = 3" NPTF S32 = SAE-32 B24 = ISO 228 G-1½" B32 = ISO 228 G-2 B40 = ISO 228 G-2½" B48 = ISO 228 G-3"	F24 = 1½" SAE 4-bolt flange Code 61 F32 = 2" SAE 4-bolt flange Code 61 F40 = 2½" SAE 4-bolt flange Code 61 F48 = 3" SAE 4-bolt flange Code 61 F24M = 1½" SAE 4-bolt flange Code 61 F32M = 2" SAE 4-bolt flange Code 61 F40M = 2½" SAE 4-bolt flange Code 61 F48M = 3" SAE 4-bolt flange Code 61

BOX 8

Bypass Setting
Omit = 30 psi cracking
15 = 15 psi cracking
40 = 40 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 9

Dirt Alarm® 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

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® seals. Seal designation in Box 6 applies to housing only. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 7. F24M, F32M, F40M and F48M are supplied with metric flange mounting holes.

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

Base-Ported Filter **QLF15**

Model No. of filter in photograph is QLF1539QZ5F4850D5.

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® options

500 gpm
1900 L/min

1500 psi
100 bar

Viton® is a registered trademark of DuPont Dow Elastomers.

Applications

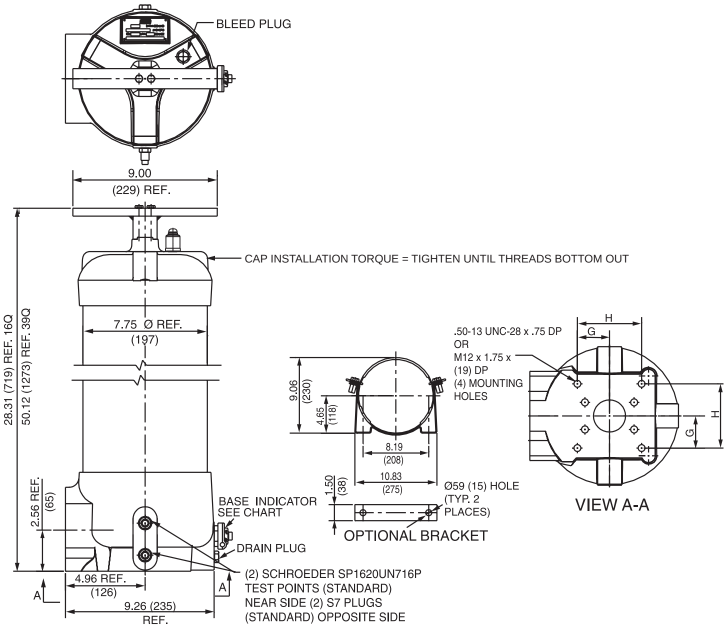
INDUSTRIAL
AUTOMOTIVE MANUFACTURING
MACHINE TOOL
STEEL MAKING
MINING TECHNOLOGY
POWER GENERATION
PULP & PAPER
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 500 gpm (1900 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	1500 psi (100 bar)
Min. Yield Pressure:	4900 psi (340 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	800 psi (55 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) 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)

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

QLF15 Base-Ported Filter



Metric dimensions in ( ).

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 Information

		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	
	Element	$\beta_X \geq 75$	$\beta_X \geq 100$	$\beta_X \geq 200$	$\beta_X(c) \geq 200$	$\beta_X(c) \geq 1000$
16Q	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
39Q	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/PMLZ5/PMLAS5V/AS5V	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10/PMLAS10V/AS10V	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	CLQFZ1	307	PMLZ1	307
	Z3/AS3V	283	CLQFZ3	315	PMLZ3/PMLAS3V	315
	Z5/AS5V	351	CLQFZ5	364	PMLZ5/PMLAS5V	364
	Z10/AS10V	280	CLQFZ10	306	PMLZ10/PMLAS10V	330
	Z25	254	CLQFZ25	278	PMLZ25	299
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3/AS3V	1001	CLQFZ3	1293	PMLZ3/PMLAS3V	1525
	Z5/AS5V	954	CLQFZ5	1302	PMLZ5/PMLAS5V	1235
	Z10/AS10V	940	CLQFZ10	1214	PMLZ10/PMLAS10V	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
	16QCLQF:	6.0" (150 mm) O.D. x 18.21" (463 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
	39QCLQF:	6.0" (150 mm) O.D. x 40.01" (1016 mm) long
	39QPML:	6.0" (150 mm) O.D. x 37.80" (960 mm) long

Base-Ported Filter **QLF15**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 μ and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10, and 25 μ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® with H (EPR) seal designation and all ASP® media (synthetic)

Element Selection

Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass.	
To 1500 psi (100 bar)	Z-Media®	16 & 39QZ1	16QZ1	39QZ1
		16 & 39QZ3	16QZ3	39QZ3
		16 & 39QZ5	16QZ5	39QZ5
		16 & 39QZ10	16QZ10	39QZ10
		16 & 39QZ25	16QZ25 & 39QZ25	
		16 & 39QCLQFZ1	16QCLQFZ1	39QCLQFZ1
		16 & 39QCLQFZ3	16QCLQFZ3	39QCLQFZ3
		16 & 39QCLQFZ5	16QCLQFZ5	39QCLQFZ5
		16 & 39QCLQFZ10	16QCLQFZ10	39QCLQFZ10
		16 & 39QCLQFZ25	16QCLQFZ25	39QCLQFZ25
		16 & 39QPMLZ1	16QPMLZ1	39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3	39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5	39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10	39QPMLZ10
		16 & 39QPMLZ25	16QPMLZ25	39QPMLZ25
	Flow	gpm	0 100 200 300 400 500	
		(L/min)	0 500 1000 1500 1900	

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

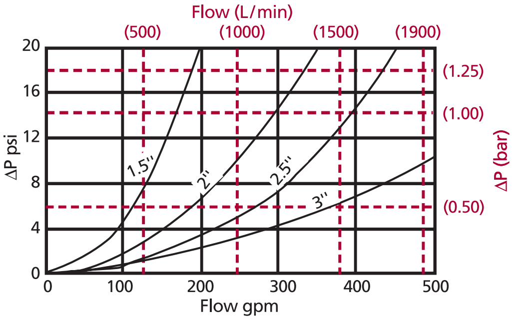
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

ΔP$_{housing}$

QLF15 ΔP$_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

ΔP$_{filter}$ = ΔP$_{housing}$ + ΔP$_{element}$

Exercise:
Determine ΔP at 150 gpm (570 L/min) for QLF1516QZ3VF40D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2 psi [.14 bar]

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

ΔP_{total} = 2.0 + 8.0 = 10.0 psi
or
= [.14 + .57 = .71 bar]

ΔP$_{element}$

ΔP$_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP 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
16QCLQFZ1	.07	**39QCLQFZ1**	.03
16QCLQFZ3	.05	**39QCLQFZ3**	.02
16QCLQFZ5	.05	**39QCLQFZ5**	.02
16QCLQFZ10	.04	**39QCLQFZ10**	.01
16QCLQFZ25	.03	**39QCLQFZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3 **16QPMLAS3V**	.05	**39QPMLZ3/** **39QPMLAS3**	.02
16QPMLZ5/ **16QPMLAS5**	.05	**39QPMLZ5/** **39QPMLAS5**	.02
16QPMLZ10/ **16QPMLAS10**	.04	**39QPMLZ10** **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).

QLF15 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	Q	Z = Excellement® Z-Media® (synthetic)	1 = 1 µ Z-Media®
	39	QCLQF	AS = Anti-Stat Pleat media (synthetic)	3 = 3 µ AS and Z-Media®
		QPML	W = W media (water removal)	5 = 5 µ AS and Z-Media®
				10 = 10 µ AS and Z-Media®
				25 = 25 µ Z-Media®

BOX 6
Housing Seal Material
Omit = Buna N
V = Viton®

BOX 7	
Porting	
P24 = 1½" NPTF	F24 = 1½" SAE 4-bolt flange Code 61
P32 = 2" NPTF	F32 = 2" SAE 4-bolt flange Code 61
P40 = 2½" NPTF	F40 = 2½" SAE 4-bolt flange Code 61
P48 = 3" NPTF	F48 = 3" SAE 4-bolt flange Code 61
S32 = SAE-32	F24M = 1½" SAE 4-bolt flange Code 61
B24 = ISO 228 G-1½"	F32M = 2" SAE 4-bolt flange Code 61
B32 = ISO 228 G-2	F40M = 2½" SAE 4-bolt flange Code 61
B40 = ISO 228 G-2½"	F48M = 3" SAE 4-bolt flange Code 61
B48 = ISO 228 G-3"	

BOX 8
Bypass Setting
Omit = 30 psi cracking
15 = 15 psi cracking
40 = 40 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 9	
Dirt Alarm® Options	
	Omit = None
Visual	DPG = Standard differential pressure gauge D5 = Visual pop-up D5C = D5 in cap
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = 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 = 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

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® seals. Seal designation in Box 6 applies to housing only. Viton® 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.

Stainless Steel Base-Ported Filter **SSQLF15**

Model No. of filter in photograph is SSQLF1539QZ5F4850D5.

Features and Benefits

- In-line version also available
- Element changeout from the top minimizes oil spillage
- Offered with standard Q and QPML deep-pleated 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
- Various Dirt Alarm® options
- All stainless steel provides compatibility with water-based fluids

500 gpm
1900 L/min

1500 psi
100 bar

Viton® is a registered trademark of DuPont Dow Elastomers.

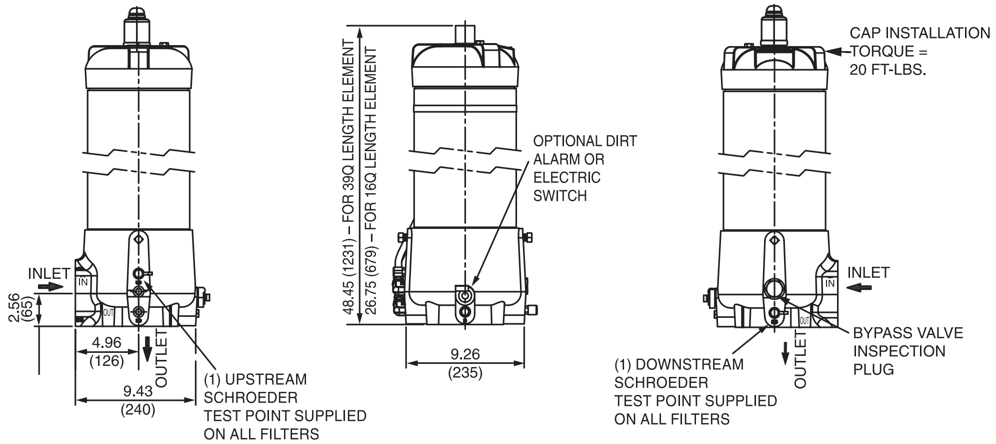
Applications

MINING
TECHNOLOGY

Filter Housing Specifications

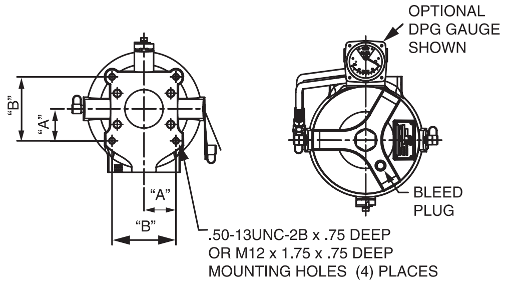
Flow Rating:	Up to 500 gpm (1900 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	1500 psi (100 bar)
Min. Yield Pressure:	4500 psi (310 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact Factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 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



DIMENSIONAL DATA		
PORT SIZE	DIM A	DIM B
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)
3" (4 bolt port only)	2.50 (64)	5.00 (127)

Metric dimensions in ( ).



Element Performance Information

	Element	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	
		$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
16Q	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
	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
39Q	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
	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 Capacity

	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	PMLZ1	307
	Z3/AS3V	283	PMLZ3/PMLAS3V	315
	Z5/AS5V	351	PMLZ5/PMLAS5V	364
	Z10/AS10V	280	PMLZ10/PMLAS10V	330
	Z25	254	PMLZ25	299
39Q	Z1	974	PMLZ1	1485
	Z3/AS3V	1001	PMLZ3/PMLAS3	1525
	Z5/AS5V	954	PMLZ5/PMLAS5	1235
	Z10/AS10V	940	PMLZ10/PMLAS10	1432
	Z25	853	PMLZ25	1299

Element Collapse Rating:	Q and QPML: 150 psid (10 bar)	
Flow Direction:	Outside In	
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

Stainless Steel Base-Ported Filter **SSQLF15**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and all ASP® media (synthetic)

Element Selection

Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass.		
To 1500 psi (100 bar)	Z-Media®	16 & 39QZ1	16QZ1	39QZ1	
		16 & 39QZ3	16QZ3	39QZ3	
		16 & 39QZ5	16QZ5	39QZ5	
		16 & 39QZ10	16QZ10	39QZ10	
		16 & 39QZ25	16QZ25 & 39QZ25		
		16 & 39QPMLZ1	16QPMLZ1	39QPMLZ1	
		16 & 39QPMLZ3	16QPMLZ3/PMLAS3V/AS3V	39QPMLZ3 PMLAS3V/AS3V	
		16 & 39QPMLZ5	16QPMLZ5/PMLAS5V/AS5V	39QPMLZ5 PMLAS5V/AS5V	
		16 & 39QPMLZ10	16QPMLZ10/PMLAS10V/AS10V	39QPMLZ10/PMLAS10V/AS10V	
		16 & 39QPMLZ25	16QPMLZ25	39QPMLZ25	
	Flow	gpm	0 100 200 300 400 500		
		(L/min)	0 500 1000 1500 1900		

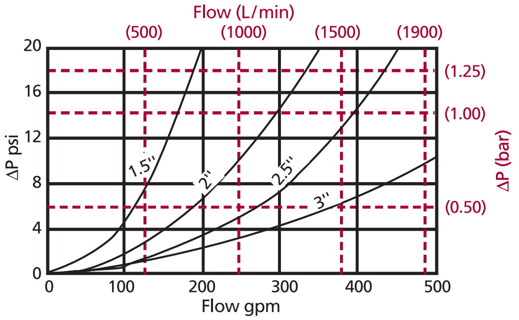
Shown above are the elements most commonly used in this housing.
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid compatibility: Fire Resistant Fluids, page 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

SSQLF15 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

16QZ1	.09	**39QZ1**	.03
16QZ3/16QAS3V	.04	**39QZ3/39QAS3V**	.01
16QZ5/16QAS5V	.04	**39QZ5/39QAS5V**	.01
16QZ10/16QAS10V	.03	**39QZ10/39QAS10V**	.01
16QZ25	.01	**39QZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3/ 16QPMLAS3V	.05	**39QPMLZ3/ 39QPMLAS3V**	.02
16QPMLZ5/ 16QPMLAS5V	.05	**39QPMLZ5/ 39QPMLAS5V**	.02
16QPMLZ10/ 16QPMLAS10V	.04	**39QPMLZ10/ 39QPMLAS10V**	.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).

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.

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

Exercise:
Determine ΔP at 150 gpm (570 L/min) for SSQLF1516QZ3VF40D9 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2 psi [.14 bar]

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

ΔP_{total} = 2.0 + 8.0 = 10.0 psi
or
= [.14 + .57 = .71 bar]

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

SSQLF15 Stainless Steel Base-Ported Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder SSQLF15:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
SSQLF15								

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
SSQLF15	16	Q	Z	3		P48		D9C	=SSQLF1516QZ3P48D9C

BOX 1

Filter Series
SSQLF15

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

Media Type

Z = Excellement® Z-Media® (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

Micron Rating

1 = 1 μ Z-Media®
3 = 3 μ AS and Z-Media®
5 = 5 μ AS and Z-Media®
10 = 10 μ AS and Z-Media®
25 = 25 μ M and Z-Media®
60 = 60 μ M media
150 = 150 μ M-media or 150 PSV
W = water removal media

BOX 6

Housing Seal Material

Omit = Buna N
H = EPR
V = Viton®

BOX 7

Porting

P24 = 1½" NPTF
P32 = 2" NPTF
P40 = 2½" NPTF
P48 = 3" NPTF

S32 = SAE-32

B24 = ISO 228 G-1½"
B32 = ISO 228 G-2"
B40 = ISO 228 G-2½"
B48 = ISO 228 G-3"

F24 = 1½" SAE 4-bolt flange Code 61
F32 = 2" SAE 4-bolt flange Code 61
F40 = 2½" SAE 4-bolt flange Code 61
F48 = 3" SAE 4-bolt flange Code 61
F24M = 1½" SAE 4-bolt flange Code 61
F32M = 2" SAE 4-bolt flange Code 61
F40M = 2½" SAE 4-bolt flange Code 61
F48M = 3" SAE 4-bolt flange Code 61

BOX 8

Bypass Setting

Omit = 30 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 9

Dirt Alarm® Options	
	Omit = None
Visual	DPG = Standard differential pressure gauge D9 = Visual pop-up in base (stainless steel) D9C = D9 in cap (stainless steel)

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5 plus the letter V.
Example: 16QZ1V

Box 4. For options W, 150PSV, M25, M60, and M150, 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.

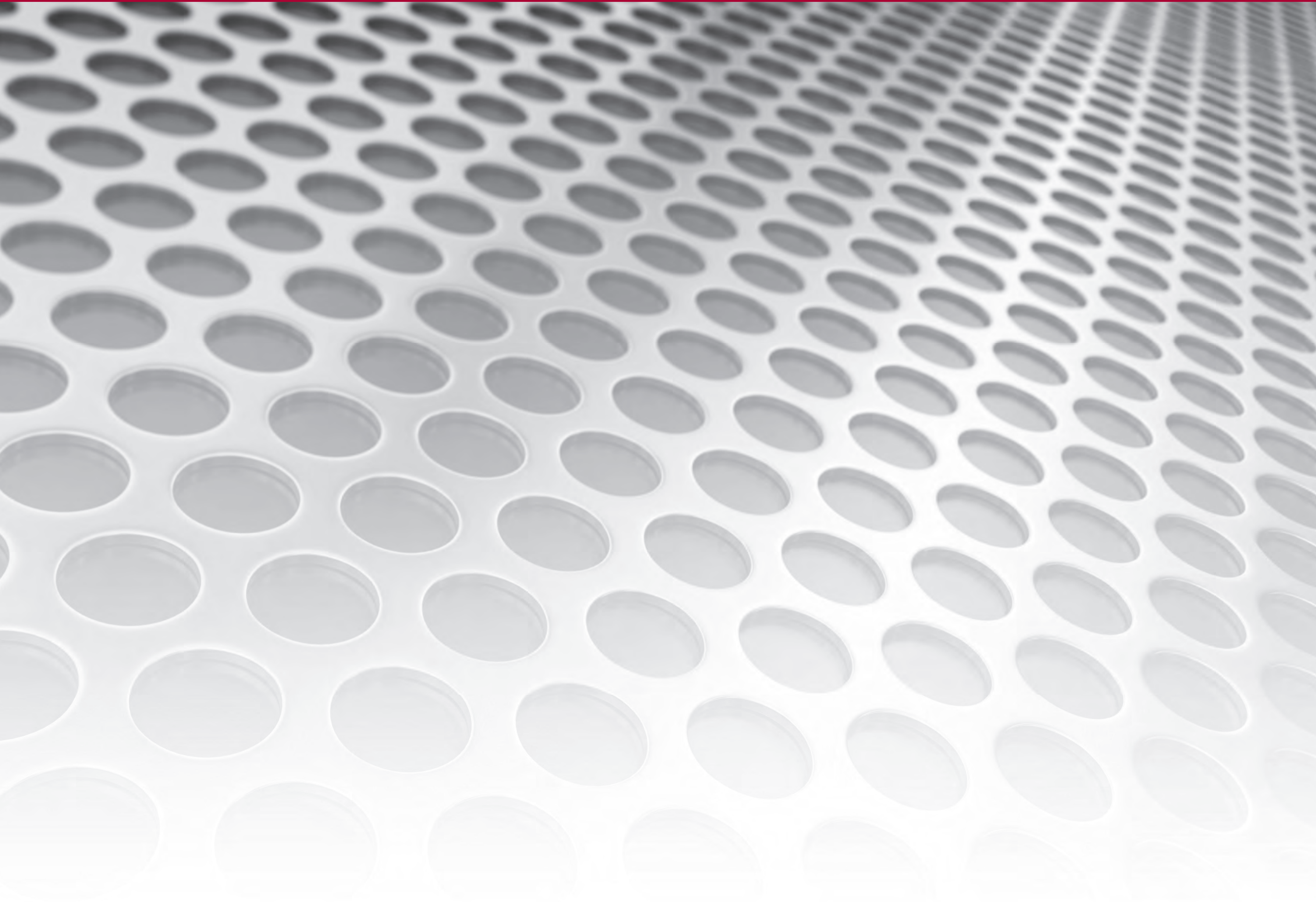
Box 7. B24, B32 and B40 are supplied with metric mounting holes. F24M, F32M, F40M and F48M are supplied with metric flange mounting holes.

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

Section 5:

up to 500 psi

LOW PRESSURE FILTERS



Low Pressure Filters Selection Guide

			Pressure psi (bar)	Flow gpm (L/min)	Element Length/Size	Page
Low Pressure Filters (up to 500 psi)	**Top-Ported Low Pressure Filters**					
		IRF	100 (7)	100 (380)	K, KK, KD, KKD	223
		TF1	300 (120)	30 (120)	A	227
		KF3	300 (20)	100 (380)	K, KK, 27K	231
		KL3	300 (20)	120 (455)	K, KK, 27K, 18LC	235
		LF1–2"	300 (20)	120 (455)	18LC	239
		MLF1	300 (20)	200 (760)	K	243
		RLD	350 (24)	100 (380)	25DN, 40D	247
	Tank-Mounted (In-Tank/Tank Top) Low Pressure Filters					
		GRTB	100 (7)	100 (380)	KBG	251
		MTA	100 (7)	15 (55)	3TA	255
		MTB	100 (7)	35 (135)	3TB, 5TB	259
		ZT	100 (7)	40 (150)	8Z	263
		KFT	100 (7)	100 (380)	K, KK, KD, KKD, 27K	267
		RT	100 (7)	100 (380)	K, KK, KD, KKD, 27K	271
		RTI	100 (7)	120 (455)	KI, KKI, 27KI	275
		LRT	100 (7)	150 (570)	18L, 18LD	279
		ART	145 (10)	225 (850)	85Z1, 85Z3, 85Z5, 85Z10, 85Z25	283
		BFT	100 (7)	300 (1135)	BB	287
		QT	100 (7)	450 (1700)	16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML	291
	Special Feature Tank-Mounted Low Pressure Filters					
	Internal	KTK	100 (7)	100 (380)	K, KK, 27K	295
	Internal	LTK	100 (7)	150 (570)	18L	299
	Severe Duty Tank-Mounted					
		MRT	900 (62)	150 (570)	18L	303
	Spin-On Low Pressure Filters					
		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**

Features and Benefits

- Low pressure top servicing in-line filter
- Meets HF4 automotive standard
- Unique side mounting flange provides reliable seal arrangement between head and bowl
- The use of K-size elements allows consolidation of inventoried replacement elements
- Single and double length options provide optimal size for specific applications
- Also available with new DirtCatcher® elements (KDZ and KKDZ)
- Various Dirt Alarm® options

100 gpm
380 L/min

100 psi
7 bar

Model No. of filter in photograph is IRF1KZ10S20Y2.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

CONSTRUCTION

STEEL MAKING

MINING TECHNOLOGY

AGRICULTURE

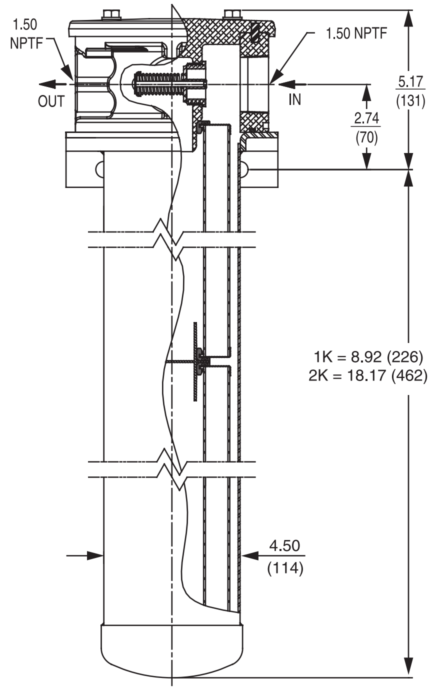
MOBILE VEHICLES

Filter Housing Specifications

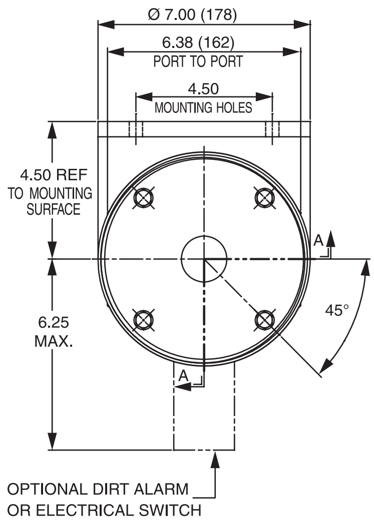
Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 48 psi (3.3 bar)
Porting Head: Element Case:	Sand Cast Aluminum Steel
Weight of IRF-1K: Weight of IRF-2K:	13.5 lbs. (6.12 kg) 17.0 lbs. (7.71 kg)
Element Change Clearance:	8.0" (205 mm) for 1K; 17.50" (445 mm) for KK

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

IRF Inline Return Filter



SECTION A-A



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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

Dirt Holding Capacity

Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)
K3	54	KK3	108	27K3	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

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

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic), 3, 5, and 10 µ ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 µ E media (cellulose) with H (EPR) seal designation and all ASP® Media (synthetic)
Skydrol®	3, 5, 10 and 25 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) and all ASP® media (synthetic)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.
To 100 psi (7 bar)	E Media	K3	1K3 2K3 3K3
		K10	1K10 2K10
	Z-Media®	KZ1	1KZ1 2KZ1 3KZ1
		KZ3	1KZ3 2KZ3
		KZ5	1KZ5 2KZ5
		KZ10	1KZ10 2KZ10
		KDZ1	1KDZ1 2KDZ1
		KDZ3	1KDZ3 2KDZ3
		KDZ5	1KDZ5 2KDZ5
		KDZ10	1KDZ10
Flow		gpm	0 20 40 60 80 100
		(L/min)	0 50 150 250 380

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.

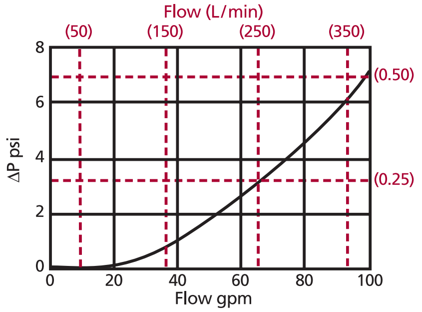
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

IRF $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP at 40 gpm (151 L/min) for IRF2KZ10S20Y5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1.0 psi [.07 bar]

$\Delta P_{element}$ = 40 x .03 x (200÷150) = 1.6 psi
or
= [151 x (.03÷54.9) x (44÷32) = .11 bar]

ΔP_{total} = 1.0 + 1.6 = 2.6 psi
or
= [.07 + .11 = .18 bar]

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K		1K	2K
K3	.25	.12			
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	.04	**KDZ25**	.04	.02

	1K	2K
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).

IRF Inline Return Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder IRF:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
IRF						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
IRF	2K	Z	10		S20	Y2	= IRF2KZ10S20Y2

BOX 1

Filter Series
IRF

BOX 2

Number and Size of Elements	
1	K, KK
2	K

BOX 3

Element Type	
Omit =	E media (cellulose)
AS =	Anti-Static Pleat Media
Z =	Excellement® Z-Media® (synthetic)
ZW =	Aqua-Excellement® ZW media
W =	Water Removal media
M =	M media (reusable metal)
DZ =	DirtCatcher® Excellement® Z-Media®

BOX 4

Micron Rating		
1 =	1 μ	(Z, ZW and DZ media)
3 =	3 μ	(E, AS, Z, ZW and DZ media)
5 =	5 μ	(AS, Z, ZW and DZ media)
10 =	10 μ	(E, AS, Z, ZW and DZ media)
25 =	25 μ	(E, AS, Z, ZW and DZ media)
60 =	60 μ	(M media)

BOX 5

Seal Material	
Omit =	Buna N
H =	EPR
V =	Viton®

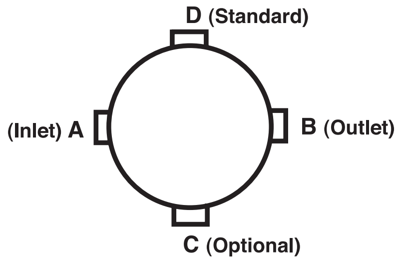
BOX 6

Inlet Porting	
P16 =	1" NPTF
P20 =	1¼" NPTF
S16 =	SAE-16
S20 =	SAE-20
F20 =	1¼" SAE 4-bolt flange Code 61
F24 =	1½" SAE 4-bolt flange Code 61
B24 =	ISO 228 G-1½"

BOX 7

Dirt Alarm® Options		
		Omit = None
Located @ Port D (Standard)	Visual	Y2 = Back-mounted tri-color gauge
	Electrical	ES = Electrical switch ES1 = Heavy-duty electrical switch with conduit connector
Located @ Port C (Optional)	Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location
	Electrical	ESR = Electrical switch mounted on opposite side of standard location ES1R = Heavy-duty electrical switch with conduit connector

Port Configuration



NOTES:

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

Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5. Double stacking of K-size elements can be replaced by single KK elements.

Box 5. Viton® is a registered trademark of DuPont Dow Elastomers.

Return Line Filter **TF1**

30 gpm
120 L/min
300 psi
20 bar

Features and Benefits

- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Various Dirt Alarm® options
- Available with No-Element indicator
- Available with NPTF inlet and outlet female test ports
- Available with magnet inserts
- Available with housing drain plug

Model No. of filter in photograph is TF11AZ10SD5.

Applications

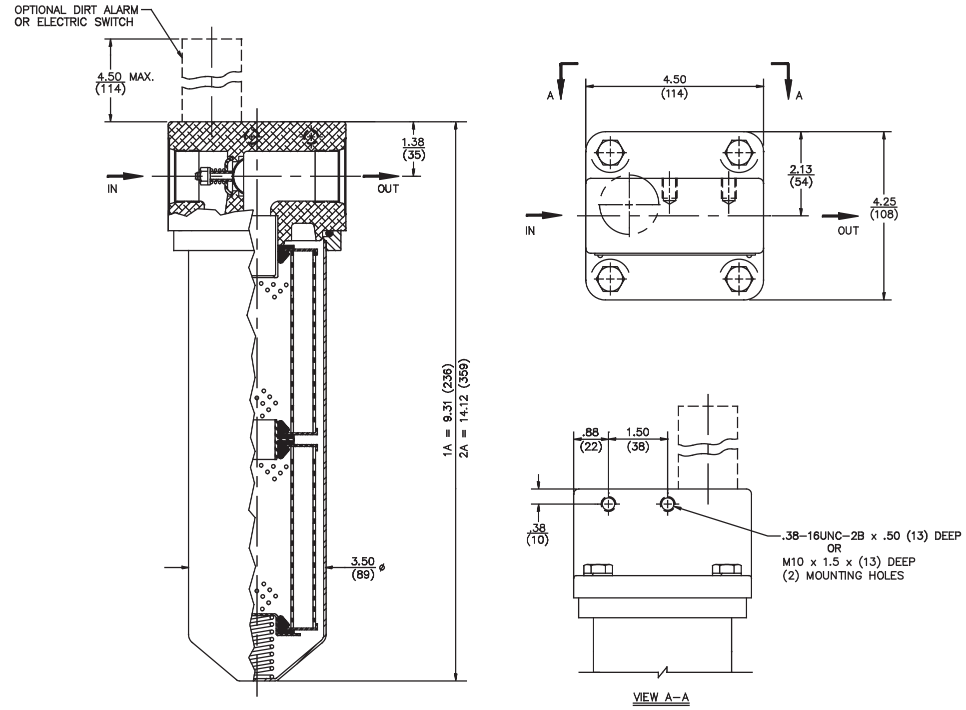
INDUSTRIAL
AUTOMOTIVE MANUFACTURING
MACHINE TOOL
RAILROAD
STEEL MAKING
PULP & PAPER
AGRICULTURE
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 30 gpm (120 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	300 psi (20 bar)
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
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 51 psi (4 bar)
Porting Head:	Cast Aluminum
Element Case:	Steel
Weight of TF1-1A:	5.1 lbs. (2.3 kg)
Weight of TF1-2A:	6.3 lbs. (2.9 kg)
Element Change Clearance:	3.50" (90 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

TF1 Return Line Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$ß_x \geq 75$	$ß_x \geq 100$	$ß_x \geq 200$	$ß_x(c) \geq 200$	$ß_x(c) \geq 1000$
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

Element	DHC (gm)
A3	16
A10	13
AZ1	25
AZ3	26
AZ5	30
AZ10	28
AZ25	28

Element Collapse Rating:	150 psid (10 bar)
Flow Direction:	Outside In
Element Nominal Dimensions:	3.0" (75 mm) O.D. x 4.5" (115 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 30 psi (2.1 bar) bypass valve.	
To 300 psi (20 bar)	E Media	A3	1A3	2A3
		A10	1A10	2A10
		A25	1A25	
	Z-Media®	AZ1	1AZ1	2AZ1
		AZ3	1AZ3	2AZ3
		AZ5	AZ5	
		AZ10	AZ10	
		AZ25	AZ25	
Flow		gpm	0 10 20 30	
		(L/min)	0 25 50 75 100 120	

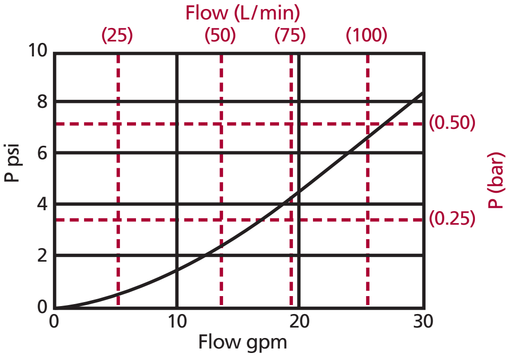
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

TF1 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1A	2A
A3	.53	.27
A10	.36	.18
A25	.05	.03
AZ1	.70	.35
AZ3	.50	.25
AZ5	.32	.16
AZ10	.25	.13
AZ25	.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).

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

Notes

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

Exercise:

Determine ΔP at 20 gpm (75 L/min) for TF12AZ3PD using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 4.5 psi [.30 bar]

$\Delta P_{element}$ = 20 x .25 x (200÷150) = 6.7 psi
or
= [75 x (.25÷54.9) x (44÷32) = .47 bar]

ΔP_{total} = 4.5 + 6.7 = 11.2 psi
or
= [.30 + .47 = .77 bar]

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder TF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
TF1							

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		= TF11A3PD5

BOX 1

Filter Series
TF1

BOX 2

Number of Elements
1
2

BOX 3

Element Part Number
A3 = 3 μ E media (cellulose)
A10 = 10 μ E media (cellulose)
A25 = 25 μ E media (cellulose)
AZ1 = 1 μ Excellement® Z-Media® (synthetic)
AZ3 = 3 μ Excellement® Z-Media® (synthetic)
AZ5 = 5 μ Excellement® Z-Media® (synthetic)
AZ10 = 10 μ Excellement® Z-Media® (synthetic)
AZ25 = 25 μ Excellement® Z-Media® (synthetic)
AM10 = 10 μ M media (reusable metal)
AM25 = 25 μ M media (reusable metal)

BOX 4

Seal Material
Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® compatibility

BOX 5

Magnet Option
Omit = None
M = Magnet inserts

BOX 6

Porting Options
P = 1" NPTF
S = SAE-16
B = ISO 228 G-1"
10 = 10 psi bypass setting
15 = 15 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
75 = 75 psi bypass setting

BOX 7

Dirt Alarm® Options	
	Omit = None
Visual	D = Pointer
	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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	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

BOX 8

Additional Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports
N = No-Element indicator
G440 = ½" drain on bottom of housing

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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 6. B porting option supplied with metric mounting holes.

Return Line Filter **KF3**

Model No. of filter in photograph is KF31K10S.

Features and Benefits

- Meets HF4 automotive standard
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Various Dirt Alarm® 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® elements (KD & KKD)
- Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 344) for details.

100 gpm
380 L/min
300 psi
20 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

STEEL MAKING

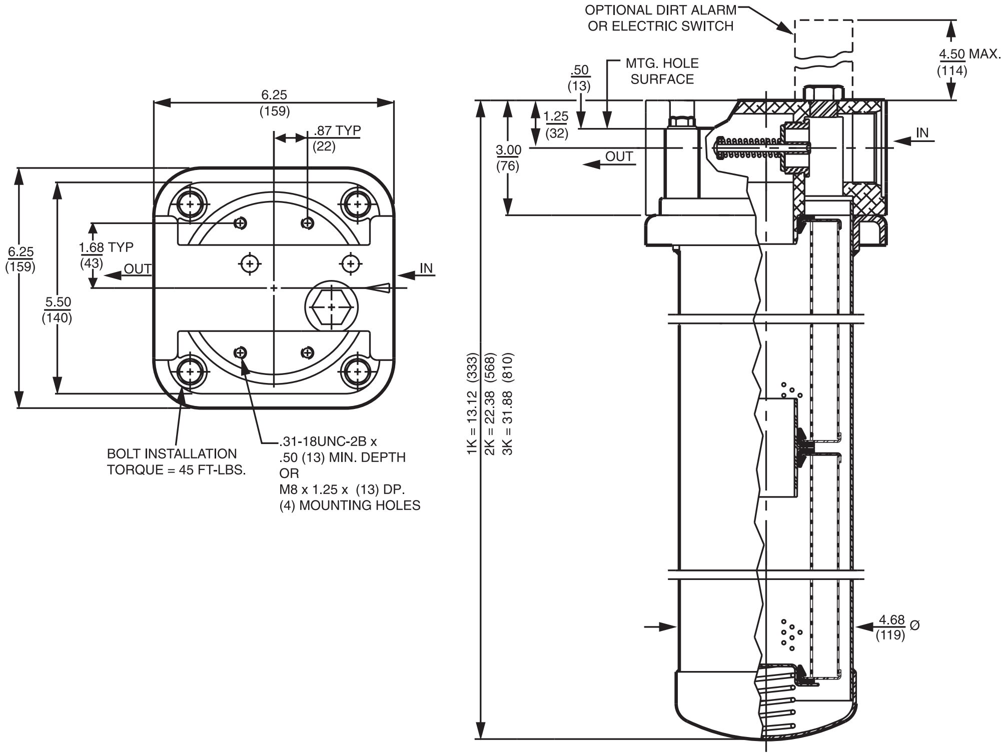
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	300 psi (20 bar)
Min. Yield Pressure:	1000 psi (70 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	290 psi (20 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 51 psi (4 bar)
Porting Head: Element Case:	Die Cast Aluminum Steel
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)
Element Change Clearance:	1.50" (40 mm) for all lengths

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

KF3 Return Line Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x^{(c)} \geq 200$	$\beta_x^{(c)} \geq 1000$
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/KKAS3/27KZ3/27KAS3	<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 Capacity

Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)
K3	54	KK3	108	27K3	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

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic), 3, 5, and 10 μ ASP® Media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 μ E media (cellulose) with H (EPR) seal designation and all ASP® media (synthetic)
Skydrol®	3, 5, 10 and 25 μ Z-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) and all ASP® media (synthetic)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 30 psi (2.1 bar) bypass valve.		
To 300 psi (20 bar)	E Media	K3	1K3	2K3†	3K3
		K10	1K10	2K10†	3K10†
		K25	1K25	2K25†	
	Z-Media®	KZ1	1KZ1	2KZ1†	3KZ1†
		KZ3	1KZ3	2KZ3†	
		KZ5	1KZ5	2KZ5†	
		KZ10	1KZ10		
		KZ25	1KZ25		
	Flow	gpm	0 20 40 60 80 100		
		(L/min)	0 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.
Shown above are the elements most commonly used in this housing.

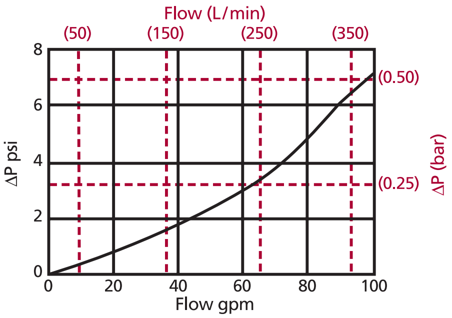
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KF3 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP at 60 gpm (225 L/min) for KF32KZ5SD5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.5 psi [.24 bar]
$\Delta P_{element}$ = 60 x .04 x (200÷150) = 3.2 psi
or
= [225 x (.04÷54.9) x (44÷32) = .23 bar]
ΔP_{total} = 3.5 + 3.2 = 6.7 psi
or
= [.24 + .23 = .47 bar]

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K		1K	2K
K3	.25	.12	.08			
K10	.09	.05	.03			
K25	.02	.01	.01			
KZ1	.20	.10	.05	**KDZ1**	.24	.12
KZ3/KAS3	.10	.05	.03	**KDZ3**	.12	.06
KZ5/KAS5	.08	.04	.02	**KDZ5**	.10	.05
KZ10/KAS10	.05	.03	.02	**KDZ10**	.06	.03
KZ25	.04	.02	.01	**KDZ25**	.04	.02

	1K	2K
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).

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

KF3 Return Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KF3:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KF3									

Example: *NOTE: Only box 10 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	
KF3	1K	Z	10			S		D5		= **KF31KZ10SD5**

BOX 1

Filter Series
KF3 (See Section 7 for Water Service version)

BOX 2

Number & Size of Elements
1K, KK,27K
2K
3K

BOX 3

Media Type
Omit = E media (cellulose)
AS = Anti-Static Pleat Media
Z = Excellement® Z-Media® (synthetic)
ZW = Aqua-Excellement® ZW media
W = Water Removal media
M = M Media (reusable metal)
DZ = DirtCatcher® Excellement® Z-Media®

BOX 4

Micron Rating
1 = 1 μ (Z, ZW and DZ media)
3 = 3 μ (E, AS, Z, ZW and DZ media)
5 = 5 μ (AS, Z, ZW and DZ media)
10 = 10 μ (E, AS, Z, ZW, M and DZ media)
25 = 25 μ (E, Z, ZW, M and DZ media)
60 = 60 μ (M media)

BOX 5

Seal Material
Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® Compatibility
W = Buna N

BOX 6

Magnet Option
Omit = None
M = Magnet

BOX 7

Porting
P = 1½" NPTF
S = SAE-24
F = 1½" SAE4-bolt flange Code 61
B = ISO 228 G-1½"

BOX 8

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking (req. for HF4)

BOX 9

Dirt Alarm® Options	
	Omit = None
Visual	D = Pointer
	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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
Electrical with Thermal Lockout	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
	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	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

BOX 10

Additional Options
Omit = None
L = Two ¼" NPTF inlet and outlet test ports
N = No-Element indicator
G426 = ¾" drain on bottom of housing
G440 = ½" drain on bottom of housing

NOTES:

Box 2. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. Number of elements must equal 1 when using KK or 27K elements. ZW media not available in 27K.

Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5.

Box 5. For options H, W, 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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 7. For option F, bolt thread depth .63" (16 mm). B porting option supplied with metric mounting holes.

Box 10. Option L not available with MS Dirt Alarm

Return Line Filter with Threaded Bowl **KL3**

Model No. of filter in photograph is KL31KZ10F24.

Features and Benefits

- Threaded bowl allows for easier removal and facilitates element changes
- Available with 18LC and K-size elements
- Available with 1½" and 2" porting
- Offered in pipe, SAE straight thread, ISO 228, and flange porting
- Various Dirt Alarm® options
- Available with NPTF inlet and outlet female test ports
- Available with housing drain plug
- Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 344) for details.

120 gpm
455 L/min

300 psi
20 bar

Applications

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

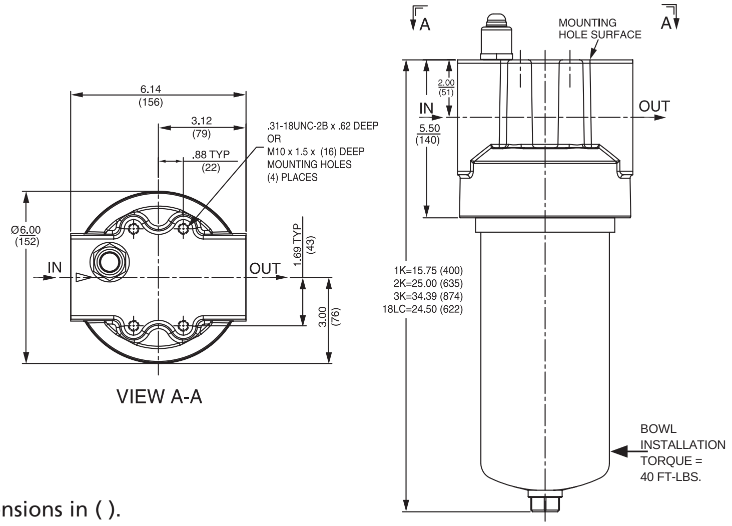
MOBILE VEHICLES

MINING TECHNOLOGY

Filter Housing Specifications

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 porting
Max. Operating Pressure:	300 psi (20 bar)
Min. Yield Pressure:	1000 psi (70 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	300 psi (20 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 68 psi (4.7 bar)
Porting Head: Element Case:	Cast Aluminum Steel
Weight of KL3-18LC: Weight of KL3-1K: Weight of KL3-2K: Weight of KL3-3K:	20.00 lbs. (9.1 kg) 14.75 lbs. (6.7 kg) 18.50 lbs. (8.4 kg) 22.75 lbs. (10.3 kg)
Element Change Clearance:	2.50" (64 mm)

KL3 Return Line Filter with Threaded Bowl



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$ß_X \geq 75$	$ß_X \geq 100$	$ß_X \geq 200$	$ß_X(c) \geq 200$	$ß_X(c) \geq 1000$
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
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 Capacity

Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)	Element	DHC (g)
K3	54	KK3	108	27K3	162					18LC3	110
K10	44	KK10	88	27K10	132					18LC10	88
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61			18LCZ1	224
KZ3/KAS3	115	KKZ3/KKAS3	230	27KZ3/27KAS3	345	KZW3	64	KKZW3	128	18LCZ3	230
KZ5/KAS5	119	KKZ5/KKAS5	238	27KZ5/27KAS5	357	KZW5	63	KKZW5	126	18LCZ5	238
KZ10/KAS10	108	KKZ10/KKAS10	216	27KZ10/27KAS10	324	KZW10	57	KKZW10	114	18LCZ10	216
KZ25	93	KKZ25	186	27KZ25	279	KZW25	79	KKZW25	158	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
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 **KL3**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic), 3, 5, and 10 μ ASP® media (synthetic)
Phosphate Esters	All Z-Media® with H (EPR) seal designation and all ASP® media (synthetic)

Element Selection
Based on Flow Rate

	Element		Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid, SAE-24 porting for K-size elements, SAE-32 porting for 18LC elements, and a 30 psi (2.1 bar) bypass valve.		
Pressure	Series	Part No.			
To 300 psi (20 bar)	E Media	K3	1K3	2K3	3K3
		K10	1K10	2K10	3K10
		K25	1K25	2K25	
		18LC3	18LC3		
		18LC10	18LC10		
	Z-Media®	KZ1	1KZ1	2KZ1	3KZ1
		KZ3	1KZ3	2KZ3	3KZ3
		KZ5	1KZ5	2KZ5	3KZ5
		KZ10	1KZ10	2KZ10	3KZ10
		KZ25	1KZ25	2KZ25	
		18LCZ1	18LCZ1		
		18LCZ3	18LCZ3		
		18LCZ5	18LCZ5		
		18LCZ10	18LCZ10		
		18LCZ25	18LCZ25		
	Flow	gpm	0 20 40 60 80 100 120		
		(L/min)	0 100 200 300 400 455		

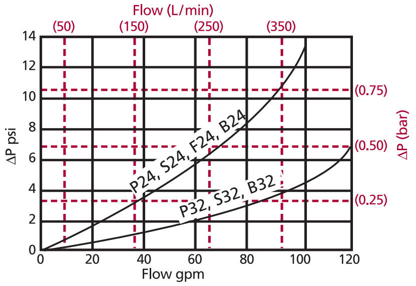
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KL3 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP at 60 gpm (225 L/min) for KL32KZ10P24 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 6 psi [.4 bar]

$\Delta P_{element}$ = 60 x .03 x (200÷150) = 2.4 psi

or

= [225 x (.03÷54.9) x (44÷32) = .17 bar]

ΔP_{total} = 6 + 2.4 = 8.4 psi

or

= [.4 + .17 = .57 bar]

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K		
K3	.25	.12	.08		
K10	.09	.05	.03	**18LC3**	.12
K25	.02	.01	.01	**18LC10**	.05
KZ1	.20	.10	.05	**18LCZ1**	.10
KZ3/KAS3	.10	.05	.03	**18LCZ3**	.05
KZ5/KAS5	.08	.04	.02	**18LCZ5**	.04
KZ10/KAS10	.05	.03	.02	**18LCZ10**	.03
KZ25	.04	.02	.01	**18LCZ25**	.02

	1K	2K
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).

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

Return Line Filter with Threaded Bowl

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KL3:

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7		BOX 8	BOX 9	BOX 10
KL3	–		–		–		–		–		–		–			

Example: Option 1 *NOTE: One option per box*

1		2		3		4		5		6		7		8		9		10
KL3	–	18LC	–	Z	–	1	–	H	–	P24	–		–	D5	–	L	–	

Option 2 *NOTE: One option per box*

1		2		3		4		5		6		7		8		9		10
KL3	–	2K	–	Z	–	1	–		–	P24	–		–	D5	–	L	–	

BOX 1

Filter Series
KL3

BOX 2
Option 1

Size
18 LC

BOX 3
Option 1

Media Type
Omit = E media (cellulose)
Z = Excellement® Z-Media® (synthetic)

BOX 4
Option 1

Micron Rating
1 = 1 µ (Z-Media®)
3 = 3 µ (E and Z-Media®)
5 = 5 µ (Z-Media®)
10 = 10 µ (E and Z-Media®)
25 = 25 µ (E and Z-Media®)

BOX 2
Option 2

Number & Size of Elements
1K, KK,27K
2K
3K

BOX 3
Option 2

Media Type
Omit = E media (cellulose)
Z = Excellement® Z-Media® (synthetic)
AS = Anti-Static Pleat Media (synthetic)
ZW = Aqua-Excellement® ZW media
W = Water Removal media
M = M media (reusable metal)
DZ = DirtCatcher® Excellement® Z-Media®

BOX 4
Option 2

Micron Rating
1 = 1 µ (Z, ZW and DZ media)
3 = 3 µ (E, AS, Z, ZW and DZ media)
5 = 5 µ (AS, Z, ZW and DZ media)
10 = 10 µ (E, AS, Z, ZW, M and DZ media)
25 = 25 µ (E, Z, ZW, M and DZ media)
60 = 60 µ (M media)

BOX 5

Seal Material
Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® Compatibility
W = Buna N

NOTE: Magnet Option

BOX 6

Porting
P24 = 1½" NPTF
S24 = SAE-24
F24 = 1½" SAE 4-bolt flange Code 61
B24 = ISO 228 G-1½"
P32 = 2" NPTF
S32 = SAE-32
B32 = SO 228 G-2"

BOX 7

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking (req. for HF4)

BOX 8

Dirt Alarm® Options		
	Omit =	None
Visual	D5 =	Visual pop-up
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
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

BOX 9

Test Port Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports

BOX 10

Bowl Drain Option
Omit = None
DR = ⅜" drain on bottom of housing

NOTES:

Box 2. Double and triple stacking of K-size elements can be replaced by single 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. Example: 18LCZ3V

Box 5. For options H, W, 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® is a registered trademark of DuPont Dow Elastomers.

Skydrol® is a registered trademark of Solutia Inc.

Box 6. B24 and B32 porting options supplied with metric mounting holes. 18LC elements require 2" ports for up to 120 gpm. K size elements require 1½" ports for up to 100 gpm.

Return Line Filter With 2" Ports **LF1**

120 gpm
455 L/min

300 psi
20 bar

Features and Benefits

- Offered in pipe, SAE straight thread and ISO 228 porting
- Available in 18" element lengths only
- Various Dirt Alarm® options
- Available with NPTF inlet and outlet female test ports
- Available with 2" porting with "K" size element
- Available with housing drain plug
- WLF1 model for water service also available – refer to Section 7 of this catalog

Model No. of filter in photograph is LF118LCZ10P32D.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

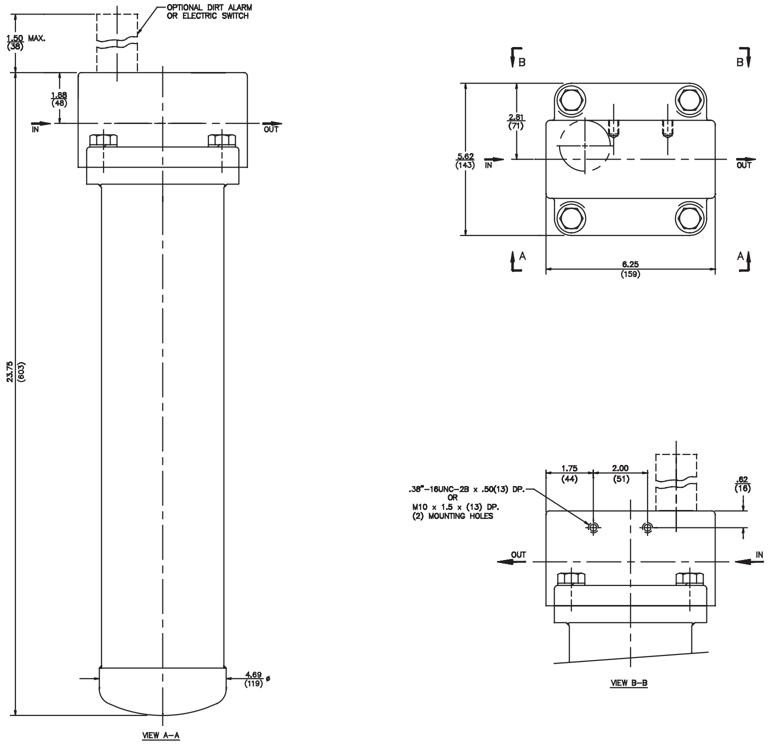
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	300 psi (20 bar)
Min. Yield Pressure:	1000 psi (70 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	250 psi (17 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2.1 bar) Full Flow: 60 psi (4.1 bar)
Porting Head: Element Case:	Cast Aluminum Steel
Available Porting:	2" NPTF, 2½-12 SAE Straight
Weight of LF1-18LC:	17.5 lbs. (7.9 kg)
Element Change Clearance:	2.0" (55 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

Return Line Filter With 2" Ports



Metric dimensions in ( ).

Element Performance Information

Element	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	
	ß$_x$ ≥ 75	ß$_x$ ≥ 100	ß$_x$ ≥ 200	ß$_x$(c) ≥ 200	ß$_x$(c) ≥ 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 Capacity

Element	DHC (gm)
18LC3	108
18LC10	88
18LCZ1	224
18LCZ3	230
18LCZ5	238
18LCZ10	216
18LCZ25	186

Element Collapse Rating:	150 psid (10 bar)
Flow Direction:	Outside In
Element Nominal Dimensions:	4.0" (100 mm) O.D. x 18.5" (470 mm) long

Return Line Filter With 2" Ports **LF1**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

	Element		**Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 30 psi (2.1 bar) bypass valve.**
Pressure	**Series**	**Part No.**	
To 300 psi (20 bar)	Z-Media®	18LCZ1	18LCZ1
		18LCZ3	18LCZ3
		18LCZ5	18LCZ5
		18LCZ10	18LCZ10
		18LCZ25	18LCZ25
	Flow	gpm	0 · 60 · 80 · 100 · 120
		(L/min)	0 · 230 · 300 · 380 · 455

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

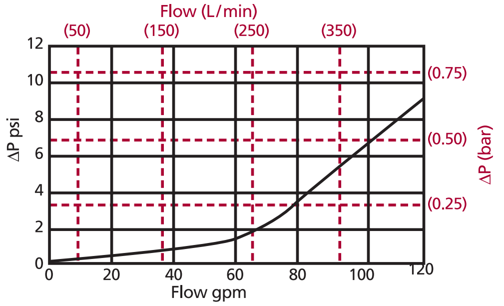
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

LF1-2" $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

18LCZ1	.10
18LCZ3	.05
18LCZ5	.04
18LCZ10	.03
18LCZ25	.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

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

Exercise:

Determine ΔP at 40 gpm (150 L/min) for LF118LCZ10S32D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1.0 psi [.07 bar]

$\Delta P_{element}$ = 40 x .03 x (200÷150) = 1.6 psi
or
= [150 x (.03÷54.9) x (44÷32) = .11 bar]

ΔP_{total} = 1.0 + 1.6 = 2.6 psi
or
= [.07 + .11 = .18 bar]

LF1 Return Line Filter With 2" Ports

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder LF1:

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7
LF1	–		–		–		–		–		–	

Example: *NOTE: Only box 7 may contain more than one option*

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7	
LF1	–	18	–	LC3	–		–	P32	–	D5	–		**= LF118LC3P32D5**

BOX 1

Filter Series
LF1

BOX 2

Length of Element (in)
18

BOX 3

Element Size and Media
LC3 = LC size 3 μ E media (cellulose)
LC10 = LC size 10 μ E media (cellulose)
LCZ1 = LC size 1 μ Excellement® Z-Media™ (synthetic)
LCZ3 = LC size 3 μ Excellement Z-Media (synthetic)
LCZ5 = LC size 5 μ Excellement Z-Media (synthetic)
LCZ10 = LC size 10 μ Excellement Z-Media (synthetic)
LCZ25 = LC size 25 μ Excellement Z-Media (synthetic)

BOX 4

Seal Material
Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® Compatibility

BOX 5

Porting
P32 = 2" NPTF
S32 = SAE-32
B32 = ISO 228 G-2"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	D = Pointer
	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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	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

BOX 7

Additional Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports
G426 = ¾" drain on bottom of housing
G440 = ½" drain on bottom of housing

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 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® is a registered trademark of DuPont Dow Elastomers.

Skydrol® is a registered trademark of Solutia Inc.

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

Top-Ported Return Line Filter **MLF1**

200 gpm
760 L/min

300 psi
20 bar

Model No. of filter in photograph is MLF14K10PD.

Features and Benefits

- Equipped with inlet and outlet manifolds
- Meets HF4 automotive standard
- Offered in pipe and flange porting
- Available in 2, 4 or 6 element configurations
- Various Dirt Alarm® options
- Available with NPTF inlet and outlet female test ports
- Available with housing drain plugs
- Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 345) for details.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

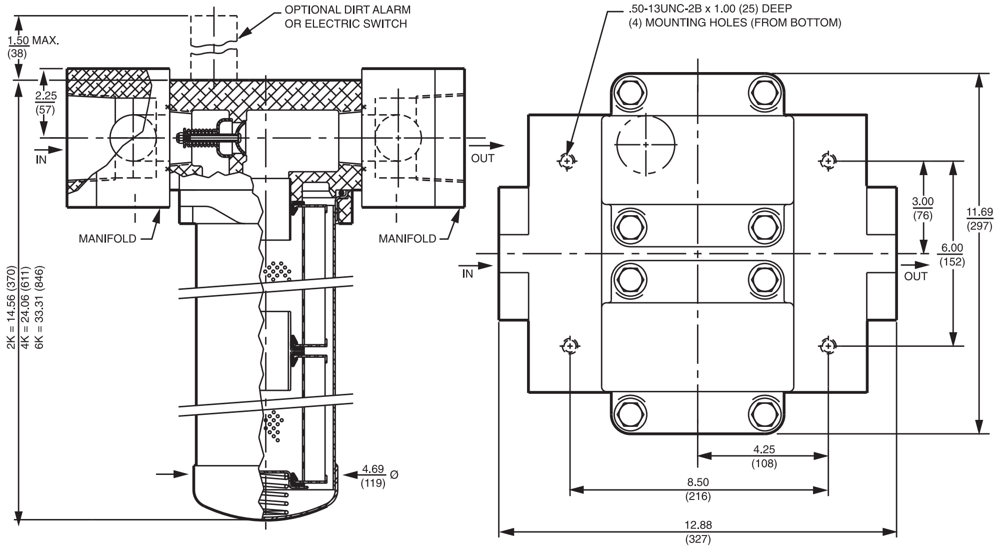
MOBILE VEHICLES

RAILROAD

Filter Housing Specifications

Flow Rating:	Up to 200 gpm (760 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	300 psi (20 bar)
Min. Yield Pressure:	1000 psi (70 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	250 psi (17 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (2 bar) Full Flow: 60 psi (4 bar)
Porting Head: Element Case:	Anodized Cast Aluminum Steel
Weight of MLF1-2K: Weight of MLF1-4K: Weight of MLF1-6K:	44.0 lbs. (20.0 kg) 50.0 lbs. (23.0 kg) 58.0 lbs. (26.0 kg)
Element Change Clearance:	2.0" (55 mm)

MLF1 Top-Ported Return Line Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
K3	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 Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
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 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

Top-Ported Return Line Filter **MLF1**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 μ E media (cellulose) with H (EPR) seal designation and all ASP® media (synthetic)
Skydrol®	3, 5, 10 and 25 μ Z-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) and all ASP® media (synthetic).

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.		
To 300 psi (20 bar)	E Media	K3	4K3	6K3	
		K10	4K10	6K10	
		K25	4K25		
	Z-Media®	KZ1	4KZ1	6KZ1	
		KZ3	2KZ3	4KZ3	6KZ3
		KZ5	2KZ5	4KZ5	6KZ5
		KZ10	2KZ10	4KZ10	
		KZ25	2KZ25	4KZ25	
Flow		gpm	0 100 120 140 160 180 200		
		(L/min)	0 200 400 600 760		

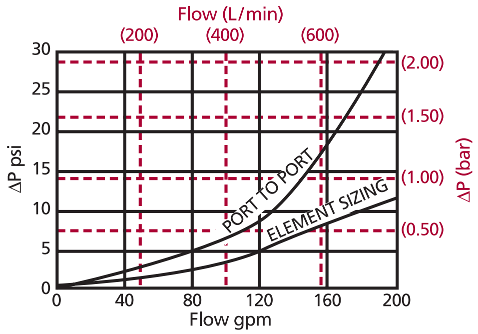
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

MLF1 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

The ΔP 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" ΔP takes into consideration the inlet and outlet manifolds. This pressure drop can be significantly higher due to these additional flow constrictions. Although this ΔP does not affect the performance of the filter, it should be considered for overall system design.

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	2K	4K/KK	6K/27K		1K	2K
K3	.12	.06	.04			
K10	.05	.02	.02			
K25	.01	.01	.01			
KZ1	.10	.05	.03			
KZ3/ KAS3	.05	.03	.02	**KZW3**	.32	.16
KZ5/ KAS5	.04	.02	.02	**KZW5**	.28	.14
KZ10/ KAS10	.03	.02	.01	**KZW10**	.12	
KZ25	.02	.01	.01	**KZW25**	.07	

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

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

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

MLF1 Top-Ported Return Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MLF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
MLF1								

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

Filter Series
MLF1

BOX 2

Number and Size of Elements
2K, KK, 27K
4 K
6 K

BOX 3

Media Type
Omit = E media (cellulose)
Z = Excellement® Z-Media® (synthetic)
AS = Anti-Static Pleat Media (synthetic)
ZW = Aqua-Excellement™ ZW media
DZ = Dirtcatcher® with Excellement® Z-Media®
W = W media (water removal)
M = M media (reusable metal mesh)

BOX 4

Micron Rating
1 = 1 μ Z, ZW, and DZ media
3 = 3 μ AS,E, Z, ZW, and DZ media
5 = 5 μ AS, Z, ZW, DZ media
10 = 10 μ AS, E, M, Z, ZW, and DZ media
25 = 25 μ E, M, Z, ZW and DZ media
60 = 60 μ M media
150 = 150 μ M media

BOX 5

Seal Material
Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® Compatibility

BOX 6

Magnet Option
Omit = None
M = Magnet inserts

BOX 7

Porting
P = 2½" NPTF
F = 2½" SAE 4-bolt flange Code 61

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	D = Pointer D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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	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

BOX 9

Additional Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports
G426 = ¾" drain on bottom of housing
G440 = ½" drain on bottom of housing

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 2 when using KK or 27K elements.

Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5. K25 is not available with EPR seals.

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® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Medium Pressure Filter **RLD**

100 gpm
380 L/min
350 psi
24 bar

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® 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.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

PULP & PAPER

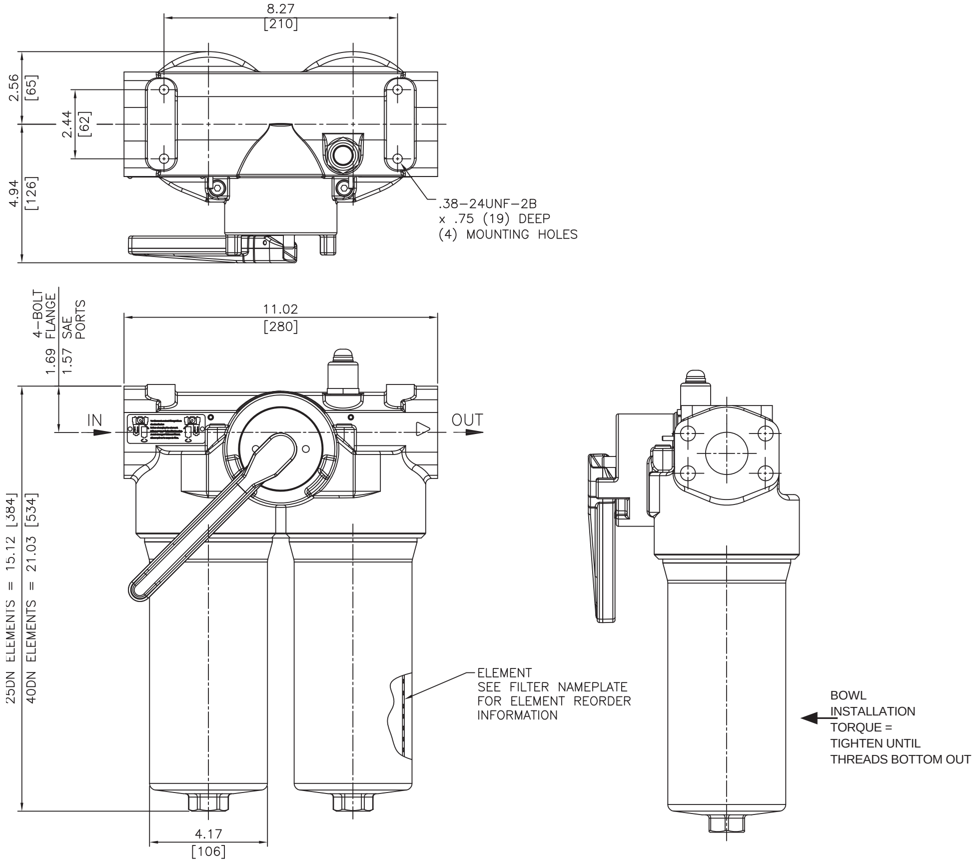
POWER GENERATION

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	350 psi (24 bar)
Min. Yield Pressure:	Contact factory
Rated Fatigue Pressure:	350 psi (24 bar)
Temp. Range:	-22°F to 250°F (-30°C to 121°C)
Bypass Setting:	Standard: 102 psi (7 bar) Optional: 43 psi (3.0 bar)
Porting Head: Element Case:	Aluminum Aluminum
Weight of RLD-25DN: Weight of RLD-40DN:	26 lbs. (11.8 kg) 29 lbs. (13.0 kg)
Element Change Clearance:	**25DN:** 3.5" (89 mm) **40DN:** 3.5" (89 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

RLD Medium Pressure Filter



Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)
25DNZ3	57	40DNZ3	105
25DNZ6	62	40DNZ6	115
25DNZ10	52	40DNZ10	104
25DNZ25	48	40DNZ25	94

Element Collapse Rating:	290 psid (20 bar)
Flow Direction:	Outside In
Element Nominal Dimensions:	3.0" (75 mm) O.D. x 14.5" (370 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 6, 10 and 25 μ Z-Media® (synthetic)

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 102 psi (7 bar) bypass valve.	
To 350 psi (24 bar)	Z-Media®	25DNZ3 & 40DNZ3	25DNZ3	40DNZ3
		25DNZ6 & 40DNZ6	25DNZ6	40DNZ6
		25DNZ10 & 40DNZ10	25DNZ10	40DNZ10
		25DNZ25 & 40DNZ25	25DNZ25	40DNZ25
Flow		gpm	0 20 40 60 80 100	
		(L/min)	0 50 100 150 250 380	

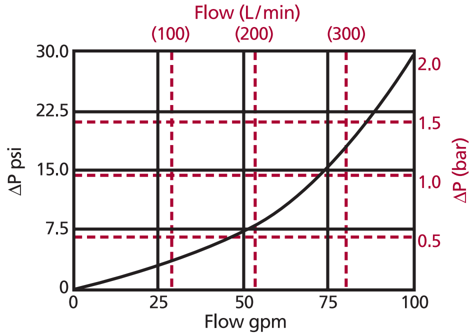
Shown above are the elements most commonly used in this housing.

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

RLD $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$= flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

25DNZ3	.28	**40DNZ3**	.18
25DNZ6	.18	**40DNZ6**	.11
25DNZ10	.12	**40DNZ10**	.07
25DNZ25	.09	**40DNZ25**	.06

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

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

Exercise:

Determine ΔP at 40 gpm (150 L/min) for 40DNZ6 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 5.0 psi [.34 bar]
$\Delta P_{element}$ = 40 x .11 x (200÷150) = 5.9 psi
or
= [150 x (.11÷54.9) x (44÷32) = .40 bar]
ΔP_{total} = 5.0 + 5.9 = 10.9 psi
or
= [.34 + .40 = .73 bar]

RLD Medium Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder RLD:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
RLD						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
RLD	25	DNZ5	V	F24	40	VM	**= RLD25DNZ5VF2440VM**

BOX 1

Filter Series
RLD

BOX 2

Length of Elements (cm)
25
40

BOX 3

Element Size and Media
DNZ5 = DN size 5 μ synthetic media
DNZ10 = DN size 10 μ synthetic media
DNZ25 = DN size 25 μ synthetic media
DNM25 = DN size 25 μ M media (reuseable metal)
DNM50 = DN size 50 μ M media (reuseable metal)
DNM100 = DN size 100 μ M media (reuseable metal)
DNM200 = DN size 200 μ M media (reuseable metal)

BOX 4

Element Seal Material
Omit = Buna N
V = Viton®

BOX 5

Porting
F24 = 1½" SAE 4-bolt flange Code 61
S24 = SAE-24 (1½")

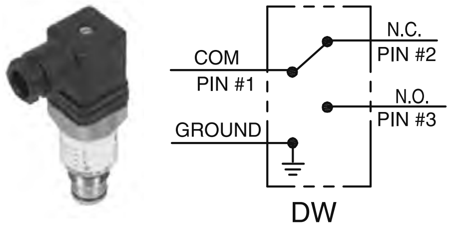
BOX 6

Bypass Setting
Omit = 102 psi cracking
40 = 43 psi cracking

BOX 7

Dirt Alarm® Options	
	Omit = None
Visual	VM = Visual pop-up w/manual reset
Electrical	DW = AC/DC 3-wire (NO or NC)

VM = Manual Reset



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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4. Example: 40DNZ10

Box 4. Filter housings are supplied with standard Viton seals. Seal designation in Box 4 applies to element only. Viton® is a registered trademark of DuPont Dow Elastomers.

SAME DAY SHIPMENT MODEL AVAILABLE!

Tank-Mounted Return Line Filter

GRTB

Model No. of filter in photograph is GRTB1KBGZ10S.

Features and Benefits

- Patented GeoSeal® Elements
- Various Dirt Alarm® options
- Cost optimized for in-tank applications
- Plastic bowl and cap lower cost and minimize weight
- UV resistant cap
- Same day shipment model available

100 gpm
380 L/min

100 psi
7 bar

Applications

AGRICULTURE

CONSTRUCTION

MOBILE VEHICLES

Filter Housing Specifications

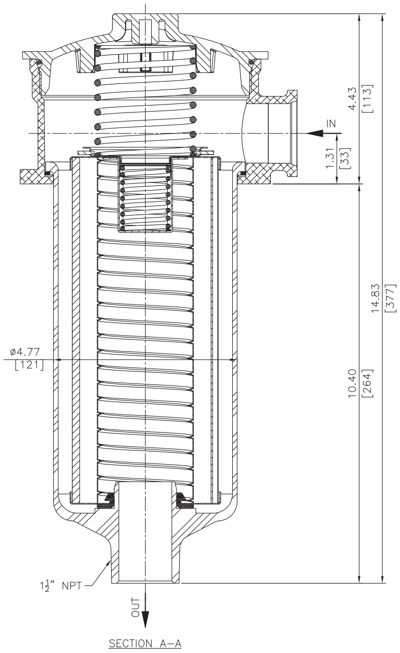
Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar)
Rated Fatigue Pressure:	145 psi (10 bar), Per NFPA T2.6.1-2005
Temp. Range:	-20°F to 200°F (-29°C to 93°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 42 psi (2.9 bar)
Cap & Bowl:	Nylon
Porting Head:	Aluminum
Weight of GRTB-1K:	5.2 lbs (2.36 kg)
Element Change Clearance:	12” (305 mm)

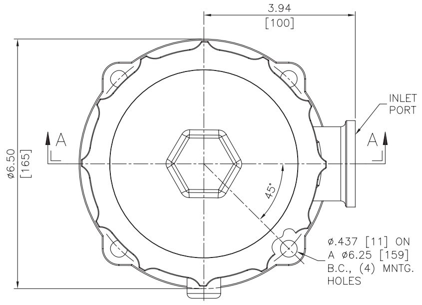
NOTES:

The GRTB is a basic filter. For more complex applications, use the standard RT filter.

GRTB Tank-Mounted Return Line Filter

SAME DAY SHIPMENT MODEL AVAILABLE!





Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)
KBG10	44
KBGZ1	112
KBGZ3	115
KBGZ5	119
KBGZ10	108
KBGZ25	93

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

SAME DAY SHIPMENT MODEL AVAILABLE!

Tank-Mounted Return Line Filter

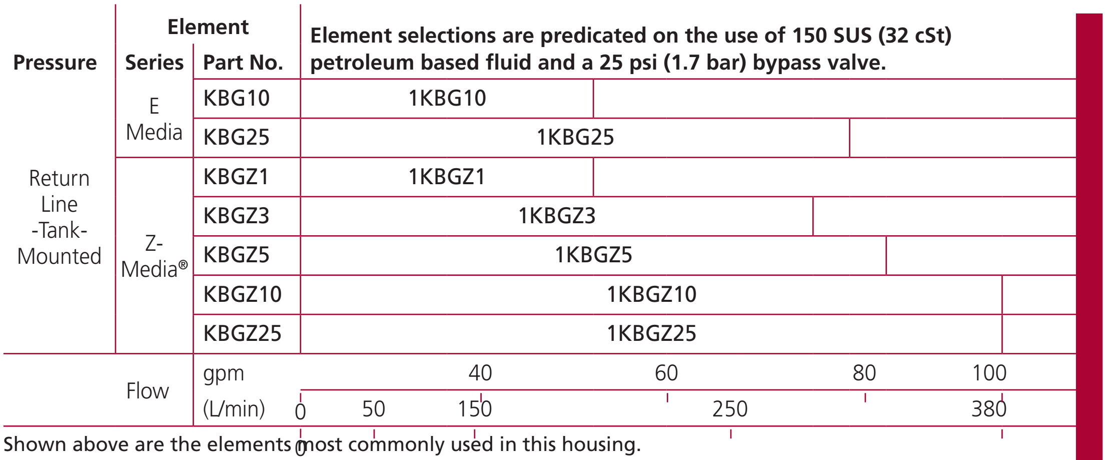
GRTB

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)

Element Selection

Based on Flow Rate



Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.
Return Line -Tank-Mounted	E Media	KBG10	1KBG10
		KBG25	1KBG25
	Z-Media®	KBGZ1	1KBGZ1
		KBGZ3	1KBGZ3
		KBGZ5	1KBGZ5
		KBGZ10	1KBGZ10
		KBGZ25	1KBGZ25
Flow		gpm	0 50 40 60 80 100
		(L/min)	0 150 250 380

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

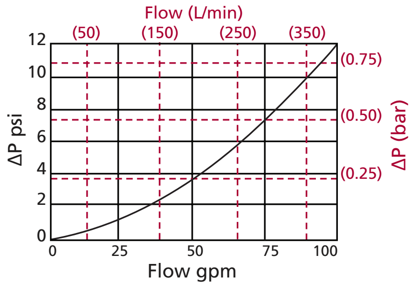
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

GRTB $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP 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
or
= [284 x (.05÷54.9) x (44÷32) = .36 bar]

ΔP_{total} = 7.25 + 5.0 = 12.25 psi
or
= [.50 + .36 = .86 bar]

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K
KBG10	.09
KBG25	.02
KBGZ1	.20
KBGZ3	.10
KBGZ5	.08
KBGZ10	.05
KBGZ25	.04

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

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

GRTB Tank-Mounted Return Line Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder GRTB:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
GRTB						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
GRTB	1KBG	Z	10		P	Y2	= GRTB1KBGZ10PY2

BOX 1

Filter Series

GRTB

BOX 2

Element Size

1KBG

BOX 3

Media Type

Omit = E-Media (cellulose)
Z = Excellement® Z-Media®

BOX 4

Micron Rating

1 = 1 μ Z-Media®
3 = 3 μ Z-Media®
5 = 5 μ Z-Media®
10 = 10 μ E, and Z-Media®
25 = 25 μ E, and Z-Media®

BOX 5

Seals

Omit = Buna N

BOX 6

Port

P = 1.25" NPT
S = SAE-20
B = ISO 228 G-1.25"

BOX 7

Indicator

Omit = None
Y2 = Back-mounted tricolor gauge
ES = Electric switch
ES1 = Heavy-duty electric switch with conduit connections

MiniMiser™ Tank-Mounted Filter **MTA**

15 gpm
55 L/min

100 psi
7 bar

Features and Benefits

- Low pressure tank-mounted filter
- Compact size minimizes space requirements
- Minimizer is cost-effective alternative to spin-on filters
- Special filter element design provides aftermarket benefits

Model No. of filter in photograph is MTA3TAZ10P8.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MOBILE VEHICLES

PULP & PAPER

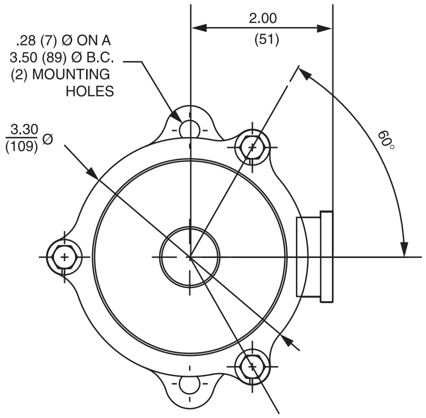
AGRICULTURE

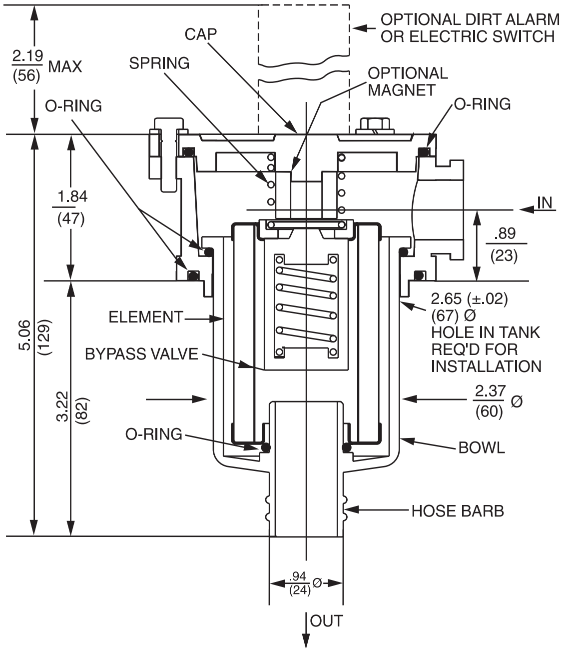
Filter Housing Specifications

Flow Rating:	Up to 15 gpm (55 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	269 psi (18 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (2 bar) Full Flow: 48 psi (3.3 bar)
Porting Head & Cap:	Die Cast Aluminum
Element Case:	Glass Filled Nylon
Weight of MTA-3:	1.0 lbs. (0.5 kg)
Element Change Clearance:	3.0" (76 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

MiniMiser™ Tank-Mounted Filter





Metric dimensions in ( ).

Element Performance Information

Element	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	
	$ß_x \geq 75$	$ß_x \geq 100$	$ß_x \geq 200$	$ß_x(c) \geq 200$	$ß_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)
3TA10	N/A
3TAZ3	4
3TAZ5	6
3TAZ10	4
3TAZ25	4

Element Collapse Rating:	150 psid (10 bar)
Flow Direction:	Outside In
Element Nominal Dimensions:	2.0" (51 mm) O.D. x 3.0" (76 mm) long

MiniMiser™ Tank-Mounted Filter

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.	
Return Line -Tank-Mounted	E Media	10	3TA10	See MTB
		25	3TA25	
		Z3	3TAZ3	See MTB
	Z-Media®	Z5	3TAZ5	See MTB
		Z10	3TAZ10	See MTB
		Z25	3TAZ25	See MTB
	Flow	gpm	0 5 10	15
		(L/min)	0 (25)	(50)

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

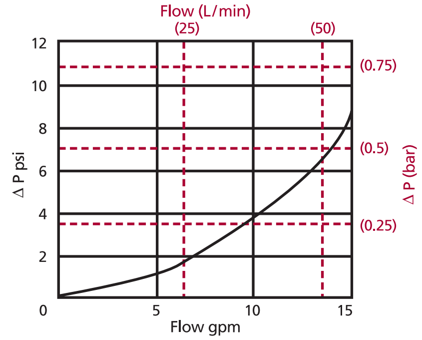
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

MTA $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	3TA
3TA10	1.40
3TA25	.33
3TAZ1	4.27
3TAZ3	2.20
3TAZ5	1.73
3TAZ10	1.48
3TAZ25	.68

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

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

Exercise:

Determine ΔP 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 x (1.48÷54.9) = .73 bar]
ΔP_{total} = 2.0 + 10.3 = 12.3 psi
or
= [.14 + .73 = .87 bar]

MiniMiser™ Tank-Mounted Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MTA:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
MTA				

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
MTA	3	TA25	P8	Y5	**= MTA3TA25P8Y5**

BOX 1

Filter Series
MTA

BOX 2

Element Length (in)
3

BOX 3

Element Size and Media
TA10 = TA size 10 μ E media (cellulose)
TA25 = TA size 25 μ E media (cellulose)
TAZ1 = TA size 1 μ Excellement® Z-Media® (synthetic)
TAZ3 = TA size 3 μ Excellement® Z-Media® (synthetic)
TAZ5 = TA size 5 μ Excellement® Z-Media® (synthetic)
TAZ10 = TA size 10 μ Excellement® Z-Media® (synthetic)
TAZ25 = TA size 25 μ Excellement® Z-Media® (synthetic)

BOX 4

Porting Options
P8 = ½" NPTF
S8 = SAE-8

BOX 5

Dirt Alarm® Options	
	Omit = None
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™ Tank-Mounted Filter **MTB**

Model No. of filter in photograph is MTB5TBZ5P16.

Features and Benefits

- Low pressure tank-mounted filter
- Compact size minimizes space requirements
- Minimizer is cost-effective alternative to spin-on filters
- Special filter element design provides aftermarket benefits

35 gpm
135 L/min

100 psi
7 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MOBILE VEHICLES

PULP & PAPER

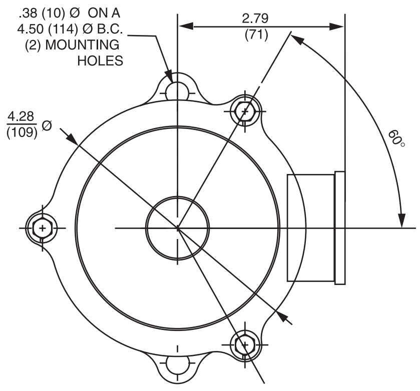
AGRICULTURE

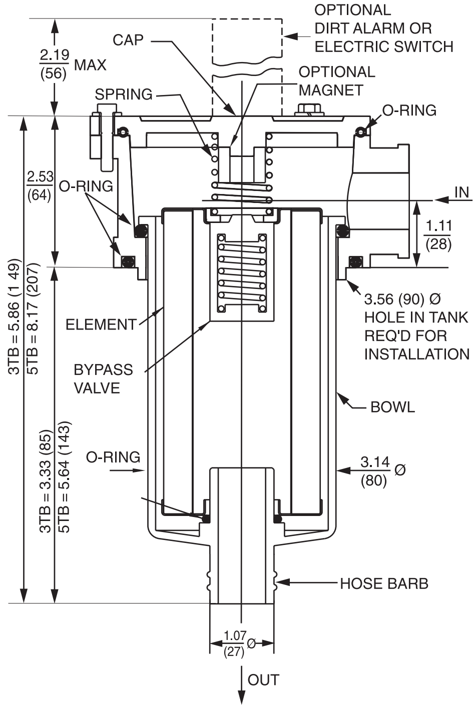
Filter Housing Specifications

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
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	229 psi (15 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (2 bar) Full Flow: 51 psi (3.5 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Glass Filled Nylon
Weight of MTB-3: Weight of MTB-5:	1.8 lbs. (0.8 kg) 2.1 lbs. (1.0 kg)
Element Change Clearance:	3.0" (76 mm) MTB-3 5.0" (127 mm) MTB-5

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

MTB MiniMiser™ Tank-Mounted Filter





Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)
3TB10	N/A
3TBZ3	11
3TBZ5	12
3TBZ10	11
3TBZ25	11
5TB10	N/A
5TBZ3	18
5TBZ5	21
5TBZ10	17
5TBZ25	18

Element Collapse Rating:	150 psid (10 bar)
Flow Direction:	Outside In
Element Nominal 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™ Tank-Mounted Filter

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)

Element Selection Based on Flow Rate

	Element				
Pressure	Series	Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.		
Return Line -Tank-Mounted	E Media	10	See MTA	3TB10	5TB10
		25	See MTA	3TB25	5TB25
		Z3	See MTA	3TBZ3	5TBZ3
	Z-Media®	Z5	See MTA	3TBZ5	5TBZ5
		Z10	See MTA	3TBZ10	5TBZ10
		Z25	See MTA	3TBZ25	5TBZ25
	Flow	gpm	0 5 10 15 20 25 30 35		
		(L/min)	0 (25) (50) (75) (100) (135)		

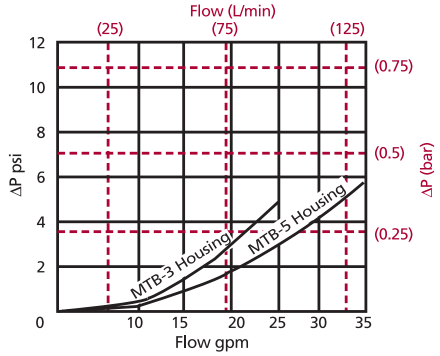
Shown above are the elements most commonly used in this housing.

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 Drop Information Based on Flow Rate and Viscosity

$\Delta P_{housing}$

MTB $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	3"	5"
TB10	.73	.40
TB25	.10	.08
TBZ1	1.17	.70
TBZ3	.66	.36
TBZ5	.45	.25
TBZ10	.49	.25
TBZ25	.33	.16

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

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

Exercise:

Determine ΔP at 25 gpm (95 L/min) for MTB5TB25S16Y2C using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.21 bar]

$\Delta P_{element}$ = 25 x .08 x (200÷150) = 2.6 psi
or
= [95 x (.08÷54.9) x (44÷32) = .19 bar]

ΔP_{total} = 3.0 + 2.6 = 5.6 psi
or
= [.21 + .19 = .40 bar]

MTB MiniMiser™ Tank-Mounted Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MTB:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
MTB	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
MTB	3	TB25	P12	Y5	**= MTB3TB25P12Y5**

BOX 1

Filter Series
MTB

BOX 2

Element Length (in)
3
5

BOX 3

Element Size and Media
TB10 = T size 10 μ E media (cellulose)
TB25 = T size 25 μ E media (cellulose)
TBZ3 = T size 3 μ Excellement® Z-Media® (synthetic)
TBZ5 = T size 5 μ Excellement® Z-Media® (synthetic)
TBZ10 = T size 10 μ Excellement® Z-Media® (synthetic)
TBZ25 = T size 25 μ Excellement® Z-Media® (synthetic)

BOX 4

Porting Options
P12 = ¾" NPTF
P16 = 1" NPTF
S12 = SAE-12
S16 = SAE-16
B12 = ISO 228 G-¾"
B16 = ISO 228 G-1"

BOX 5

Dirt Alarm® Options	
	Omit = None
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: 3TB10

Tank-Mounted Filter **ZT**

40 gpm
150 L/min

100 psi
7 bar

Model No. of filter in photograph is ZT8ZZ10PPESAB.

Features and Benefits

- Low pressure tank-mounted filter
- Available with dual inlet porting
- Offered in pipe, SAE straight thread and ISO 228 porting
- Various Dirt Alarm® options
- Optional PAB1 breather
- Optional dipstick
- Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 346) for details.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MOBILE VEHICLES

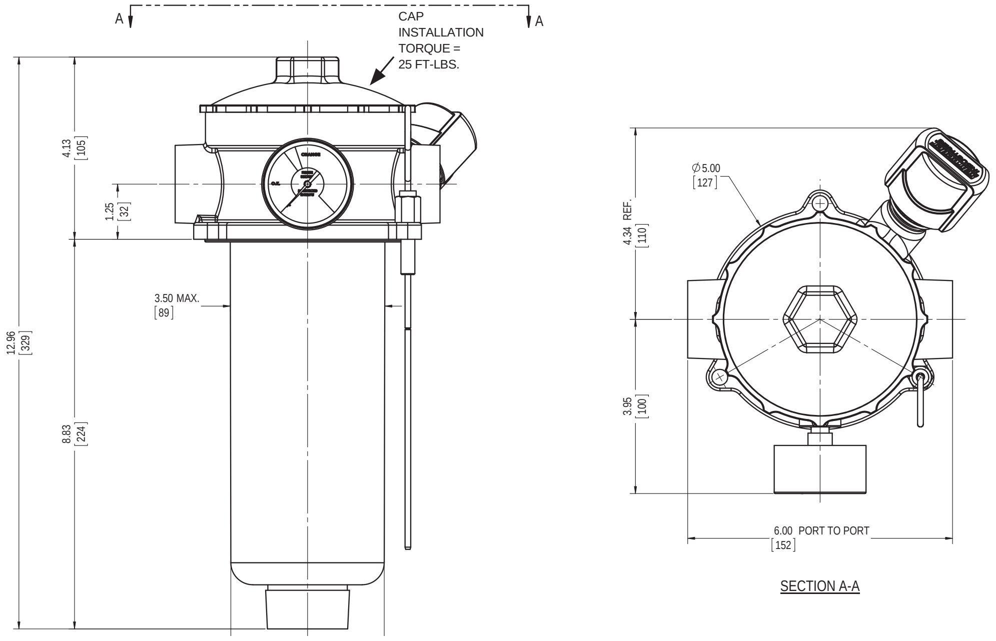
MACHINE TOOL

Filter Housing Specifications

Flow Rating:	Up to 40 gpm (150 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	300 psi (21 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 39 psi (2.7 bar)
Cap & Bowl:	Nylon
Porting Head:	Aluminum
Weight of ZT-8Z:	3.3 lbs. (1.49 kg)
Element Change Clearance:	10.0" (254 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

ZT Tank-Mounted Filter



Metric dimensions in ( ).

Element Performance Information

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171 $\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)
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
Element Nominal Dimensions:	3.2" (81 mm) O.D. x 9.25" (235 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.
Return Line -Tank-Mounted	E Media	8Z3 paper	8Z3 (cellulose media)
		8Z10 paper	8Z10 (cellulose media)
		8Z25 paper	8Z25 (cellulose media)
	Z-Media®	8ZZ3	8ZZ3
		8ZZ5	8ZZ5
		8ZZ10	8ZZ10
		8ZZ25	8ZZ25
	Flow	gpm	0 10 20 30 40
		(L/min)	0 50 100 150

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

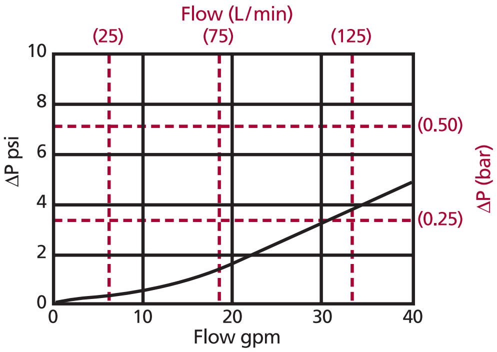
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

ZT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

8Z3	.25
8Z10	.09
8Z25	.02
8ZZ1	.37
8ZZ3	.21
8ZZ5	.13
8ZZ10	.11
8ZZ25	.08

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

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

Exercise:

Determine ΔP at 20 gpm (76 L/min) for ZT8ZZ1PES using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1 psi [.07 bar]

$\Delta P_{element}$ = 20 x .37 x (200÷150) = 9.8 psi

or

= [76 x (.37÷54.9) x (44÷32) = 0.7 bar]

ΔP_{total} = 1.0 + 9.8 = 10.8 psi

or

= [.07 + .7 = .77 bar]

Tank-Mounted Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder ZT:

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7
ZT	–		–		–		–		–		–	

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	–		**= ZT8Z10SY2**

BOX 1

Filter Series
ZT

BOX 2

Element Length (in)
8

BOX 3

Element Size and Media
Z3 = Z size 3 μ E media (cellulose)
Z10 = Z size 10 μ E media (cellulose)
Z25 = Z size 25 μ E media (cellulose)
ZZ1 = Z size 1 μ Excellement® Z-Media® (synthetic)
ZZ3 = Z size 3 μ Excellement® Z-Media® (synthetic)
ZZ5 = Z size 5 μ Excellement® Z-Media® (synthetic)
ZZ10 = Z size 10 μ Excellement® Z-Media® (synthetic)
ZZ25 = Z size 25 μ Excellement® Z-Media® (synthetic)

BOX 4

Seal Material
Omit = Buna N
H = EPR

BOX 5

Inlet Porting
P = 1" NPTF
PP = Dual 1" NPTF
S = SAE-16
SS = Dual SAE-16
B = ISO 228 G-1"
BB = Dual ISO 228 G-1"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	Y2 = Back-mounted tri-color gauge
	Y2C = Bottom-mounted gauge in cap
	Y5 = Back-mounted gauge in cap
Electrical	ES = Electric switch
	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: 8Z10H

Box 3. E media elements are only available with Buna N seals.

Box 4. For option H, all seals are Viton®.

Tank-Mounted Filter **KFT**

Features and Benefits

- Low pressure tank-mounted filter
- Meets HF4 automotive standard
- Multiple inlet/outlet porting options
- Top, side or bottom mounting
- Optional check valve prevents reservoir siphoning
- Can also be used in return line application (contact factory)
- Double stacking of K-size element can be replaced by single KK element
- Allows consolidation of inventoried replacement elements by using K-size elements
- Also available with DirtCatcher® elements (KD and KKD)

100 gpm
380 L/min

100 psi
7 bar

Model No. of filter in photograph is KFT1K10P24P24NB

Applications

INDUSTRIAL

MARINE

MINING TECHNOLOGY

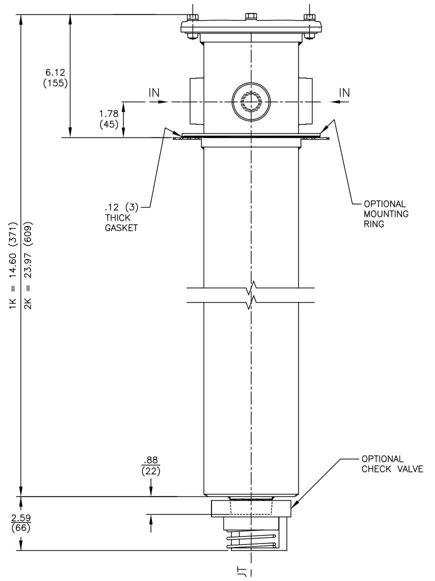
MOBILE VEHICLES

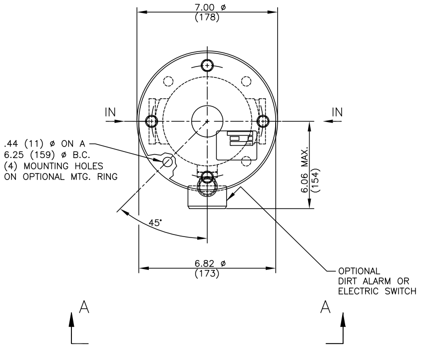
Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact Factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 48 psi (3.3 bar)
Porting Head: Porting Cap: Element Case:	Steel Die Cast Aluminum (standard); Steel (optional) Steel
Weight of KFT-1K: Weight of KFT-2K:	10.0 lbs. (4.5 kg) 13.6 lbs. (6.2 kg)
Element Change Clearance:	8.0" (205 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

KFT Tank-Mounted Filter





Metric dimensions in ( ).

Element Performance Information

	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8			Filtration Ratio per ISO 16889	
	Using automated particle counter (APC) calibrated per ISO 4402			Using APC calibrated per ISO 11171	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
K3/KK3	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 Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	108				
K10	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

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic), 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic), 3, 5 and 10 μ ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation, ASP® media (synthetic) and 3 and 10 μ E media (cellulose) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation, ASP® media (synthetic) 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® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.	
Return Line -Tank-Mounted	E Media	K3	1K3	2K3†
		K10	1K10	2K10†
		K25	1K25	2K25†
	Z-Media®	KZ1	1KZ1	2KZ1†
		KZ3	1KZ3	2KZ3†
		KZ5	1KZ5	2KZ5†
		KZ10	1KZ10	
		KZ25	1KZ25	
Flow		gpm	0 40 60 80 100	
		(L/min)	0 50 150 250 380	

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

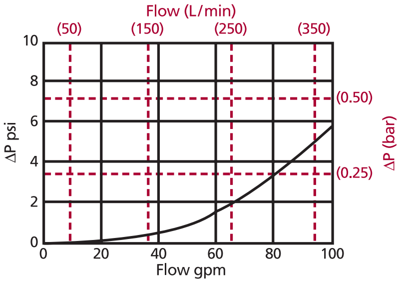
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KFT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP at 80 gpm (300 L/min) for KFT2K10P24 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 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]
ΔP_{total} = 3.0 + 5.3 = 8.3 psi
or
= [.20 + .38 = .58 bar]

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K		1K	2K
K3	.25	.12			
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 units of bars & L/min, divide above factor by 54.9.

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

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

KFT Tank-Mounted Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KFT:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KFT									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
KFT	1K	Z	10		S24 S24 N			Y2	G820	= **KFT1KZ10S24S24NY2G820**

BOX 1

Filter Series
KFT

BOX 2

Element Size and Length	
1	K, KK
2	K

BOX 3

Media Type
Omit = E media (cellulose)
Z = Excellement® Z-Media® (synthetic)
AS = Anti-Static Pleat Media (synthetic)
ZW = Aqua-Excellement™ ZW media
DZ = Dirtcatcher® with Excellement® Z-Media®

BOX 4

Element Part Number
1 = 1 µ Z, ZW, and DZ media
3 = 3 µ AS,E, Z, ZW, and DZ media
5 = 5 µ AS, Z, ZW, and DZ media
10 = 10 µ AS, E, M, Z, ZW, and DZ media
25 = 25 µ E, M, Z, ZW, and DZ media

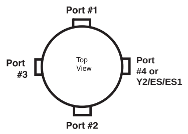
BOX 5

Seal Material
Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® Compatibility

BOX 6 *Specification of all 4 ports is required*

Inlet Porting			
Port 1 (Standard)	Port 2 (Optional)	Port 3 (Optional)	Port 4 (Optional)
N = None	N = None	N = None	N = None
			P2 = $^1/_8$" NPTF
		P8 = ½" NPTF	P8 = ½" NPTF
P12 = ¾" NPTF	P12 = ¾" NPTF	P12 = ¾" NPTF	P12 = ¾" NPTF
P16 = 1" NPTF	P16 = 1" NPTF	P16 = 1" NPTF	P16 = 1" NPTF
P20 = 1¼" NPTF	P20 = 1¼" NPTF	P20 = 1¼" NPTF	P20 = 1¼" NPTF
P24 = 1½" NPTF	P24 = 1½" NPTF	P24 = 1½" NPTF	P24 = 1½" NPTF
P32 = 2" NPTF	P32 = 2" NPTF	P32 = 2" NPTF	P32 = 2" NPTF
S8 = SAE-8	S8 = SAE-8	S8 = SAE-8	S8 = SAE-8
S12 = SAE-12	S12 = SAE-12	S12 = SAE-12	S12 = SAE-12
S16 = SAE-16	S16 = SAE-16	S16 = SAE-16	S16 = SAE-16
S20 = SAE-20	S20 = SAE-20	S20 = SAE-20	S20 = SAE-20
S24 = SAE-24	S24 = SAE-24	S24 = SAE-24	S24 = SAE-24

Inlet Porting Location



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

BOX 8

Optional Mounting Flange
Omit = None
B = Flange with 4 holes
BW = Flange with no holes

BOX 9

Dirt Alarm® Options	
	Omit = None
Visual	Y2 = Back-mounted tri-color gauge (located in Port 4)
	Y2C = Bottom-mounted tri-color gauge in cap
	Y5 = Back-mounted gauge in cap
Electrical	ES = Electric switch (located in port 4)
	ES1 = Heavy-duty electric switch with conduit connector (located in port 4)

BOX 10

Additional Options
Omit = None
G2293 = Cork gasket
G820 = Steel cap

NOTES:

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

Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3 and 4. K specifies one 9" element; KK specifies one 18" element. *Example: KKZ10*

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

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

Tank-Mounted Filter **RT**

Model No. of filter in photograph is RT1K10S24NP16CY2.

Features and Benefits

- Low pressure tank-mounted filter with up to 3 inlet ports
- Meets HF4 automotive standard
- Top, side or bottom mounting
- Optional check valve prevents reservoir siphoning
- RTW model allows filter to be welded to tank, instead of being bolted
- Double and triple stacking of K-size element can be replaced by single KK or 27K-size element
- Also available with new DirtCatcher® elements (KDZ and KKDZ)
- Various Dirt Alarm® options
- Allows consolidation of inventoried replacement elements by using K-size elements
- Available with Patented GeoSeal® Elements. See Section 8 – GeoSeal Filters (page 345) for details.

100 gpm
380 L/min

100 psi
7 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MOBILE VEHICLES

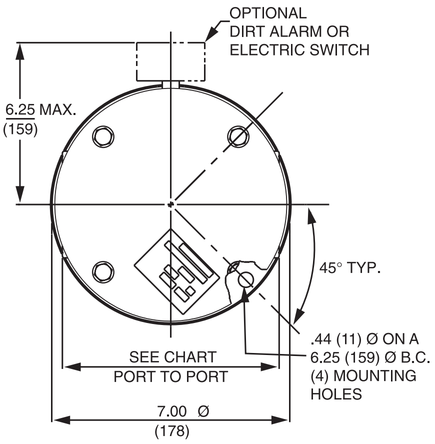
STEEL MAKING

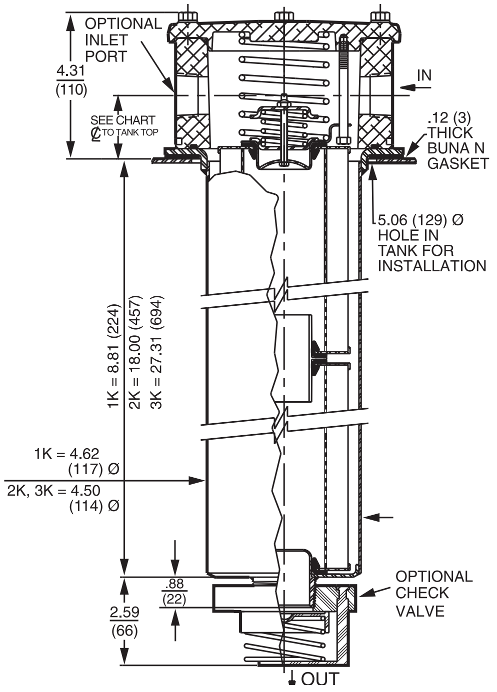
MACHINE TOOL

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 48 psi (3.3 bar)
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)
Element Change Clearance:	8.0" (205 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

Tank-Mounted Filter





	1½" Ports 4-Bolt Flange Only	2" Ports	All Other Porting
Port to Port	7.12"	7.56" (P, S, B) 7.38" (F)	6.38"
℄ to Casting Base	1.75"	1.81"	1.56"
℄ 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 Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	108	27K3	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

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

Flow Direction: Outside In See RTI, page 275 for inside out flow version.

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and all ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 μ E media (cellulose) with H (EPR) seal designation and all ASP® Media (synthetic)
Skydrol®	3, 5, 10 and 25 μ Z-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) and all ASP® media (synthetic)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.		
Return Line -Tank-Mounted	E Media	K3	1K3	2K3†	3K3†
		K10	1K10	2K10†	
		K25	1K25	2K25†	
	Z-Media®	KZ1	1KZ1	2KZ1†	
		KZ3	1KZ3	2KZ3†	
		KZ5	1KZ5	2KZ5†	
		KZ10	1KZ10		
		KZ25	1KZ25		
Flow		gpm	0 40 60 80 100		
		(L/min)	0 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.

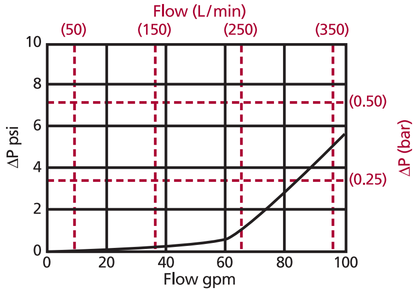
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

RT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP at 80 gpm (300 L/min) for RT1KZ10P24NN using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 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]
ΔP_{total} = 3.0 + 5.3 = 8.3 psi
or
= [.20 + .38 = .58 bar]

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K		1K	2K
K3	.25	.12	.08			
K10	.09	.05	.03			
K25	.02	.01	.01			
KZ1	.20	.10	.05	**KDZ1**	.24	.12
KZ3/KAS3	.10	.05	.03	**KDZ3**	.12	.06
KZ5/KAS5	.08	.04	.02	**KDZ5**	.10	.05
KZ10/KAS10	.05	.03	.02	**KDZ10**	.06	.03
KZ25	.04	.02	.01	**KDZ25**	.04	.02

	1K	2K
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).

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

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								

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	
RT	1K	Z	10		S24 S24 N		Y2		= RT1KZ10S24S24NY2

BOX 1

Filter Series
RT
RTW

BOX 2

Element Size and Length
1K KK, 27K
2K
3K

BOX 3

Media Type
Omit = E media (cellulose)
Z = Excellement® Z-Media® (synthetic)
AS = Anti-Static Pleat Media (synthetic)
ZW = Aqua-Excellement™ ZW media
DZ = Dirtcatcher® with Excellement® Z-Media®
W = W media (water removal)
M = M media (reusable metal mesh)

BOX 4

Element Part Number
1 = 1 μ Z, ZW, and DZ media
3 = 3 μ AS,E, Z, ZW, and DZ media
5 = 5 μ AS, Z, ZW, and DZ media
10 = 10 μ AS, E, M, Z, ZW, and DZ media
25 = 25 μ E, M, Z, ZW, and DZ media
60 = 60 μ M media

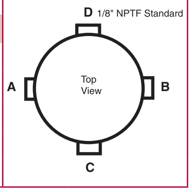
BOX 5

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® Compatibility

BOX 6 *Specification of all 3 ports is required*

Inlet Porting		
Port A	Port B	Port C
	N = None	N = None
P16 = 1" NPTF	P16 = 1" NPTF	P2 = ⅛" NPTF
P20 = 1¼" NPTF	P20 = 1¼" NPTF	P16 = 1" NPTF
P24 = 1½" NPTF	P24 = 1½" NPTF	S16 = SAE-16
P32 = 2" NPTF	P32 = 2" NPTF	
S16 = SAE-16	S16 = SAE-16	
S20 = SAE-20	S20 = SAE-20	
S24 = SAE-24	S24 = SAE-24	
S32 = SAE-32	S32 = SAE-32	
F20 = 1¼" SAE 4-bolt flange Code 61	F20 = 1¼" SAE 4-bolt flange Code 61	
F24 = 1½" SAE 4-bolt flange Code 61	F24 = 1½" SAE 4-bolt flange Code 61	
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"	

Inlet Porting Location



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

BOX 8

Dirt Alarm® Options		
		Omit = None
Located @ Port D	Visual	Y2 = Back-mounted tri-color gauge
	Electrical	ES = Electric switch ES3 = Electric switch with DIN connector
Located in cap	Visual	Y2C = Bottom-mounted tri-color gauge Y5 = Back-mounted gauge in cap
Located @ Port C	Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location
	Electrical	ESR = Electric switch mounted on opposite side of standard location ES1R = Heavy-duty electric switch mounted on opposite side of standard location

BOX 9

Additional Options
Omit = None
G2293 = Cork gasket
G547 = Two ⅛" gauge ports
G820 = Stamped cap
N = No-Element indicator
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each port designation)
30 = 30 psi bypass setting
40 = 40 psi bypass setting
50 = 50 psi bypass setting

NOTES:

Box 1. RTW allows filter to be welded to tank instead of bolted.

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 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. 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® is a registered trademark of Solutia Inc.

Box 6. If using Port B, Port A & B must always be the same type and size. Example: (A) P20 (B) P20 (C) P16

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

Tank-Mounted Filter (Inside Out Flow) RTI

Features and Benefits

- Tank-mounted "Inside Out" flow filter
- Up to 3 inlet ports available
- Offered in pipe, SAE straight thread and flanged porting
- Various Dirt Alarm® options

Model No. of filter in photograph is RTI3KZ10S24NP16Y2.

120 gpm
455 L/min

100 psi
7 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MOBILE VEHICLES

RAILROAD

STEEL MAKING

MACHINE TOOL

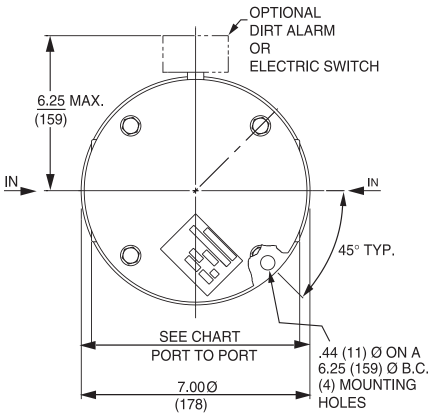
AGRICULTURE

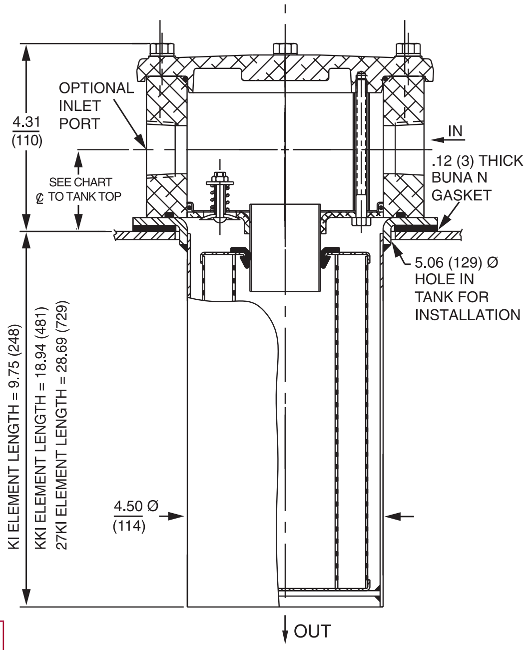
Filter Housing Specifications

Flow Rating:	Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (2 bar) Full Flow: 62 psi (4.3 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Steel
Weight of RTI-KI: Weight of RTI-KKI:	11.4 lbs. (5.2 kg) 14.5 lbs. (6.6 kg)
Element Change Clearance:	KI Element = 9.0 (229 mm) KKI Element = 18.0 (457 mm) 27KI Element = 27.0 (686 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

RTI Tank-Mounted Filter (Inside Out Flow)





	1¼", 1½" Standard Ports	1½" Ports 4-Bolt Flange Only
Port to Port	6.38"	7.12"
℄ to Casting Base	1.56"	1.75"
℄ 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 Information

	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	
Element	**$\beta_x \geq 75$**	**$\beta_x \geq 100$**	**$\beta_x \geq 200$**	**$\beta_x(c) \geq 200$**	**$\beta_x(c) \geq 1000$**
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

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KIZ1	85	KKIZ1	181	27KIZ1	276
KIZ3/KIAS3	88	KKIZ3/KKIAS3	185	27KIZ3/27KIAS3	283
KIZ10/KIAS10	<82	KKIZ10/KKIAS10	174	27KIZ10/27KIAS10	266

Element Collapse Rating:	100 psid (7 bar)
Flow Direction:	Inside Out
Element Nominal Dimensions:	KI: 3.9" (99 mm) O.D. x 9.0" (230 mm) long KKI: 3.9" (99 mm) O.D. x 18.0" (460 mm) long 27KI: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

Tank-Mounted Filter (Inside Out Flow) RTI

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and all ASP® media (synthetic)
Skydrol®	3, 5, 10 and 25 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) and all ASP® media (synthetic)

Skydrol is a registered trademark of Solutia Inc.

Element Selection Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.		
Return Line -Tank-Mounted	Z-Media®	Z10	KI	KKI	27KI
Flow	gpm	0	90	105	120
	(L/min)	0	340	400	455

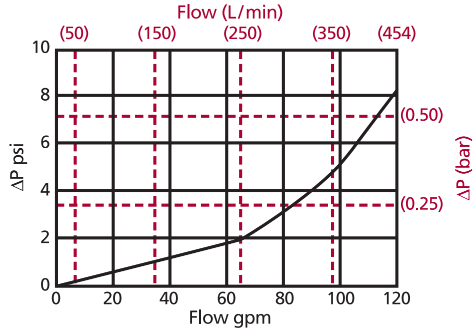
Shown above are the elements most commonly used in this housing.

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 Drop Information Based on Flow Rate and Viscosity

$\Delta P_{housing}$

RT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

KIZ10/KIAS10	.08
KKIZ10/KKIAS10	.05
27KIZ1027KIAS10	.04

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

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

Exercise:

Determine ΔP at 80 gpm (300 L/min) for RTIKKIZ10P24NN using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 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]

ΔP_{total} = 3.0 + 5.3 = 8.3 psi
or
= [.20 + .38 = .58 bar]

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder RTI:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
RTI	–	–	–	–	–

Example: *NOTE: Only box 6 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
RTI	KIZ10		S20 S20 N	Y2		= RTIKIZ10S20S20NY2

BOX 1

Filter Series
RTI

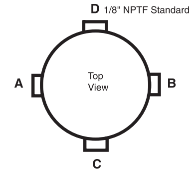
BOX 2

Element Part Number			
K Length	KK Length	27K Length	
KIZ1	KKIZ1	27KIZ1	= 1 μ Excellement® Z-Media® and ASP® media (synthetic)
KIZ3	KKIZ3	27KIZ3	= 3 μ Excellement® Z-Media® and ASP® media (synthetic)
KIZ10	KKIZ10	27KIZ10	= 10 μ Excellement® Z-Media® and ASP® media (synthetic)

BOX 3

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® Compatibility

Inlet Porting Location



BOX 4 *Specification of all 3 ports is required*

Inlet Porting		
Port A	Port B	Port C
P16 = 1" NPTF	N = None	N = None
P20 = 1¼" NPTF	P16 = 1" NPTF	P2 = ⅛" NPTF
P24 = 1½" NPTF	P20 = 1¼" NPTF	P16 = 1" NPTF
S16 = SAE-16	P24 = 1½" NPTF	S16 = SAE-16
S20 = SAE-20	S16 = SAE-16	
S24 = SAE-24	S20 = SAE-20	
F20 = 1¼" SAE 4-bolt flange Code 61	S24 = SAE-24	
F24 = 1½" SAE 4-bolt flange Code 61	F20 = 1¼" SAE 4-bolt flange Code 61	
	F24 = 1½" SAE 4-bolt flange Code 61	

BOX 5

Dirt Alarm® Options		
		Omit = None
Located @ Port D	Visual	Y2 = Back-mounted tri-color gauge
	Electrical	ES = Electric switch ES1 = Heavy-duty electric switch with conduit connector
Located in cap	Visual	Y2C = Bottom-mounted tri-color gauge Y5 = Back-mounted gauge in cap
Located @ Port C	Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location
	Electrical	ESR = Electric switch mounted on opposite side of standard location ES1R = Heavy-duty electric switch with conduit connector

BOX 6

Additional Options
Omit = None
G547 = Two ⅛" gauge ports
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each port designation)

NOTES:

Box 2. Replacement element part numbers are identical to contents of Boxes 2 and 3.

Box 3. 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® is a registered trademark of Solutia Inc.

Box 4. 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 LRT

Model No. of filter in photograph is LRT18LZ10S24NP16Y2.

Features and Benefits

- Low pressure tank-mounted filter
- Multiple inlet/outlet porting options
- Top, side or bottom mounting
- Optional check valve prevents reservoir siphoning
- Can also be used in return line application (contact factory)
- Visual gauge or electrical switch dirt alarms
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- Same day shipment model available
- Also available with DirtCatcher® elements (18LD)

150 gpm
570 L/min

100 psi
7 bar

Applications

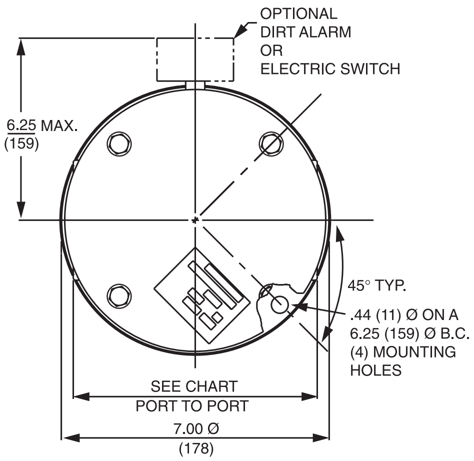
INDUSTRIAL
MOBILE VEHICLES
RAILROAD
STEEL MAKING
CONSTRUCTION
AGRICULTURE

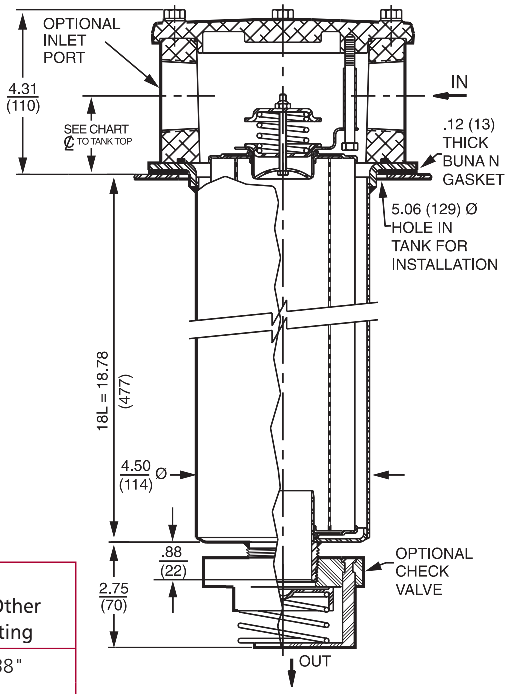
Filter Housing Specifications

Flow Rating:	Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 34 psi (2.3 bar)
Porting Head & Cap:	Die Cast Aluminum
Element Case:	Steel
Weight of LRT-18L:	14.6 lbs. (6.6 kg)
Element Change Clearance:	17.0" (432 mm)

LRT 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) 7.38" (F)	6.38"
℄ to Casting Base	1.75"	1.81"	1.56"
℄ to Tank Top	2.06"	2.12"	1.88"

Optional mounting ring available to weld to tank.

Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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

Element	DHC (gm)	Element	DHC (gm)
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
Element Nominal Dimensions:	4.0" (100 mm) O.D. x 18.5" (470 mm) long

Tank-Mounted Filter LRT

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.	
Return Line -Tank-Mounted	Z-Media®	18LZ1	18LZ1	See BFT
		18LZ3	18LZ3	
		18LZ5	18LZ5	
		18LZ10	18LZ10	
		18LZ25	18LSZ25	
Flow		gpm	0 25 50 75 100 125 150	
		(L/min)	0 100 200 300 400 570	

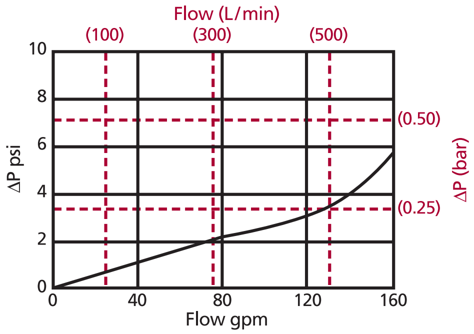
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

LRT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	18L		18L
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

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

Exercise:

Determine ΔP at 120 gpm (455 L/min) for LRT18LZ5P24Y2 using 200 SUS (44 cSt) fluid.

Solution:

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

$\Delta P_{element}$ = 120 x .04 x (200÷150) = 6.4 psi
or
= [455 x (.04÷54.9) x (44÷32) = .45 bar]

ΔP_{total} = 3.0 + 6.4 = 9.4 psi
or
= [.20 + .45 = .65 bar]

LRT Tank-Mounted Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model
See inside back cover for details.

How to Build a Valid Model Number for a Schroeder LRT:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
LRT	–	–	–	–	–	–	–

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	
LRT	18	LZ10		S24 S24 N		Y2		= LRT18LZ10S24S24NY2

BOX 1

Filter Series
LRT

BOX 2

Element Length (in)
18

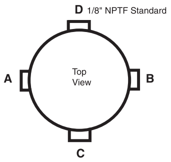
BOX 3

Element Size and Media
L3 = L size 3 μ E media (cellulose)
L10 = L size 10 μ E media (cellulose)
LZ1 = L size 1 μ Excellement® Z-Media® (synthetic)
LZ3 = L size 3 μ Excellement® Z-Media® (synthetic)
LZ5 = L size 5 μ Excellement® Z-Media® (synthetic)
LZ10 = L size 10 μ Excellement® Z-Media® (synthetic)
LZ25 = L size 25 μ Excellement® Z-Media® (synthetic)
LDZ1 = L size DirtCatcher® 1 μ Excellement® Z-Media®
LDZ3 = L size DirtCatcher® 3 μ Excellement® Z-Media®
LDZ5 = L size DirtCatcher® 5 μ Excellement® Z-Media®
LDZ10 = L size DirtCatcher® 10 μ Excellement® Z-Media®
LDZ25 = L size DirtCatcher® 25 μ Excellement® Z-Media®

BOX 4

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

BOX 5
Specification of all 3 ports is required

Inlet Porting		
Port A	**Port B**	**Port C**
	N = None	N = None
P16 = 1" NPTF	P16 = 1" NPTF	P2 = ⅛" NPTF
P20 = 1¼" NPTF	P20 = 1¼" NPTF	P16 = 1" NPTF
P24 = 1½" NPTF	P24 = 1½" NPTF	S16 = SAE-16
P32 = 2" NPTF	P32 = 2" NPTF	
S16 = SAE-16	S16 = SAE-16	**Inlet Porting Location**
S20 = SAE-20	S20 = SAE-20	
S24 = SAE-24	S24 = SAE-24	
S32 = SAE-32	S32 = SAE-32	
F20 = 1¼" SAE 4-bolt flange Code 61	F20 = 1¼" SAE 4-bolt flange Code 61	
F24 = 1½" SAE 4-bolt flange Code 61	F24 = 1½" SAE 4-bolt flange Code 61	
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"	

BOX 6

Outlet Porting Options
Omit = 2" NPT male
C = Check valve
D = Diffuser
T = 13" Tube extension
A = Non-threaded outlet

BOX 7

Dirt Alarm® Options		
		Omit = None
Located @ Port D	Visual	Y2 = Back-mounted tri-color gauge
	Electrical	ES = Electric switch ES1 = Heavy-duty electric switch with conduit connector
Located in cap	Visual	Y2C = Bottom-mounted tri-color gauge Y5 = Back-mounted gauge in cap
Located @ Port C	Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location
	Electrical	ESR = Electric switch mounted on opposite side of standard location ES1R = Heavy-duty electric switch with conduit connector

BOX 8

Additional Options
Omit = None
G2293 = Cork gasket
G547 = Two ⅛" gauge ports
G820 = Stamped cap
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each port designation)
30 = 30 psi bypass setting
40 = 40 psi bypass setting
50 = 50 psi bypass setting

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® 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**

225 gpm
850 L/min

145 psi
10 bar

Model No. of filter in photograph is ART85Z10F43.

Features and Benefits

- Compact, lightweight, low pressure tank mounted filter ideal for mobile applications
- Lightweight plastic bowl
- ART aluminum alloy is designed to be water tolerant - anodization is not required for use with water based fluids (HWCF).
- Special filter element design provides aftermarket benefits.
- Various Dirt Alarm® options

Applications

AGRICULTURE

AUTOMOTIVE MANUFACTURING

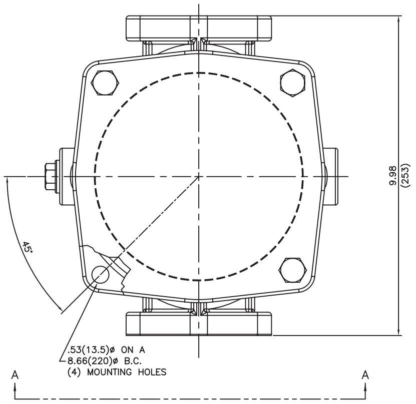
MOBILE VEHICLES

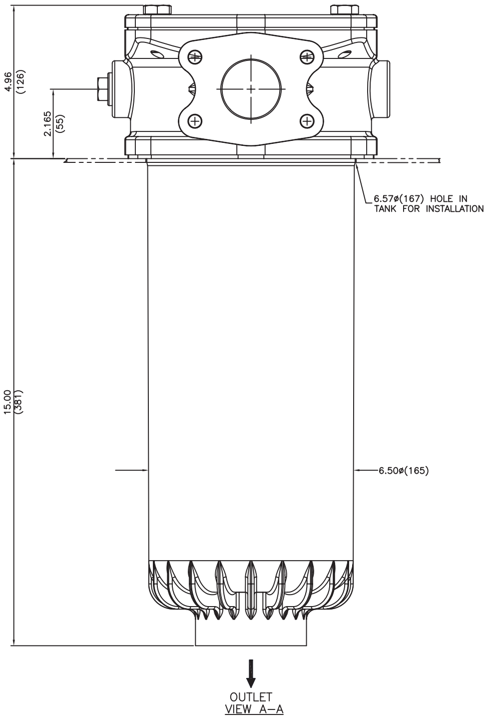
Filter Housing Specifications

Flow Rating:	Up to 225 gpm (850 L/min) for 145 SUS (32 cSt) fluids
Max. Operating Pressure:	145 psi (10 bar)
Min. Yield Pressure:	535 psi (37 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	145 psi (10 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 43 psi (3 bar) Full Flow: 69 psi (4.75 bar)
Porting Head & Cap: Element Case:	Aluminum Plastic
Weight of ART:	15 lbs. (7 kg)
Element Change Clearance:	16.39" (340 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
KT
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

ART Tank-Mounted Filter





Metric dimensions in ( ).

Element Performance Information

Element	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	ß$_x$(c) ≥ 200	ß$_x$(c) ≥ 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)
85Z1	185
85Z3	147
85Z5	206
85Z10	164
85Z25	167

Element Collapse Rating: 150 psid (10 bar)

Flow Direction: Outside In

Element Nominal Dimensions: 4.5" (114.3 mm) O.D. x 13.8" (350.52 mm) long

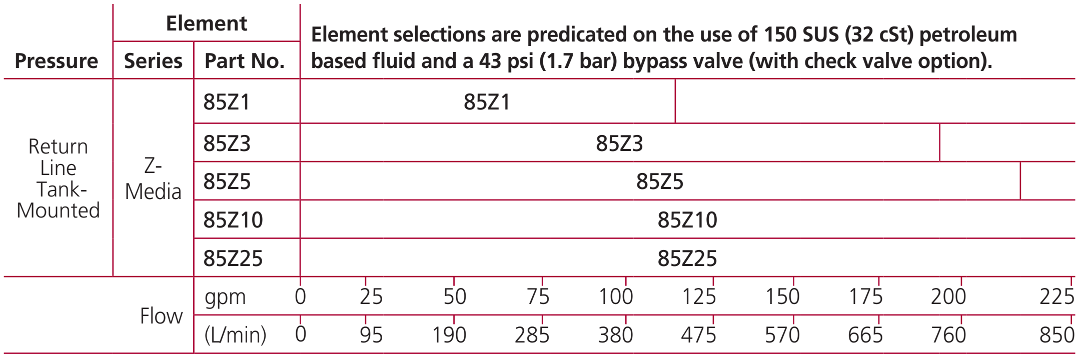
Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)

Element Selection

Based on Flow Rate

Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 43 psi (1.7 bar) bypass valve (with check valve option).



Shown above are the elements most commonly used in this housing.
*Note: Additional per element flow is available up to 300 gpm when using ART filter without check valve option.
See housing pressure drop graph below.

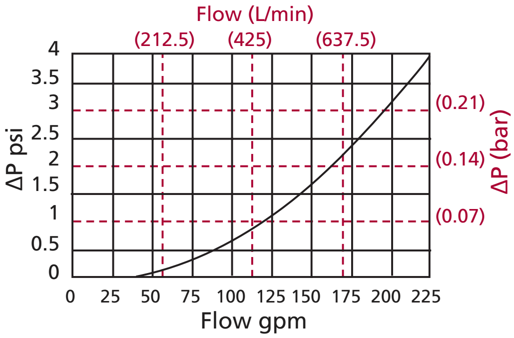
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

ART $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	Z
85Z1	.22
85Z3	.12
85Z5	.1
85Z10	.08
85Z25	.03

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

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

Exercise:

Determine ΔP at 160 gpm (600 L/min)
for ART85Z5S43Y2 using 175 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1.9 psi [.17 bar]

$\Delta P_{element}$ = 160 x 0.1 x (175÷150) = 18.67 psi
or
= [600 x (0.1÷54.9) x (38÷32) = 1.30 bar]

ΔP_{total} = 1.9 + 18.67 = 20.57 psi
or
= [.17 + 1.30 = 1.47 bar]

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
KT
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder ART:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
ART						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
ART	85Z10		F	43		Y2	**= ART85Z10F43Y2**

BOX 1

Filter Series
ART

BOX 2

Element Size and Media	
85Z1	= 1 μ Excellement® Z-Media® (synthetic)
85Z3	= 3 μ Excellement® Z-Media® (synthetic)
85Z5	= 5 μ Excellement® Z-Media® (synthetic)
85Z10	= 10 μ Excellement® Z-Media® (synthetic)
85Z25	= 25 μ Excellement® Z-Media® (synthetic)

BOX 3

Seal Material
Omit = Buna N
H = EPR

BOX 4

Porting
F = 2½"SAE 40-bolt flange Code 61
FF = Dual 2½" SAE 40-bolt flange Code 61
S = SAE-32
SS = Dual SAE-32

BOX 5

Bypass Setting
43 = 43 lb. Bypass

BOX 6

Outlet Options
Omit = 2" ISO 228 G thread

BOX 7

Dirt Alarm® Options		
	Omit =	None
Visual	Y2 =	Back-mounted tri-color gauge
	Y2R =	Back-mounted gauge mounted on opposite side of standard location
Electrical	ES =	Electric switch (normally open)
	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

300 gpm
1135 L/min

100 psi
7 bar

Model No. of filter in photograph is BFT1BBZ5F.

Features and Benefits

- Low pressure tank-mounted filter
- Designed for high return line flows
- Dual inlet porting
- Top, side or bottom mounting
- Optional check valve prevents reservoir siphoning
- Special filter element design provides aftermarket benefits
- Also available with DirtCatcher® element (BBD)
- Cast iron head available

Applications

INDUSTRIAL

MOBILE VEHICLES

PULP & PAPER

STEEL MAKING

CONSTRUCTION

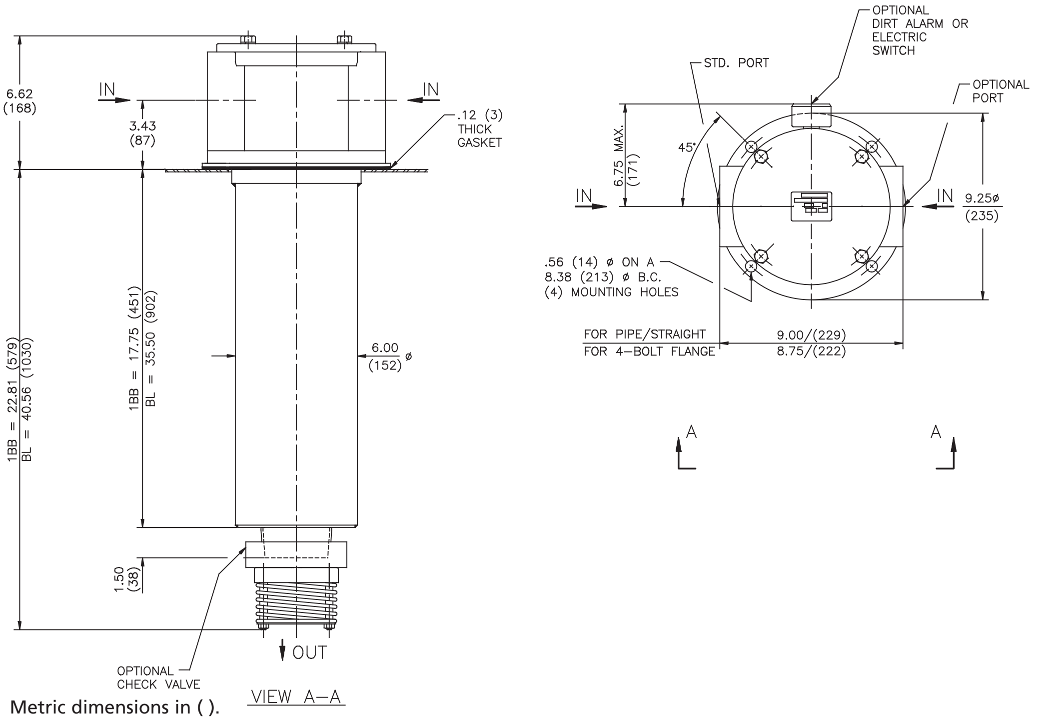
AGRICULTURE

Filter Housing Specifications

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

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

BFT Tank-Mounted Filter



Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
BB10	132			BL10	264
BBZ1	268	BBDZ1	205	BLZ1	536
BBZ3	275	BBDZ3	163	BLZ3	550
BBZ5	301	BBDZ5	229	BLZ5	550
BBZ10	272	BBDZ10	183	BLZ10	550
BBZ25	246	BBDZ25	186	BLZ25	550

Element Collapse Rating:	150 psid (10 bar)
Flow Direction:	Outside In
Element Nominal Dimensions:	BB: 5.0" (125 mm) O.D. x 18.0" (460 mm) long BL: 5.0" (125 mm) O.D. x 36.0" (920 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve (with check valve option).	
Return Line Tank-Mounted	E Media	BB10	BB10	
		BB25	BB25	
	Z-Media®	BBZ/BLZ1	BBZ1*	BLZ1
		BBZ/BLZ3	BBZ3*	BLZ3
		BBZ/BLZ5	BBZ5 / BLZ5	
		BBZ/BLZ10	BBZ10 / BLZ10	
		BBZ/BLZ25	BBZ25 / BLZ25	
Flow		gpm	0 100 150 200 250 300	
		(L/min)	0 400 600 800 1000 1150	

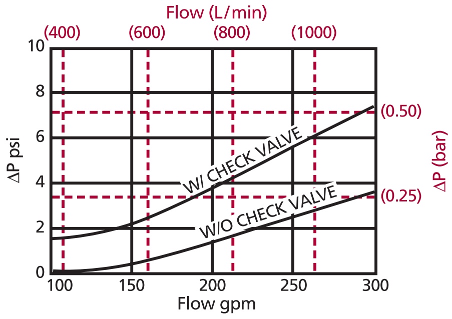
Shown above are the elements most commonly used in this housing.
*Note: Additional per element flow is available up to 300 gpm when using BFT filter without check valve option. See housing pressure drop graph below.

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 Drop Information Based on Flow Rate and Viscosity

$\Delta P_{housing}$

BFT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	BB	BL		BBD
BB10	.03	.01		
BB25	.01	.01		
BBZ1	.07	.04	**BBDZ1**	.08
BBZ3	.05	.03	**BBDZ3**	.06
BBZ5	.04	.02	**BBDZ5**	.05
BBZ10	.03	.02	**BBDZ10**	.04
BBZ25	.02	.01	**BBDZ25**	.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

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

Exercise:

Determine ΔP at 160 gpm (600 L/min)
for BFT1BBZ3PCY2 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2.5 psi [.20 bar]

$\Delta P_{element}$ = 160 x .05 x (200÷150) = 10.7 psi
or
= [600 x (.05÷54.9) x (44÷32) = .8 bar]

ΔP_{total} = 2.5 + 10.7 = 13.2 psi
or
= [.20 + .8 = 1.0 bar]

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

BFT Tank-Mounted Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KF3:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
BFT									

Example: *NOTE: Only box 10 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	
BFT	1	BB10		P				Y2		= BFT1BB10PY2

BOX 1

Filter Series
BFT

BOX 2

Number of Elements
1

BOX 3

Element Size and Media		
BB Length	BL Length	
BB3		= 10 μ E media (cellulose)
BB10		= 10 μ E media (cellulose)
BB25		= 25 μ E media (cellulose)
BBZ1	BLZ1	= 1 μ Excellement® Z-Media® (synthetic)
BBZ3	BLZ3	= 3 μ Excellement® Z-Media® (synthetic)
BBZ5	BLZ5	= 5 μ Excellement® Z-Media® (synthetic)
BBZ10	BLZ10	= 10 μ Excellement® Z-Media® (synthetic)
BBZ25	BLZ25	= 25 μ Excellement® Z-Media® (synthetic)
BBDZ1		= BB size DirtCatcher® 1 μ Excellement® Z-Media®
BBDZ3		= BB size DirtCatcher® 3 μ Excellement® Z-Media®
BBDZ5		= BB size DirtCatcher® 5 μ Excellement® Z-Media®
BBDZ10		= BB size DirtCatcher® 10 μ Excellement® Z-Media®
BBDZ25		= BB size DirtCatcher® 25 μ Excellement® Z-Media®

BOX 4

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

BOX 5

Porting
P = 2½" NPTF
PP = Dual 2½" NPTF
S = SAE-40
SS = Dual SAE-40
F = 2½"SAE 4-bolt flange Code 61
FF = Dual 2½"SAE 4-bolt flange Code 61

BOX 6

Bypass Setting
Omit = 25 psi cracking
40 = 40 psi cracking

BOX 7

Outlet Porting
Omit = 3" NPT male
T = 13" Tube extension

BOX 8

Optional Check Valve
Omit = None
C = Check valve

BOX 9

Dirt Alarm® Options		
	Omit =	None
Visual	Y2 =	Back-mounted tri-color gauge
	Y2R =	Back-mounted gauge mounted on opposite side of standard location
Electrical	ES =	Electric switch
	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

BOX 10

Additional Options
Omit = None
G547 = Two ⅛" gauge ports
G1476 = Three-terminal electric switch
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each port designation)
40 = 40 psi bypass setting

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 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® is a registered trademark of Solutia Inc.

Box 8. See also "Accessories for Tank-Mounted Filters," page 307.

Tank-Mounted Filter **QT**

Model No. of filter in photograph is QT39QZ10P48D5C.

Features and Benefits

- Low pressure tank-mounted filter
- Designed for high return line flows
- Tank-mounted unit saves space, reduces plumbing
- Cap handles provide for easy element changeout
- Offered with standard Q, QW, and QPML deep-pleated elements in 16" and 39" lengths with Viton® seals as the standard seal option

450 gpm
1700 L/min
100 psi
7 bar

Viton® is a registered trademark of DuPont Dow Elastomers.

Applications

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

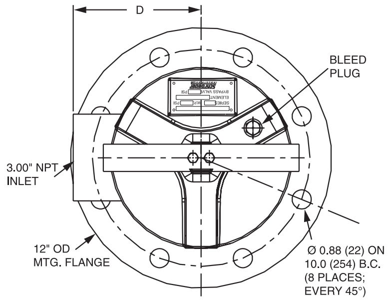
MINING TECHNOLOGY

Filter Housing Specifications

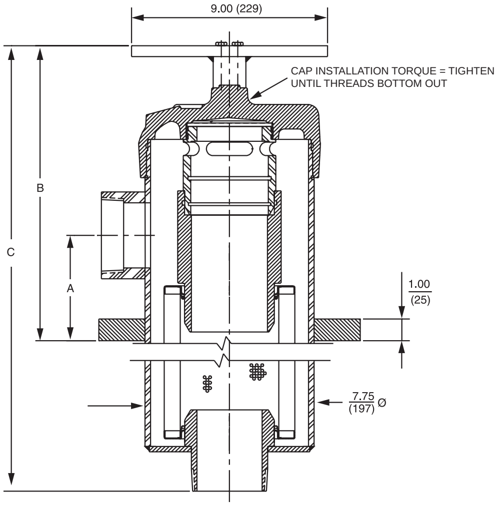
Flow Rating:	Up to 450 gpm (1700 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	300 psi (21 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	100 psi (7 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30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

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

QT Tank-Mounted Filter



TOP VIEW



SECTION A-A

INLET PORT SIZE*	DIMENSIONS			
	A	B	C	D
3"	4.85 (123)	14.62 (371)	16Q: 30.43 (773) 39Q: 52.25 (1327)	5.88 (149)
4"	5.75 (146)	16.12 (409)	16Q: 30.43 (773) 39Q: 52.25 (1327)	6.13 (156)

*Outlet port is always 3".

Metric dimensions in ( ).

Element Performance Information

		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	
Element		**ß$_x$ ≥ 75**	**ß$_x$ ≥ 100**	**ß$_x$ ≥ 200**	**ß$_x$(c) ≥ 200**	**ß$_x$(c) ≥ 1000**
16Q	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
	Z5/PMLZ5/AS5V/PMLAS5V	2.5	3.0	4.0	4.8	6.3
	Z10/PMLZ10/AS10V/PMLAS10V	7.4	8.2	10.0	8.0	10.0
	Z25/PMLZ25	18.0	20.0	22.5	19.0	24.0
39Q	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
	Z5/PMLZ5/AS5V/PMLAS5V	2.5	3.0	4.0	4.8	6.3
	Z10/PMLZ10/AS10V/PMLAS10V	7.4	8.2	10.0	8.0	10.0
	Z25/PMLZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element		**DHC (gm)**	**Element**	**DHC (gm)**
16Q	Z1	276	PMLZ1	307
	Z3/AS3V	283	PMLZ3/PMLAS3V	315
	Z5/AS5V	351	PMLZ5/PMLAS5V	364
	Z10/AS10V	280	PMLZ10/PMLAS10V	330
	Z25	254	PMLZ25	299
39Q	Z1	974	PMLZ1	1485
	Z3/AS3V	1001	PMLZ3/PMLAS3V	1525
	Z5/AS5V	954	PMLZ5/PMLAS5V	1235
	Z10/AS10V	940	PMLZ10/PMLAS10V	1432
	Z25	853	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar)

Flow Direction: Outside In

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and all ASP® media (synthetic)

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 30 psi (2.1 bar) bypass valve.
To 100 psi (7 bar)	Z-Media®	16 & 39QZ1	16QZ1 39QZ1
		16 & 39QZ3	16QZ3 39QZ3
		16 & 39QZ5	16QZ5 39QZ5
		16 & 39QZ10	16QZ10 39QZ10
		16 & 39QZ25	16QZ25 & 39QZ25
		16 & 39QPMLZ1	16QPMLZ1 39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3 39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5 39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10 39QPMLZ10
		16 & 39QPMLZ25	16QPMLZ25 39QPMLZ25
	Flow	gpm	0 150 200 300 400 450
		(L/min)	0 500 1000 1500 1700

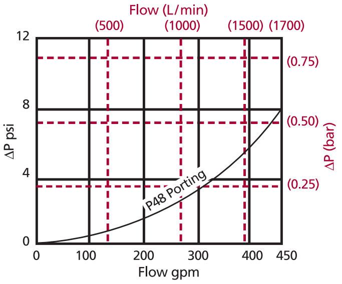
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

QT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

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

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

Exercise:

Determine ΔP at 200 gpm (757 L/min) for QT39QZ3VP48D5C using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1.5 psi [.10 bar]

$\Delta P_{element}$ = 200 x .04 x (200÷150) = 10.7 psi

or

= [757 x (.04÷54.9) x (44÷32) = .76 bar]

ΔP_{total} = 1.5 + 10.7 = 12.2 psi

or

= [.10 + .76 = .86 bar]

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

16QZ1	.09	**39QZ1**	.03
16QZ3/ 16QAS3V	.04	**39QZ3/ 39QAS3V**	.02
16QZ5/ 16QAS5V	.04	**39QZ5/ 39QAS5V**	.02
16QZ10/ 16QAS10V	.03	**39QZ10/ 39QAS10V**	.01
16QZ25	.01	**39QZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3/ 16QPMLAS3V	.05	**39QPMLZ3/ 39QPMLAS3V**	.02
16QPMLZ5/ 16QPMLAS5V	.05	**39QPMLZ5/ 39QPMLAS5V**	.02
16QPMLZ10/ 16QPMLAS10V	.04	**39QPMLZ10/ 36QPMLAS10V**	.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).

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

QT Tank-Mounted Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder QT:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
QT									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
QT	16	Q	Z	3		P48			D5C	= QT16QZ3P48D5C

BOX 1

Filter Series
QT

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

Media Type
Z = Excellement® Z-Media® (synthetic)
W = W media (water removal)
AS = Anti-Static Pleat Media (synthetic)

BOX 5

Micron Rating
1 = 1 μ Z-Media®
3 = 3 μ AS and Z-Media®
5 = 5 μ AS and Z-Media®
10 = 10 μ AS and Z-Media®
25 = 25 μ Z-Media®

BOX 6

Housing Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 7

Inlet Porting
P48 = 3" NPTF
P64 = 4" NPTF

BOX 8

Bypass Setting
Omit = 30 psi cracking
15 = 15 psi cracking
40 = 40 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 9

Outlet Porting
Omit = 3" NPT Male
C = Check valve
D = Diffuser
CD = Check valve and diffuser

BOX 10

Dirt Alarm® Options	
	Omit = None
Visual	D5C = Visual pop-up in cap
Visual with Thermal Lockout	D8C = Visual w/ thermal lockout in cap
Electrical	MS5C = Electrical w/ 12 in. 18 gauge 4-conductor cable in cap
	MS5LCC = Low current MS5 in cap
	MS10C = Electrical w/ DIN connector (male end only) in cap
	MS10LCC = Low current MS10 in cap
	MS11C = Electrical w/ 12 ft. 4-conductor wire in cap
	MS12C = Electrical w/ 5 pin Brad Harrison connector (male end only) in cap
	MS12LCC = Low current MS12 in cap
	MS16C = Electrical w/ weather-packed sealed connector in cap
	MS16LCC = Low current MS16 in cap
	MS17LCC = Electrical w/ 4 pin Brad Harrison male connector in cap
Electrical with Thermal Lockout	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
	MS12TC = MS12 (see above) w/ thermal lockout
	MS12LCTC = Low current MS12T in cap
	MS16TC = MS16 (see above) w/ thermal lockout in cap
	MS16LCTC = Low current MS16T in cap
	MS17LCTC = Low current MS17T in cap
Electrical Visual	MS13C = Supplied w/ threaded connector & light in cap
	MS14C = Supplied w/ 5 pin Brad Harrison connector & light (male end) in cap
Electrical Visual with Thermal Lockout	MS13DCTC = MS13 (see above), direct current, w/ thermal lockout in cap
	MS13DCLCTC = Low current MS13DCT in cap
	MS14DCTC = MS14 (see above), direct current, w/ thermal lockout in cap
	MS14DCLCTC = Low current MS14DCT in cap

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 element are not available in ASP® media.

Box 4. E media elements are also available for the QT filter housing. Contact factory for more information.

Box 4. For Option W, Box 3 must equal Q.

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

Tank-Mounted Filter Kit **KTK**

100 gpm
380 L/min

100 psi
7 bar

Features and Benefits

- Special tank-mounted filter kit
- Includes: cap assembly, weld ring assembly, element and bushing
- Available with standard K, KK or 27K-size elements
- Bypass valve in cap assembly

Model No. of filter in photograph is KTK-KKZ10.

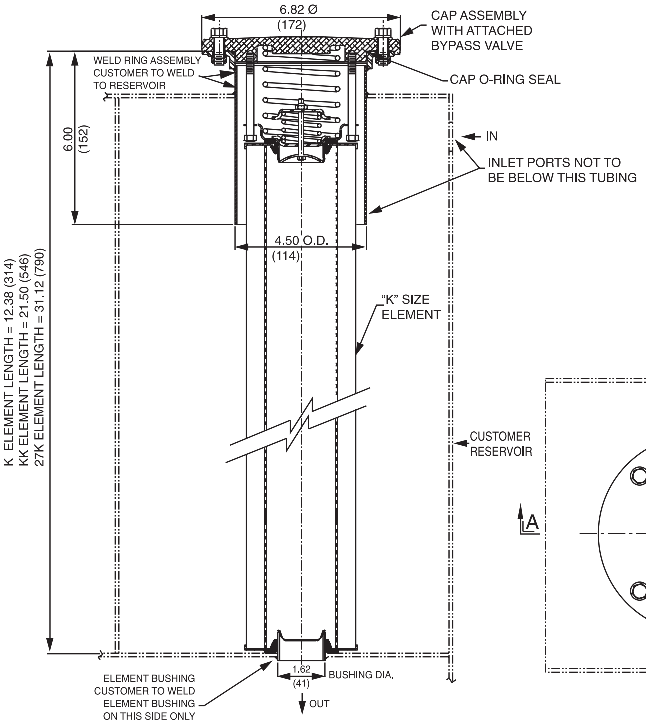
Applications

MOBILE VEHICLES

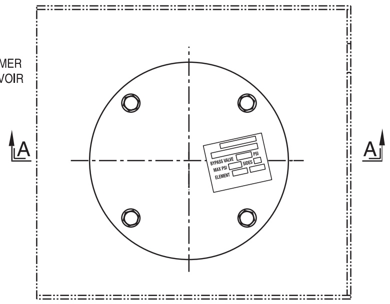
Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar) exclusive of tank design
Min. Yield Pressure:	Contact factory
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 40 psi (2.8 bar)
Porting Cap: Weld Ring:	Die Cast Aluminum Steel
Element Change Clearance:	8.0" (205 mm) for K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

KTK Tank-Mounted Filter Kit



SECTION A-A



Metric dimensions in ( ).

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

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
K3	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)
K3	54	KK3	108	27K3	162				
K10	44	KK10	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

Element Collapse Rating:	150 psid (10 bar) for standard elements
Flow Direction:	Outside In
Element Nominal Dimensions:	3.9" (99 mm) O.D. x 9.0" (230 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® media (synthetic)
High Water Content	All Z-Media® and all ASP® media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® and 10 μ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® and all ASP® media (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 μ E media (cellulose) with H (EPR) seal designation and ASP® media (synthetic)
Skydrol®	3, 5, 10 and 25 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) and all ASP® media (synthetic)

Skydrol® is a registered trademark of Solutia Inc.

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	27K
K3	.25	.12	.08
K10	.09	.05	.03
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
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).

Notes

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KTK:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
KTK				

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
KTK	K	Z3			= KTKKZ3

BOX 1

Filter Series
KTK

BOX 2

Element Length
K
KK
27K

BOX 3

Element Part Number
3 = 3 μ E media (cellulose)
10 = 10 μ E media (cellulose)
25 = 25 μ E media (cellulose)
Z1 = 1 μ Excellement® Z-Media® (synthetic)
Z3/AS3 = 3 μ Excellement® Z-Media® (synthetic)
Z5/AS5 = 5 μ Excellement® Z-Media® (synthetic)
Z10/AS10 = 10 μ Excellement® Z-Media® (synthetic)
Z25 = 25 μ Excellement® Z-Media® (synthetic)
ZW1 = 1 μ Aqua-Excellement™ ZW media
ZW3 = 3 μ Aqua-Excellement™ ZW media
ZW5 = 5 μ Aqua-Excellement™ ZW media
ZW10 = 10 μ Aqua-Excellement™ ZW media
ZW25 = 25 μ Aqua-Excellement™ ZW media
ZW1 = 1 μ Aqua-Excellement™ ZW media
ZW3 = 3 μ Aqua-Excellement™ ZW media
ZW5 = 5 μ Aqua-Excellement™ ZW media
ZW10 = 10 μ Aqua-Excellement™ ZW media
ZW25 = 25 μ Aqua-Excellement™ ZW media

BOX 4

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® Compatibility

BOX 5

Dirt Alarm® Options	
	Omit = None
Visual	Y2C = Bottom-mounted gauge in cap

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® is a registered trademark of Solutia Inc.

Tank-Mounted Filter Kit LTK

Model No. of filter in photograph is LTK-18LZ3.

Features and Benefits

- Special tank-mounted filter kit
- Includes: cap assembly, weld ring assembly, element and bushing
- Available with standard 18L sized element
- Bypass valve in cap assembly

150 gpm
570 L/min

100 psi
7 bar

Applications

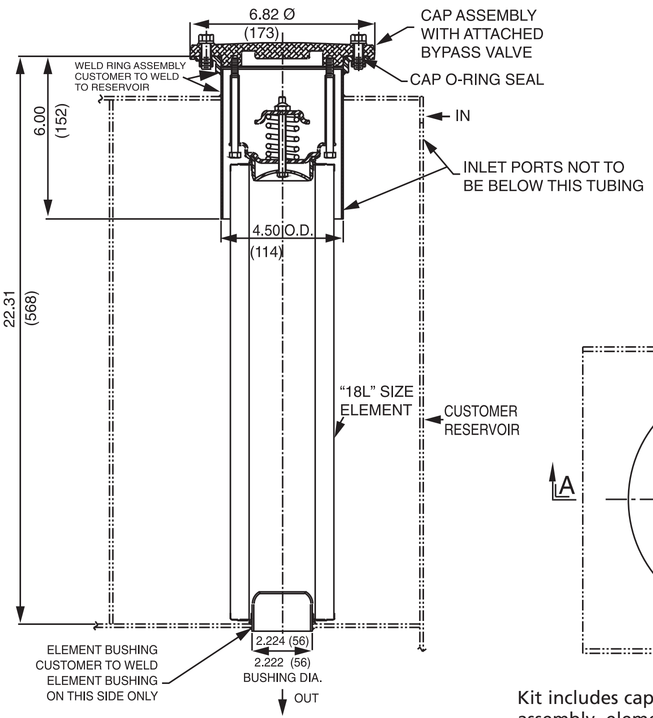
MOBILE VEHICLES

Filter Housing Specifications

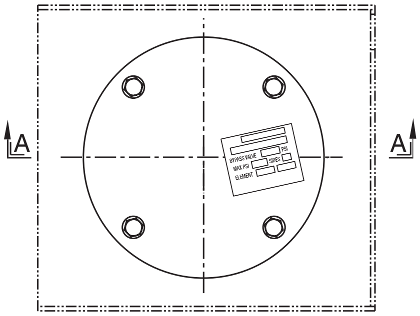
Flow Rating:	Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar) exclusive of tank design
Min. Yield Pressure:	Contact factory
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 47 psi (3.2 bar)
Porting Cap: Weld Ring:	Die Cast Aluminum Steel
Element Change Clearance:	17.0" (435 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

LTK Tank-Mounted Filter Kit



SECTION A-A



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

Metric dimensions in ( ).

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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

Element	DHC (gm)
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 Nominal Dimensions: 4.0" (100 mm) O.D. x 18.5" (470 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-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) 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.

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	18L
18LZ1	.10
18LZ3	.05
18LZ5	.04
18LZ10	.03
18LZ25	.02

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

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

Notes

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

LTK Tank-Mounted Filter Kit

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder LTK:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LTK				

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
LTK	18	LZ3			**= LTK18LZ3**

BOX 1

Filter Series
LTK

BOX 2

Length of Element (in)
18

BOX 3

Element Size and Media

L3 = L size 3 μ E media (cellulose)
L10 = L size 10 μ E media (cellulose)
L25 = L size 25 μ E media (cellulose)
LZ1 = L size 1 μ Excellement® Z-Media® (synthetic)
LZ3 = L size 3 μ Excellement® Z-Media® (synthetic)
LZ5 = L size 5 μ Excellement® Z-Media® (synthetic)
LZ10 = L size 10 μ Excellement® Z-Media® (synthetic)
LZ25 = L size 25 μ Excellement® Z-Media® (synthetic)

BOX 4

Seal Material

Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® Compatibility

BOX 5

	Dirt Alarm® 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® is a registered trademark of Solutia Inc.

Medium Pressure In-Tank Filter **MRT**

Model No. of filter in photograph is MRT18LZ10S24S24D5.

Features and Benefits

- Medium pressure tank mounted filter ideal for applications with high pressure surge in the return line
- Two possible inlet porting locations
- Various Dirt Alarm® options available
- Also available with DirtCatcher® element
- Optional sampling fitting available upon request

150 gpm
570 L/min

900 psi
62 bar

Applications

INDUSTRIAL

MOBILE VEHICLES

STEEL MAKING

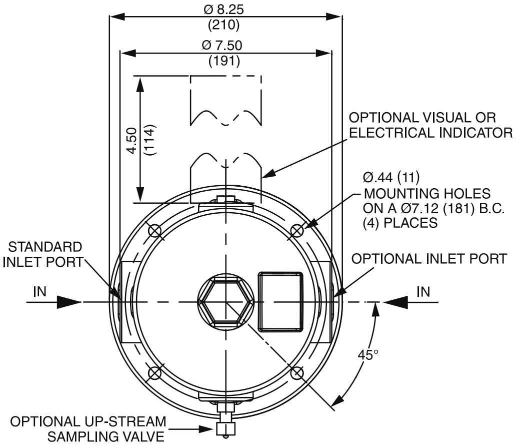
AGRICULTURE

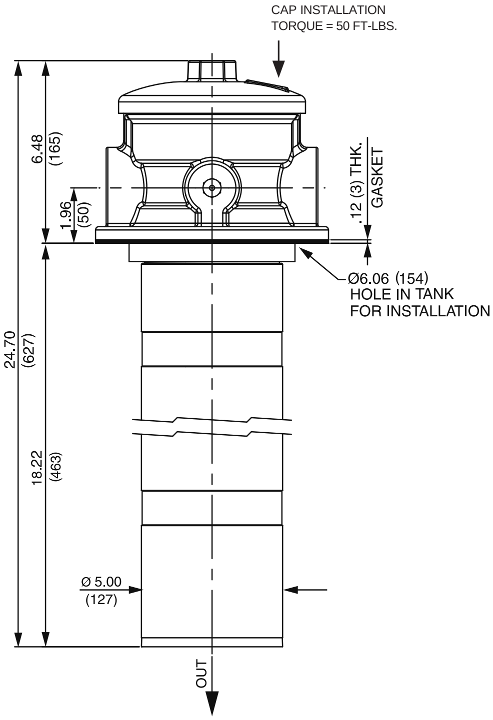
Filter Housing Specifications

Flow Rating:	Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	900 psi (62 bar)
Min. Yield Pressure:	2700 psi (186 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	750 psi (52 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)
Porting Head & Cap: Element Case:	Cast Aluminum (Anodized) Steel
Weight of MRT:	36.0 lbs. (16.4 kg)
Element Change Clearance:	17.0" (432 mm)

MRT

Medium Pressure In-Tank Filter





Metric dimensions in ( ).

Element Performance Information

Element	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	
	ß$_x$ ≥ 75	ß$_x$ ≥ 100	ß$_x$ ≥ 200	ß$_x$(c) ≥ 200	ß$_x$(c) ≥ 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 Capacity

Element	DHC (gm)	Element	DHC (gm)
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

Element Nominal Dimensions: 4.0" (100 mm) O.D. x 18.5" (470 mm) long

Medium Pressure In-Tank Filter **MRT**

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)

Element Selection

Based on Flow Rate

Pressure	Element Series	Element 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.
Return Line Tank-Mounted	Z-Media®	18LZ1/18LDZ1	18LDZ1 18LZ1
		18LZ3/18LDZ3	18LZ3/18LDZ3
		18LZ5/18LDZ5	18LZ5/18LDZ5
		18LZ10/18LDZ10	18LZ10/18LDZ10
		18LZ25/18LDZ25	18LZ25/18LDZ25
Flow		gpm	0 25 50 75 100 125 150
		(L/min)	0 100 200 300 400 570

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

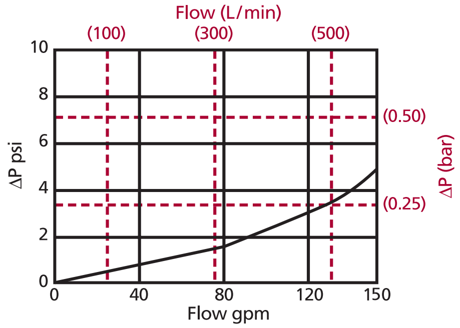
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

MRT $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (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

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

Exercise:

Determine ΔP at 120 gpm (455 L/min) for MRT18LZ5S24S24D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.21 bar]

$\Delta P_{element}$ = 120 x .04 x (200÷150) = 6.4 psi
or
= [455 x (.02÷54.9) x (44÷32) = .23 bar]

ΔP_{total} = 3.0 + 6.4 = 9.4 psi
or
= [.21 + .23 = .44 bar]

MRT Medium Pressure In-Tank Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MRT:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
MRT						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
MRT	18	LZ10		S24 S24			= **MRT18LZ10S24S24**

BOX 1

Filter Series
MRT

BOX 2

Element Length (in)
18

BOX 3

Element Size and Media

L3 = L size 3 μ E media (cellulose)
L10 = L size 10 μ E media (cellulose)
LZ1 = L size 1 μ Excellement® Z-Media® (synthetic)
LZ3 = L size 3 μ Excellement® Z-Media® (synthetic)
LZ5 = L size 5 μ Excellement® Z-Media® (synthetic)
LZ10 = L size 10 μ Excellement® Z-Media® (synthetic)
LZ25 = L size 25 μ Excellement® Z-Media® (synthetic)
LDZ1 = L size DirtCatcher® 1 μ Excellement® Z-Media®
LDZ3 = L size DirtCatcher® 3 μ Excellement® Z-Media®
LDZ5 = L size DirtCatcher® 5 μ Excellement® Z-Media®
LDZ10 = L size DirtCatcher® 10 μ Excellement® Z-Media®
LDZ25 = L size DirtCatcher® 25 μ Excellement® Z-Media®

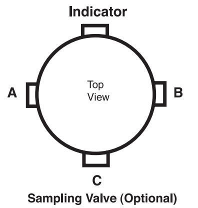
BOX 4

Seal Material

Omit = Buna N

BOX 5
Specification of both ports is required

Inlet Porting

Port A	Port B	Inlet Porting Location
S = S24	S = S24	
N = None	N = None	

BOX 6

	Dirt Alarm® Options
	Omit = None
Visual	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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 MS14DC

BOX 7

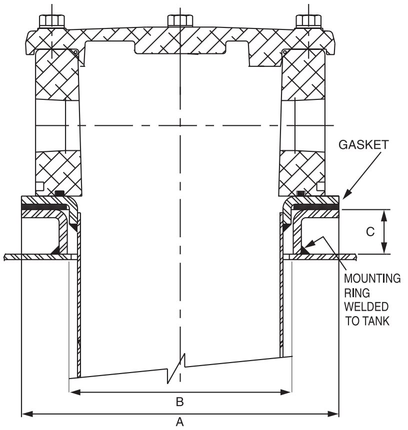
Options

Omit = No sampling valve
SV = Up stream sampling valve

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4.
Example: 18L3

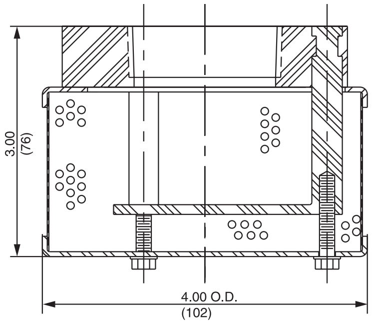
Accessories for Tank-Mounted Filters



Mounting Ring for ST, ZT, RT, RTI and LRT Models

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 Number	Part Number	A	B	C
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)

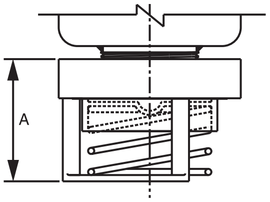


Diffuser for KFT, RT and LRT Models

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"



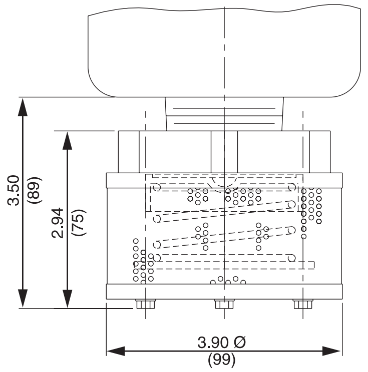
Check Valve for ST, KFT, RT, LRT and BFT Models

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	A
ST, KFT, RT	A-LFT-158Q-1	1½"	2.34 (59)
LRT	A-LFT-880	2"	2.34 (59)
BFT	A-BFT-103	3"	4.50 (114)



Check Valve Diffuser Combination for KFT and RT Models

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 1½" NPT female threads, order part number A-LFT-1208.

No other outlet port options are available if the check valve/diffuser is used.

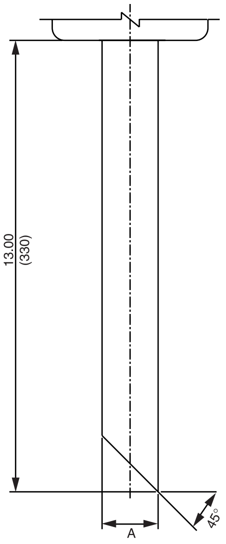
IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

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)



Note: No other outlet port options are available if the tube adapter is used.

Threaded Outlet Port for ZT, KFT, RT, LRT and BFT Models

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.

- RT is furnished with 1½" NPT Male (standard)
- LRT is furnished with 2" NPT Male (standard)
- KFT is furnished with 1 1/2" NPT Male (standard)
- BFT is furnished with 3" NPT Male (standard)
- ZT is furnished with 1½" NPT Male (optional)

SAME DAY SHIPMENT MODEL AVAILABLE!

Spin-On Filter PAF1

Features and Benefits

- Spin-On with full ported die cast aluminum head for minimal pressure drop
- Offered in pipe and SAE straight thread porting
- Spin-On thread = 1.00-12UNF-2B
- Visual gauge or electrical switch dirt alarms
- Small profile for use in limited space
- Same day shipment model available

20 gpm
75 L/min

100 psi
7 bar

Model No. of filter in photograph is PAF16P10P.

Applications

INDUSTRIAL

MOBILE VEHICLES

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

AGRICULTURE

PULP & PAPER

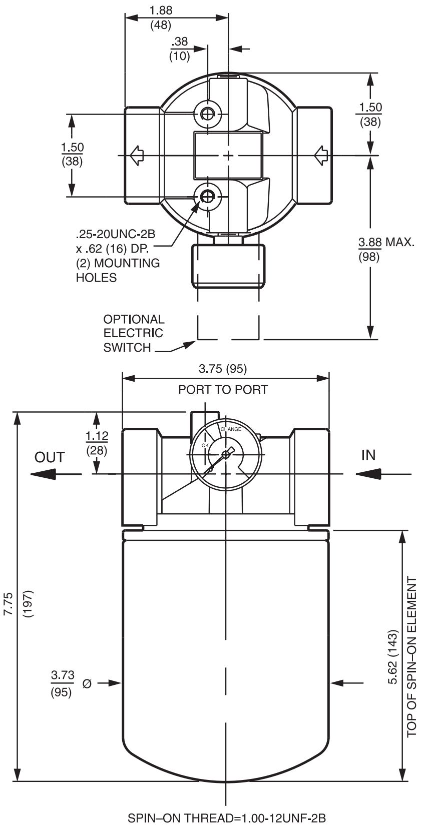
Filter Housing Specifications

Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	150 psi (10 bar), per NFPA T2.6.1
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: 36 psi (2 bar)
Porting Head & Cap:	Die Cast Aluminum
Element Case:	Steel
Weight of PAF1-6P:	1.8 lbs. (0.8 kg)
Element Change Clearance:	2.50" (65 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

PAF1 Spin-On Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



Metric dimensions in ( ).

Installation instructions included on element.

Element Performance Information

Element	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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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)
P10	37
PZ10	N/A
PZ25	N/A

Element 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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	10 μ E media (cellulose) and 25 μ Z-Media® (synthetic)
High Water Content	10, 25 μ Z-Media® (synthetic)
Invert Emulsions	10, 25 μ Z-Media® (synthetic)
Water Glycols	10, 25 μ Z-Media® (synthetic)

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 30 psi (2.1 bar) bypass valve.
To 100 psi (7 bar)	E Media	P10	P10
	Z-Media®	PZ10	PZ25
		PZ25	PZ10
Flow		gpm	0 10 20
		(L/min)	0 25 50 75

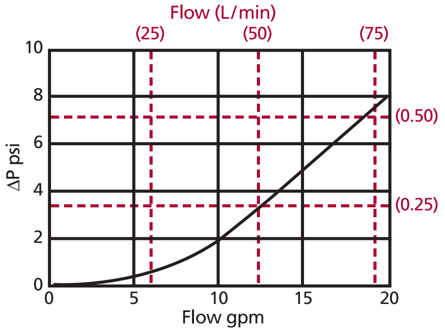
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

PAF1 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

P10	.17
PZ25	.15

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

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

Exercise:

Determine ΔP at 10 gpm (38 L/min) for PAF16P10SY2 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2.0 psi [.18 bar]

$\Delta P_{element}$ = 10 x .17 x (200÷150) = 2.3 psi
or
= [38 x (.17÷54.9) x (44÷32) = .16 bar]

ΔP_{total} = 2.0 + 2.3 = 4.3 psi
or
= [.18 + .16 = .34 bar]

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

Filter Model Number Selection

Same Day Shipment Model
See inside back cover for details.

How to Build a Valid Model Number for a Schroeder PAF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
PAF1					

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
PAF1	6	P10		P	Y2	**= PAF16P10PY2**

BOX 1

Filter Series
PAF1

BOX 2

Element Length (in)
6

BOX 3

Element Size and Media
P10 = P size 10 μ E media (cellulose)
PZ10 = P size 10 μ Excellement® Z-Media® (synthetic)
PZ25 = P size 25 μ Excellement® Z-Media® (synthetic)

BOX 4

Seal Material
Omit = Buna N

BOX 5

Inlet Porting
P = ¾" NPTF
S = SAE-12

BOX 6

Dirt Alarm® Options	
	Omit = None
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**

Features and Benefits

- Spin-On with full ported die cast aluminum head for minimal pressure drop
- Offered in pipe, SAE straight thread and ISO 228 porting
- Spin-On thread = 1.50-16UN-2B
- Visual gauge or electrical switch dirt alarms
- Small profile for use in limited space
- Available in 7" and 10" element lengths
- Available with NPTF inlet and outlet female test ports

50 gpm
190 L/min

100 psi
7 bar

Model No. of filter in photograph is MAF17M10S.

Applications

INDUSTRIAL

MOBILE VEHICLES

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

AGRICULTURE

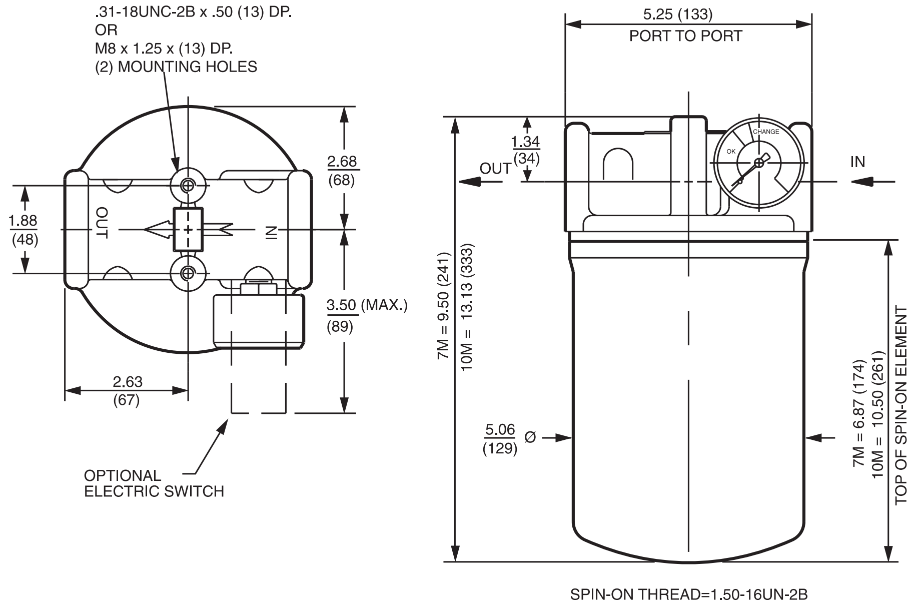
PULP & PAPER

Filter Housing Specifications

Flow Rating:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	200 psi (10 bar), per NFPA T2.6.1
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: 48 psi (3 bar)
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)
Element Change Clearance:	2.50" (65 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

MAF1 Spin-On Filter



Installation instructions included on element.

Metric dimensions in ( ).

Element Performance Information

	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	
Element	**$\beta_x \geq 75$**	**$\beta_x \geq 100$**	**$\beta_x \geq 200$**	**$\beta_x(c) \geq 200$**	**$\beta_x(c) \geq 1000$**
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 Capacity

Element	DHC (gm)	Element	DHC (gm)
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 mm) O.D. x 7.0" (180 mm) long
	10M: 5.0" (125 mm) O.D. x 10.5" (261 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	3 and 10 μ Z-Media® (synthetic)
Invert Emulsions	10 μ Z-Media® (synthetic)
Water Glycols	3 and 10 μ Z-Media® (synthetic)

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 30 psi (2.1 bar) bypass valve.					
To 100 psi (7 bar)	E Media	M3	M3				See RLT	
		M10	M10					See RLT
	Z-Media®	MZ3	MZ3					See RLT
		MZ10	MZ10					See RLT
Flow		gpm	0	10	20	30	40	50
		(L/min)	0	50	100	150		190

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

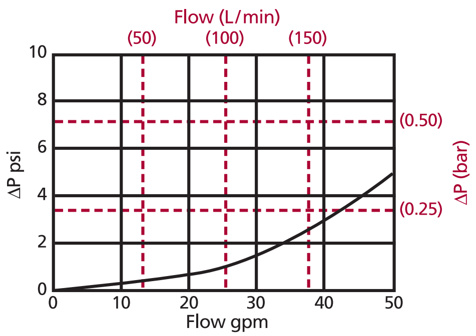
Note: *Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{housing}$

MAF1 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

7M3	.23
7M10	.14
7MZ3	.22
7MZ10	.17

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

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

Exercise:

Determine ΔP at 25 gpm (95 L/min) for MAF17M3P using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1.0 psi [.08 bar]

$\Delta P_{element}$ = 25 x .23 x (200÷150) = 7.7 psi
or
= [95 x (.23÷54.9) x (44÷32) = .54 bar]

ΔP_{total} = 1.0 + 7.7 = 8.7 psi
or
= [.08 + .54 = .62 bar]

MAF1 Spin-On Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MAF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
MAF1						

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		**= MAF17M3PY2**

BOX 1

Filter Series
MAF1

BOX 2

Element Length (in)
7
10

BOX 3

Element Size and Media
M3 = M size 3 μ E media (cellulose)
M10 = M size 10 μ E media (cellulose)
MZ3 = M size 3 μ Excellement® Z-Media® (synthetic)
MZ10 = M size 10 μ Excellement® Z-Media® (synthetic)
MZW10 = M size 10 μ Aqua-Excellement™ ZW media
MW = M size W media (water removal)

BOX 4

Seal Material
Omit = Buna N
V = Viton®

BOX 5

Porting Options
P = 1¼" NPTF
S = SAE-20
B = ISO 228 G-1¼"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	Y2 = Back-mounted tri-color gauge
Electrical	ES = Electric switch

BOX 7

Additional Options
Omit = None
L = Two ⅛" NPTF 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® is a registered trademark of DuPont Dow Elastomers.

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

Spin-On Filter **MF2**

60 gpm
230 L/min
150 psi
10 bar

Features and Benefits

- Spin-On with full ported cast iron head for minimal pressure drop
- Offered in pipe, SAE straight thread and ISO 228 porting
- Spin-On thread = 1.50-16UN-2B
- Various Dirt Alarm® options
- Available in 7" and 10" element lengths

Model No. of filter in photograph is MF27M10SD5.

Applications

INDUSTRIAL

MOBILE VEHICLES

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

AGRICULTURE

PULP & PAPER

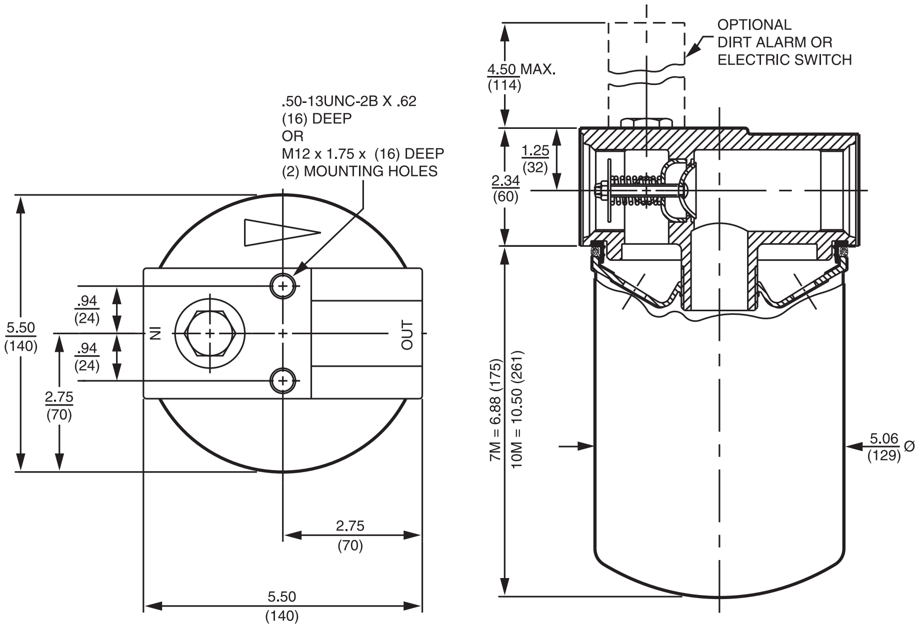
MINING TECHNOLOGY

Filter Housing Specifications

Flow Rating:	Up to 60 gpm (230 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	150 psi (10 bar)
Min. Yield Pressure:	250 psi (17 bar), per NFPA T2.6.1
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: 48 psi (3 bar)
Porting Head: Element Case:	Cast Iron Steel
Weight of MF2-7M:	8.6 lbs. (3.9 kg)
Element Change Clearance:	1.50" (40 mm)

IRF
TF1
KF3
KL3
LF1–2"
MLF1
RLD
GRTB
MTA
MTB
ZT
KFT
RT
RTI
LRT
ART
BFT
QT
KTK
LTK
MRT
Accessories for Tank-Mounted Filters
PAF1
MAF1
MF2

MF2 Spin-On Filter



SPIN-ON THREAD=1.50-16UN-2B

Installation instructions included on element.

Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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 Capacity

Element	DHC (gm)	Element	DHC (gm)
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 mm) O.D. x 7.0" (180 mm) long 10M: 5.0" (125 mm) O.D. x 10.5" (261 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	3 and 10 μ Z-Media® (synthetic)
Invert Emulsions	10 μ Z-Media® (synthetic)
Water Glycols	3 and 10 μ Z-Media® (synthetic)

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 30 psi (2.1 bar) bypass valve.	
To 150 psi (10 bar)	E Media	7M3	7M3	See RLT
		7M10	7M10	See RLT
	Z-Media®	7MZ3	7MZ3	See RLT
		7MZ10	7MZ10	See RLT
Flow		gpm	0 20 30 40 50 60	
		(L/min)	0 50 100 150 230	

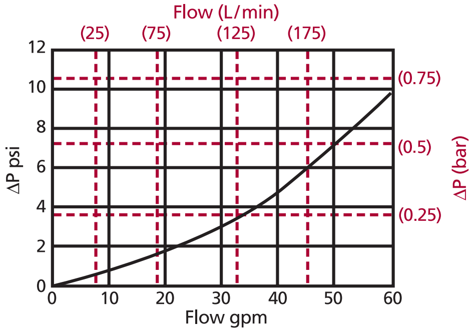
Shown above are the elements most commonly used in this housing.

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 Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

MF2 $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

7M3	.23
7M10	.14
7MZ3	.22
7MZ10	.17

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

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

Exercise:

Determine ΔP at 30 gpm (115 L/min) for MF27MZ3D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.22 bar]
$\Delta P_{element}$ = 30 x .22 x (200÷150) = 8.8 psi
or
= [115 x (.22÷54.9) x (44÷32) = .63 bar]
ΔP_{total} = 3.0 + 8.8 = 11.8 psi
or
= [.22 + .63 = .83 bar]

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MF2:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
MF2					

Example: Option 1 *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
MF2	7	M3		P	D5	= **MF27M3PD5**

BOX 1

Filter Series
MF2

BOX 2

Element Length (in)
7
10

BOX 3

Element Size and Media
M3 = M size 3 μ E media (cellulose)
M10 = M size 10 μ E media (cellulose)
MZ3 = M size 3 μ Excellement® Z-Media® (synthetic)
MZ10 = M size 10 μ Excellement® Z-Media® (synthetic)
MZW10 = M size 10 μ Aqua-Excellement™ ZW media
MW = M size W media (water removal)

BOX 4

Seal Material
Omit = Buna N
V = Viton®

BOX 5

Porting Options
P = 1¼" NPTF
S = SAE-20
B = ISO 228 G-1¼"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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

NOTES:

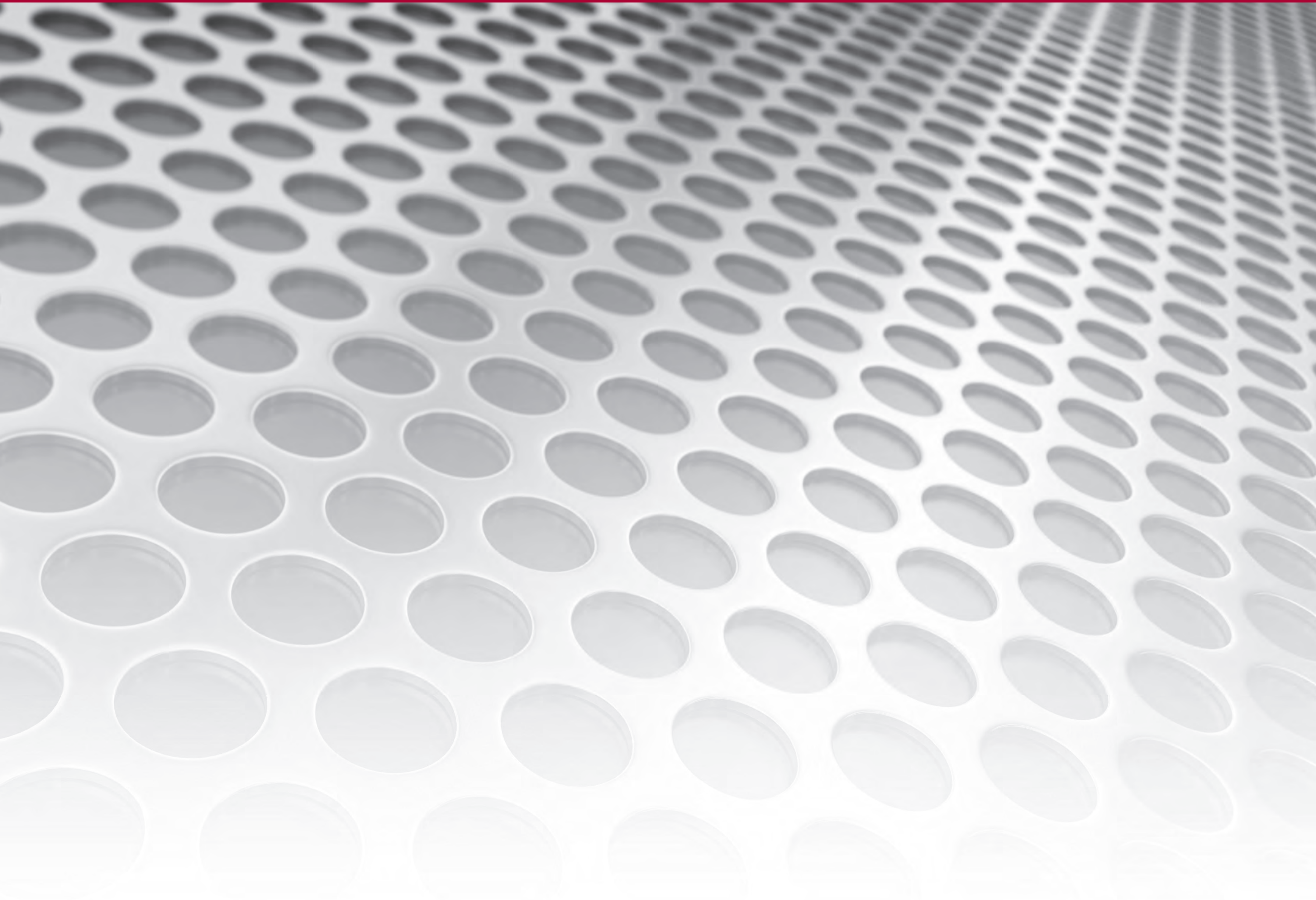
Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Replacement element part numbers for 7" length begin with M. Replacement element part numbers for 10" length begin with 10M. *Example*: M3; 10MZ3 10" only available with MZ3 and MZ10.

Box 3. ZW media only available for 10" element.

Box 4. Viton® is a registered trademark of DuPont Dow Elastomers.

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

Section 6: SUCTION FILTERS



Section 6 Suction Filters Selection Guide

		Pressure psi (bar)	Flow gpm (L/min)	Element Length/Size	Page
Suction Filters	**Tank-Mounted Suction Filter**				
	ST	NA	20 (75)	K, KT	323
	In-Line Magnetic Suction Separators				
	TF-SKB	NA	12.5 (47)	SKB	327
	KF3-SKB	NA	30 (130)	SKB	328
	Tank-Mounted Magnetic Suction Separator				
	BFT-SKB	NA	75 (285)	SKB	329

Tank-Mounted Suction Filter **ST**

20 gpm
75 L/min

Model No. of filter in photograph is ST1K10SY.

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

Applications

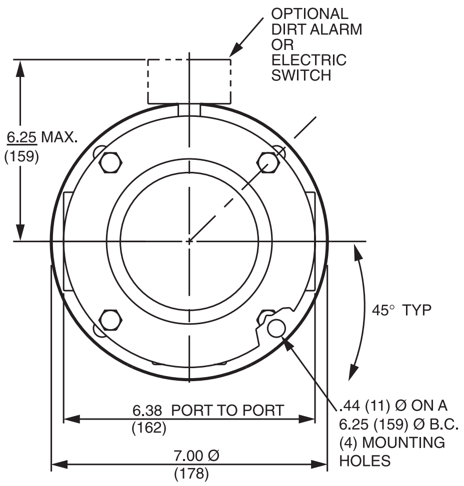
INDUSTRIAL

MOBILE VEHICLES

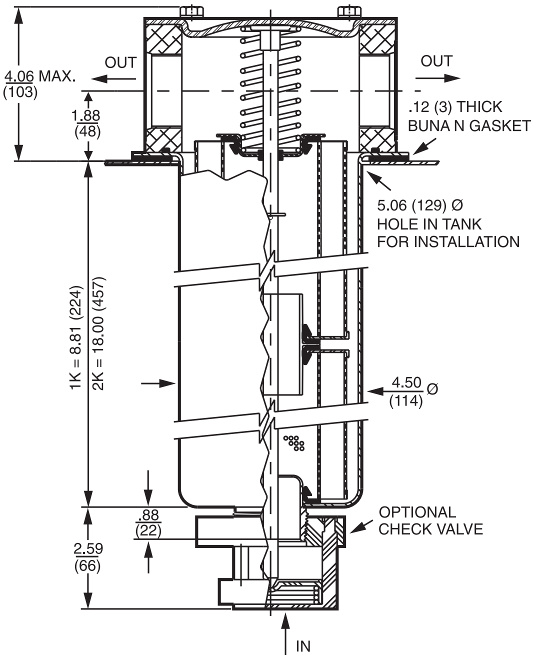
Filter Housing Specifications

Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	Suction Filter
Min. Yield Pressure:	Not Applicable
Rated Fatigue Pressure:	Not Applicable
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Non-bypassing
Porting Head:	Die Cast Aluminum
Cap:	Steel
Element Case:	Steel
Weight of ST-1K:	11.1 lbs. (5.0 kg)
Weight of ST-2K:	14.7 lbs. (6.7 kg)
Element Change Clearance:	7.25" (185 mm) for 1K; 17.50" (445 mm) for KK

ST Tank-Mounted Suction Filter



Optional mounting ring (P/N A-LFT-813) available to weld to tank.



Metric dimensions in ( ).

Element Performance Information

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
K10	15.5	16.2	18.0	N/A	N/A
KTZ10	7.4	8.0	10.0	8.0	10.0

Dirt Holding Capacity

Element	DHC (gm)
K10	44
KTZ10	56

Element Collapse Rating:	150 psid (10 bar)
Flow Direction:	Inside Out
Element Nominal Dimensions:	3.9" (99 mm) O.D. x 9.0" (230 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	10 μ Z-Media® (synthetic)
Invert Emulsions	10 μ Z-Media® (synthetic)
Water Glycols	10 μ Z-Media® (synthetic)
Phosphate Esters	10 μ Z-Media® (synthetic) with H (EPR) seal designation and 10 μ E media (cellulose) with H (EPR) seal designation
Skydrol®	10 μ Z-Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection

Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid.	
Hydrostatic Suction Service	E Media	K10	1K10	2K10†
		K25	1K25	2K25†
	Z-Media®	KTZ10	1KTZ10	2KTZ10†
Flow		gpm	0 5 10 15 20	
		(L/min)	0 25 50 75	

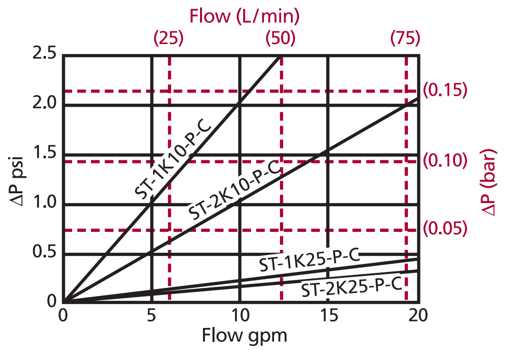
Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 21 and 22.*

Pressure Drop Information

Based on Flow Rate and Viscosity

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

Note: Plotted curves shown in graph below include both housing and elements as indicated for fluids with sp gr = 0.86.



sp gr = specific gravity

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

Notes

Filter Model Number Selection

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
ST							

Example: *NOTE: Only box 8 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
ST	1	K25		P		Y		= ST1K25PY

BOX 1

Filter Series
ST

BOX 2

Number of Elements
1
2

BOX 3

Element Part Number
K10 = K size 10 μ E media (cellulose)
K25 = K size 25 μ E media (cellulose)
KTZ3 = K size 3 μ Excellement® Z-Media® (synthetic) inside-out flow
KTZ5 = K size 5 μ Excellement® Z-Media® (synthetic) inside-out flow
KTZ10 = K size 10 μ Excellement® Z-Media® (synthetic) inside-out flow
KTZ25 = K size 25 μ Excellement® Z-Media® (synthetic) inside-out flow

BOX 4

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

BOX 5

Outlet Port
P = 1½" NPTF
PP = Dual 1½" NPTF
S = SAE 24
SS = Dual SAE 24
B = ISO 228 G-1½"
BB = ISO 228 G-1½"

BOX 6

Optional Check Valve
Omit = None
C = Check Valve

BOX 7

Dirt Alarm® Options	
	Omit = None
Visual	Y = Vacuum gauge
	YR = Vacuum guage mounted on opposite side of standard location
Electrical	VS = Electrical Vacuum Switch
	VSR = Electrical Vacuum Switch mounted on opposite side of standard location
	VSR1 = Heavy-Duty Vacuum Switch

BOX 8

Additional Options
Omit = None
G2293 = Cork Gasket
G547 = Two ⅛" gauge ports

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® is a registered trademark of Solutia Inc.

Box 6. See also "Accessories for Tank-Mounted Filters," page 299.

In-Line Magnetic Suction Separators TF-SKB

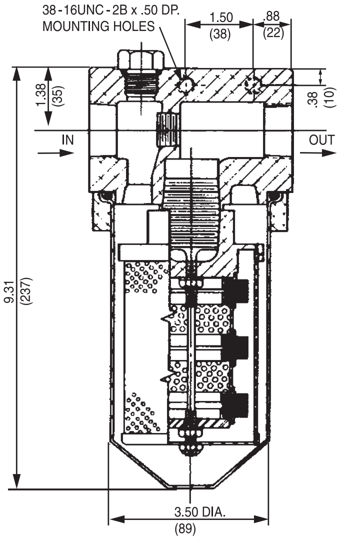
In addition to offering our magnetic suction strainer (SKB) as a stand alone product, we also offer the SKB enclosed in a housing, so that it can be used either in-line (TF-SKB or KF3-SKB) or as a reservoir-mounted filter (BFT-SKB). Flow rates and available porting vary—refer to the specifications for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



Filter Model Number Selection

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

Filter Series
TF-SKB

BOX 2

Seal Material
Omit = Buna N

BOX 3

Porting
P = 1" NPTF

BOX 4

Dirt Alarm® Options		
	Omit =	None
Visual	Y =	Vacuum guage
Electrical	VS =	Electrical Vacuum Switch
	VS1 =	Heavy-Duty Vacuum Switch

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

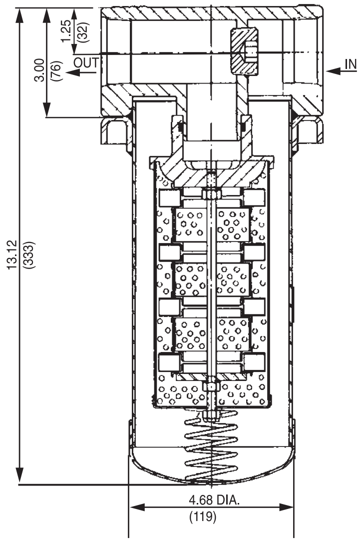
KF3-SKB In-Line Magnetic Suction Separators

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)



Applications

INDUSTRIAL

MOBILE VEHICLES

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KF3-SKB:

BOX 1	BOX 2	BOX 3	BOX 4
KF3-SKB	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	
KF3-SKB	–	P	Y	= KF3-SKBPY

BOX 1

Filter Series
KF3-SKB

BOX 2

Seal Material	
Omit =	Buna N

BOX 3

Porting	
P =	1½" NPTF

BOX 4

Dirt Alarm® Options		
	Omit =	None
Visual	Y =	Vacuum guage
Electrical	VS =	Electrical Vacuum Switch
	VS1 =	Heavy-Duty Vacuum Switch

NOTE:

Box 1. Element replacement part number: A-LF-1789.

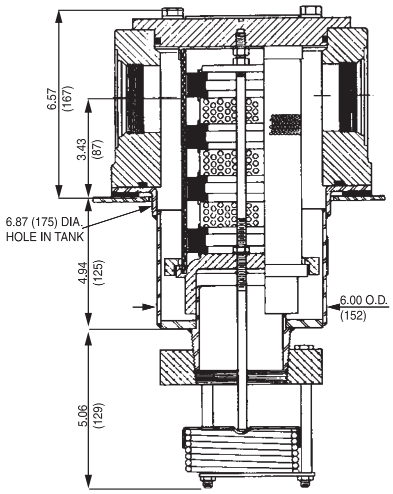
Tank-Mounted Magnetic Suction Separators

BFT-SKB

ST
TF-SKB
KF3-SKB
BFT-SKB

Features and Benefits

- Protects components downstream by capturing potentially harmful ferrous particles



Specifications

Flow Rating:	75 gpm (285 L/min)
Element Replacement Part Number:	with check valve: A-SKB-3-76 without check valve: SKB-3
Element Change Clearance:	13.5" (345 mm)
Weight of BFT-SKB:	32.0 lbs (14.5 kg)

Applications

INDUSTRIAL

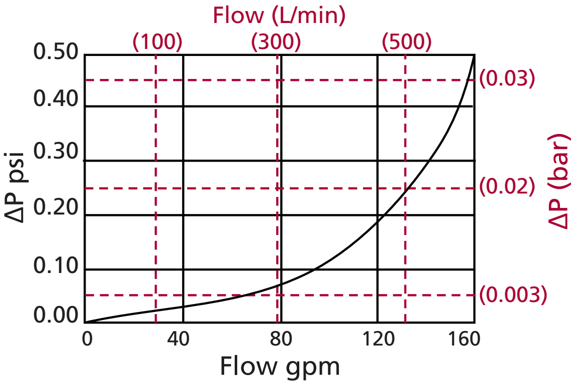
MOBILE VEHICLES

Pressure Drop Information

Based on Flow Rate and Viscosity

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

Note: Plotted curves shown in graph below include both housing and elements as indicated for fluids with sp gr = 0.86.



sp gr = specific gravity

Tank-Mounted Magnetic Suction Separators

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder BFT-SKB::

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5
BFT-SKB	–		–		–		–	

Example: *NOTE: One option per box*

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5	
BFT-SKB	–		–	P	–		–	Y	= **BFT-SKBPY**

BOX 1

Filter Series
BFT-SKB

BOX 2

Seal Material
Omit = Buna N

BOX 3

Porting
P = 2½" NPTF
PP = Dual 2½" NPTF
F = 2½" SAE 4-bolt flange Code 61
FF = Dual 2½" SAE 4-bolt flange Code 61

Box 4

Other Options
Omit = None
C = Check Valve

BOX 5

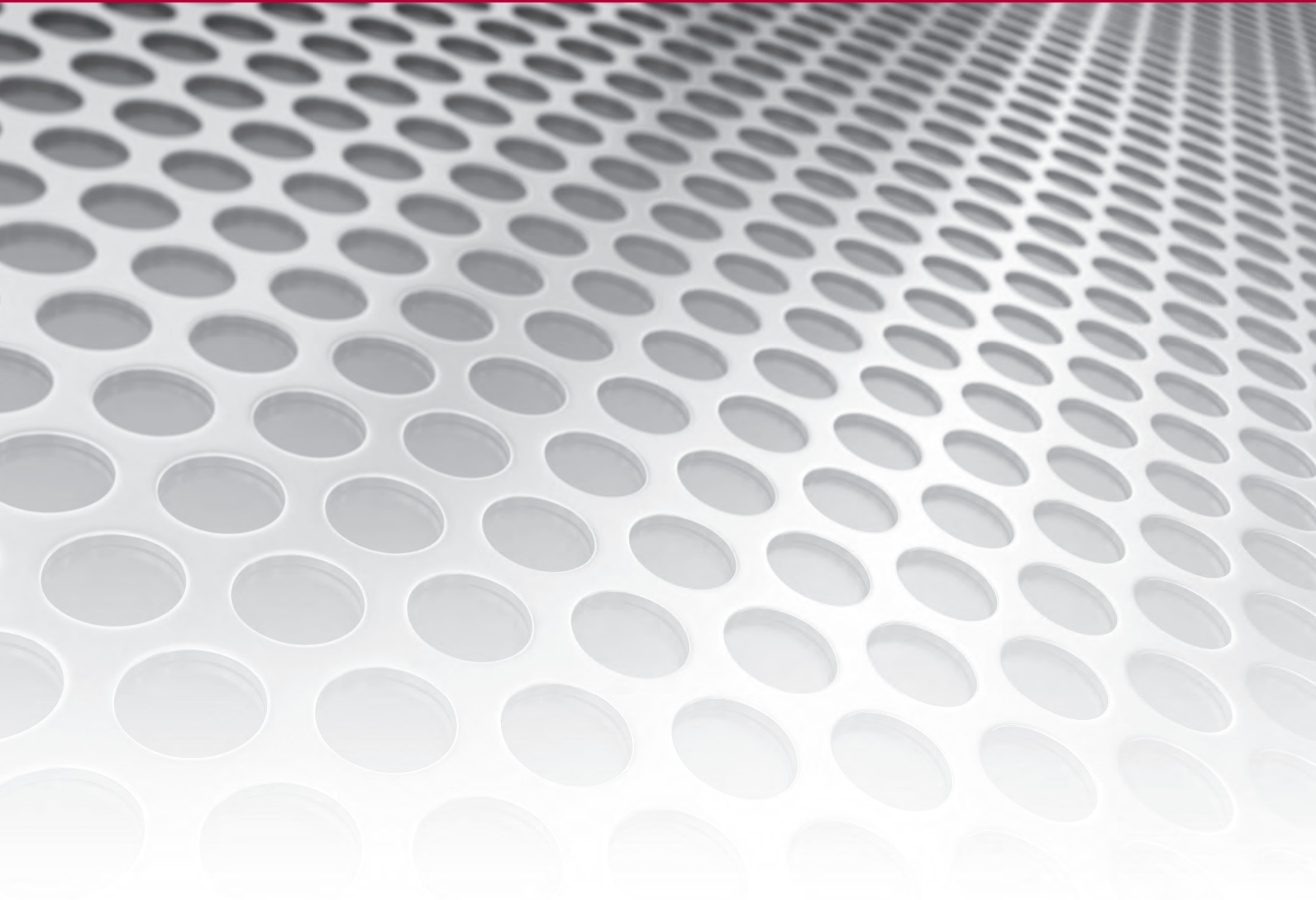
Dirt Alarm® Options	
	Omit = None
Visual	Y = Vacuum guage
	YR = Vacuum guage mounted on opposite side of standard location
Electrical	VS = Electrical Vacuum Switch
	VSR = Electrical Vacuum Switch on opposite side of standard location
	VS1 = Heavy-Duty Vacuum Switch

Notes

NOTE:

Box 1. See specifications on previous page for element replacement part numbers.

Section 7: WATER SERVICE FILTERS



Water Service Filters Selection Guide

Water Service Filters in use.

		Flow gpm (L/min)	Pressure psi (bar)	Element Length/Size	Page
Water Service Filters	WKC50	100 (380)	5000 (345)	K	333
	WLF1	120 (455)	300 (20)	K	333
	WKF5	100 (380)	500 (35)	K	333
	WKFN5	100 (380)	500 (35)	K	333
	WRLT	70 (265)	1000 (69)	9V	334
	WQF5	300 (1135)	500 (35)	39Q	334
	WQF15	450 (1700)	1500 (100)	39Q	335
	WQLF15	500 (1900)	1500 (100)	39Q	336
	WKF3	100 (380)	300 (20)	K	337
	WKL3	120 (455)	300 (20)	K	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		**Flow**	
	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

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

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

POWER GENERATION

STEEL MAKING

PULP & PAPER

AGRICULTURE

MOBILE VEHICLES

WRLT

Water Service Filters

Filter Model Number Selection

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® is a registered trademark of DuPont Dow Elastomers.

Box 6. D9 indicator is the recommended option.

How to Build a Valid Model Number for a Schroeder WRLT:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
WRLT					

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
WRLT	9	VM150		P20	D9	**= WRLT9VM150P20D9**

BOX 1

Filter Series
WRLT

BOX 2

Element Length (in)
9

BOX 3

Element Size and Media
VM60 = V size 60 μ M media (reusable metal)
VM150 = V size 150 μ M media (reusable metal)
VM260 = V size 260 μ M media (reusable metal)

BOX 4

Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 5

Porting Options
P20 = 1¼" NPTF
S20 = SAE-20

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up **D9 = All stainless D5 (Recommended)**
Electrical	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5

Filter Model Number Selection

WQF5

NOTES:

Box 4. All aluminum parts are anodized for water service filters. QM25 and QM60 elements only come with Viton® seals.

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
WQF5						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
WQF5	39	QM150		P48		D5	**= WQF539QM150P48D5**

BOX 1

Filter Series
WQF5

BOX 2

Element Length (in)
39

BOX 3

Element Size and Media
QM25 = Q size 25 μ M media (reusable metal)
QM60 = Q size 60 μ M media (reusable metal)
QM150 = Q size 150 μ M media (reusable metal)

BOX 4

Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 5

Porting Options
P48 = 3" NPTF

BOX 6

Bypass Setting
Omit = 40 psi cracking

BOX 7

Dirt Alarm® Options	
	Omit = None
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

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
WQF15						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
WQF15	39	QM150		P48		D5	**= WQF1539QM150P48D5**

BOX 1

Filter Series
WQF15

BOX 2

Element Length (in)
39

BOX 3

Element Size and Media
QM60 = Q size 60 µ M media (reusable metal)
QM150 = Q size 150 µ M media (reusable metal)

BOX 4

Housing Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 5

Porting Options
P48 = 3" NPTF

BOX 6

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking

BOX 7

Dirt Alarm® Options		
	Omit =	None
Visual	D5 =	Visual pop-up
	D9 =	**All stainless D5 (Recommended)**
	D9C =	**D9 in cap (Recommended)**
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	D8 in cap
	D8R =	D8 opposite standard location
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

Filter Model Number Selection

WKC50
WLF1
WKF5
WKFN5
WRLT
WQF5
WQF15
WQLF15
WKF3
WKL3

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 5 applies to housing only.
Viton® is a registered trademark of DuPont Dow Elastomers.

Box 7. D9/D9C indicator is the recommended option.

WQLF15 Water Service Filters

Filter Model Number Selection

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
WQLF15						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
WQLF15	39	QM150		P48		D5	= WQLF1539QM150P48D5

BOX 1

Filter Series
WQLF15

BOX 2

Element Length (in)
39

BOX 3

Element Size and Media

QM60 = Q size 60 μ M media (reusable metal)
QM150 = Q size 150 μ M media (reusable metal)

BOX 4

Housing Seal Material

Omit = Buna N
H = EPR
V = Viton®

BOX 5

Porting Options

P48 = 3" NPTF

BOX 6

Seal Material

Omit = 30 psi cracking
50 = 50 psi cracking

BOX 7

Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up D5C = D5 in cap **D9 = All stainless D5 (Recommended)** **D9C = D9 in cap (Recommended)** DPG = Differential pressure gauge
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = 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 = 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

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.

How to Build a Valid Model Number for a Schroeder WKF3

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
WKF3					

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
WKF3	1	KM150		P	D5	**= WKF31KM150PD5**

BOX 1

Filter Series
WKF3

BOX 2

Number of Elements
1
2
3

BOX 3

Element Size and Media

KM10 = K size 10 μ M media (reusable metal)
KM25 = K size 25 μ M media (reusable metal)
KM60 = K size 60 μ M media (reusable metal)
KM150 = K size 150 μ M media (reusable metal)
KM260 = K size 260 μ M media (reusable metal)

BOX 4

Housing Seal Material

Omit = Buna N
H = EPR
V = Viton®

BOX 5

Porting Options

P = 1½" NPTF

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	D = Pointer D5 = Visual pop-up **D9 = All stainless D5 (Recommended)**
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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	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

Filter Model Number Selection

WKC50
WLF1
WKF5
WKFN5
WRLT
WQF5
WQF15
WQLF15
WKF3
WKL3

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® is a registered trademark of DuPont Dow Elastomers.

Box 6. D9 indicator is the recommended option.

Filter Model Number Selection

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	BOX 8
WKL3	–	–	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
WKL3	2	KM25		P24	D9	L		= **WKL32KM25P2D9**

BOX 1

Filter Series
WKL3

BOX 2

Number of Elements
1
2
3

BOX 3

Element Size and Media
KM10 = 10 μ M media (reusable metal)
KM25 = 25 μ M media (reusable metal)
KM60 = 60 μ M media (reusable metal)
KM150 = 150 μ M media (reusable metal)
KM260 = 260 μ M media (reusable metal)

BOX 4

Housing Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 5

Porting
P24 = 1½" NPTF
S24 = SAE-24
F24 = 1½" SAE 4-bolt flange Code 61
B24 = ISO 228 G-1½"
P32 = 2" NPTF
S32 = SAE-32
B32 = ISO 228 G-2"

BOX 6

Dirt Alarm® Options		
	Omit =	None
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

BOX 7

Test Port Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports

BOX 8

Bowl Drain Options
Omit = None
DR = $^{7}/_{16}$" -20 drain on bottom of housing

NOTES:

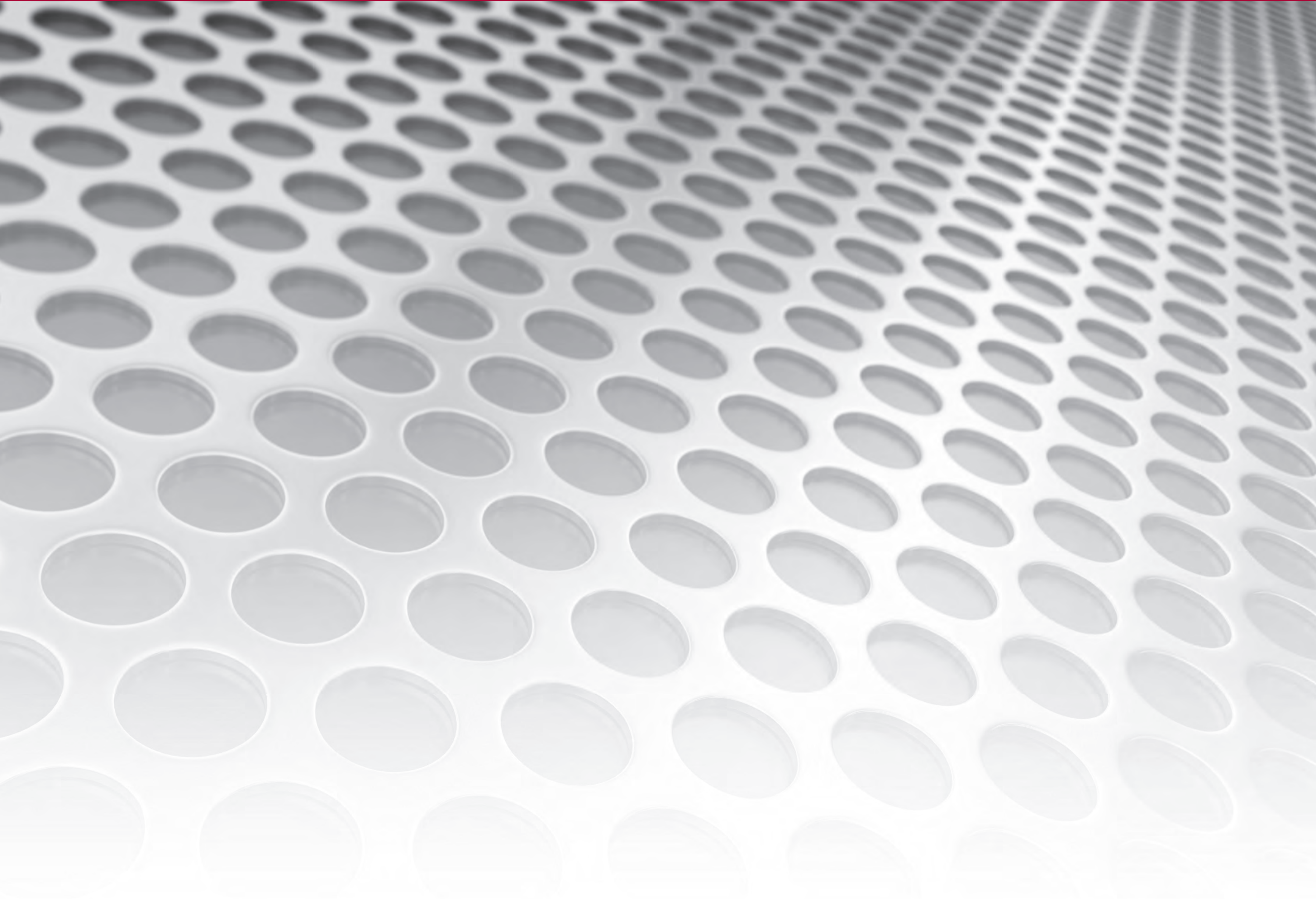
Box 4. Replacement element part numbers are a combination of Boxes 2 and 3, and the letter V.
Example: KM10V

Box 5. All elements for this filter are supplied with Viton® seals. Seal designation in Box 4 applies to housing only. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 6. D9/D9C indicator is the recommended option.

Contact factory for more Dirt Alarm® options

Section 8: GEOSEAL® FILTERS



High Pressure Filters with GeoSeal® Elements

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Filter Model Number Selection

GKF30

SAME DAY SHIPMENT MODEL AVAILABLE!

How to Build a Valid Model Number for a Schroeder GKF30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKF30									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKF30	1KG	Z	25		S		D5		

= **GKF301KGZ25SD5**

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Number of Elements**	**Media Type**	**Micron Rating**	**Seal Material**
GKF30	1KG, KKG, 27KG	Z = Excellement® Z-Media® (Synthetic)	1 = 1 μ Z, ZW, DZ media	Omit = Buna N
	2KG	AS = Anti-Static Pleat Media (Synthetic)	3 = 3 μ AS, E, Z, ZW, DZ media	V = Viton®
	3KG	DZ = Dirt Catcher® with Excellement® Z-Media®	5 = 5 μ AS, Z, ZW, DZ media	
		W = W Media (water removal)	10 = 10 μ AS, E, M, Z, ZW, DZ media	
			25= 25 μ E, M, Z, ZW, DZ media	
			60 = 60 μ M media	

Refer to KF30 catalog page 105 for options in boxes 6 through 10.

Please note: No-Element Indicator, X Blocked Bypass and Magnetic Inserts ***not offered***.

NOTES:

Box 2.
Number of elements must equal 1 when using KKG or 27KG elements.

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.

GKF50

How to Build a Valid Model Number for a Schroeder GKF50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKF50									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKF50	1KG	Z	25		S		D5		

= **GKF501KGZ25SD5**

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Number of Elements**	**Media Type**	**Micron Rating**	**Seal Material**
GKF50	1KG, KKG, 27KG	Z = Excellement® Z-Media® (Synthetic)	1 = 1 μ Z, ZW, DZ media	Omit = Buna N
	2KG	AS = Anti-Static Pleat Media (Synthetic)	3 = 3 μ AS, E, Z, ZW, DZ media	V = Viton®
	3KG	DZ = Dirt Catcher® with Excellement® Z-Media®	5 = 5 μ AS, Z, ZW, DZ media	
		W = W Media (water removal)	10 = 10 μ AS, E, M, Z, ZW, DZ media	
			25 = 25 μ E, M, Z, ZW, DZ media	
			60 = 60 μ M media	

Refer to KF50 catalog page 113 for options in boxes 6 through 10.

Please note: No-Element Indicator, X Blocked Bypass and Magnetic Inserts ***not offered***.

NOTES:

Box 2. Number of elements must equal 1 when using KKG or 27KG elements.

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.

GKC50

How to Build a Valid Model Number for a Schroeder GKC50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKC50									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKC50	1KG	Z	25		S		D5		

= **GKC501KGZ25SD5**

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Number of Elements**	**Media Type**	**Micron Rating**	**Seal Material**
GKC50	1KG, KKG, 27KG	Z = Excellement® Z-Media® (Synthetic)	1 = 1 μ Z, ZW, DZ media	Omit = Buna N
	2KG	AS = Anti-Static Pleat Media (Synthetic)	3 = 3 μ AS, E, Z, ZW, DZ media	V = Viton®
	3KG	DZ = Dirt Catcher® with Excellement® Z-Media®	5 = 5 μ AS, Z, ZW, DZ media	
		W = W Media (water removal)	10 = 10 μ AS, E, M, Z, ZW, DZ media	
			25 = 25 μ E, M, Z, ZW, DZ media	
			60 = 60 μ M 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***.

NOTES:

Box 2. Number of elements must equal 1 when using KKG or 27KG elements.

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.

High Pressure Filters with GeoSeal® Elements

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GMKF50

How to Build a Valid Model Number for a Schroeder GMKF50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GMKF50									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
GMKF50	2KG	Z	25		P		D5			**= GMKF502KGZ25PD5**

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Number of Elements**	**Media Type**	**Micron Rating**	**Seal Material**
GMKF50	2KG, KKG, 27KG	Z = Excellement® Z-Media® (Synthetic)	1 = 1 μ Z, ZW, DZ media	Omit = Buna N
	4KG	AS = Anti-Static Pleat Media (Synthetic)	3 = 3 μ AS, E, Z, ZW, DZ media	V = Viton®
	6KG	DZ = Dirt Catcher® with Excellement® Z-Media®	5 = 5 μ AS, Z, ZW, DZ media	
		W = W Media (water removal)	10 = 10 μ AS, E, M, Z, ZW, DZ media	
			25= 25 μ E, M, Z, ZW, DZ media	
			60 = 60 μ M media	

Refer to MKF50 catalog page 121 for options in boxes 6 through 10.
Please note: No-Element Indicator, X Blocked Bypass and Magnetic Inserts ***not offered***.

NOTES:

Box 2. 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. Double and triple stacking of K-size elements can be replaced by single KKG and 27KG elements, respectively.

Filter Model Number Selection

GKC65

How to Build a Valid Model Number for a Schroeder GKC65:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKC65									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
GKC65	1KG	Z	25		F		D9			**= GKC651KGZ25FD9**

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Number of Elements**	**Media Type**	**Micron Rating**	**Seal Material**
GKC65	1KG, KKG, 27KG	Z = Excellement® Z-Media® (Synthetic)	1 = 1 μ Z, ZW, DZ media	Omit = Buna N
	2KG	AS = Anti-Static Pleat Media (Synthetic)	3 = 3 μ AS, E, Z, ZW, DZ media	V = Viton®
	3KG	DZ = Dirt Catcher® with Excellement® Z-Media®	5 = 5 μ AS, Z, ZW, DZ media	
		W = W Media (water removal)	10 = 10 μ AS, E, M, Z, ZW, DZ media	
			25= 25 μ E, M, Z, ZW, DZ media	
			60 = 60 μ M media	

Refer to KC65 catalog page 125 for options in boxes 6 through 10.
Please note: No-Element Indicator, X Blocked Bypass and Magnetic Inserts ***not offered***.

NOTES:

Box 2. Number of elements must equal 1 when using KKG or 27KG elements.

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.

Medium Pressure Filters with GeoSeal® Elements

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Filter Model Number Selection

GKF5

How to Build a Valid Model Number for a Schroeder GKF5:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKF5									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
GKF5	1KG	Z	25		S24			D5		= GKF51KGZ25S24D5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Number of Elements**	**Media Type**	**Micron Rating**	**Seal Material**
GKF5	1 KG, KKG, 27KG	Z = Excellement® Z-Media® (Synthetic)	1 = 1 μ Z, ZW, DZ media	Omit = Buna N
	2 KG	AS = Anti-Static Pleat Media (Synthetic)	3 = 3 μ AS, E, Z, ZW, DZ media	V = Viton®
	3 KG	DZ = Dirt Catcher® with Excellement® Z-Media®	5 = 5 μ AS, Z, ZW, DZ media	
		W = W Media (water removal)	10 = 10 μ AS, E, M, Z, ZW, DZ media	
			25= 25 μ E, M, Z, ZW, DZ media	
			60 = 60 μ M media	

NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5 combined.

Refer to KF5 catalog page 173 for options in boxes 6 through 10

GK9

How to Build a Valid Model Number for a Schroeder GK9:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GK9									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
GK9	1KG	Z	25	B	S		D5			= GK91KGZ25BSD5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Number of Elements**	**Media Type**	**Micron Rating**	**Seal Material**
GK9	1 KG, KKG, 27KG	Z = Excellement® Z-Media® (Synthetic)	1 = 1 μ Z, ZW, DZ media	B = Buna N
	2 KG	AS = Anti-Static Pleat Media (Synthetic)	3 = 3 μ AS, E, Z, ZW, DZ media	V = Viton®
	3 KG	DZ = Dirt Catcher® with Excellement® Z-Media®	5 = 5 μ AS, Z, ZW, DZ media	
		W = W Media (water removal)	10 = 10 μ AS, E, M, Z, ZW, DZ media	
			25= 25 μ E, M, Z, ZW, DZ media	
			60 = 60 μ M media	

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.

Refer to K9 catalog page 181 for options for options in boxes 6 through 10.
Please note: X Blocked Bypass ***not offered***.

Medium Pressure Filters with GeoSeal® Elements

Patented

Filter Model Number Selection

G2K9

How to Build a Valid Model Number for a Schroeder G2K9:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
G2K9										

Example: *NOTE: One option per boxw*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11	
G2K9	1	09	B	B	V	P16	P16	D5			= G2K9109BBVP16P16D5

BOX 1

Filter Series
G2K9

BOX 2

Number of Elements
1
2
3

BOX 3

Length of Elements
09 = K size element
18 = KK size element
27 = 27K size element

BOX 4

First Housing (with GeoSeal®)
A = 1 μ Excellement® Z-Media® (synthetic)
B = 3 μ Excellement® Z-Media® (synthetic)
C = 5 μ Excellement® Z-Media® (synthetic)
D = 10 μ Excellement® Z-Media® (synthetic)
E = 25 μ Excellement® Z-Media® (synthetic)
F = W media (water removal)

BOX 5

Second Housing
A = 1 μ Excellement® Z-Media® (synthetic)
B = 3 μ Excellement® Z-Media® (synthetic)
C = 5 μ Excellement® Z-Media® (synthetic)
D = 10 μ Excellement® Z-Media® (synthetic)
E = 25 μ Excellement® Z-Media® (synthetic)
F = W media (water removal)

BOX 6

Seal Material
B = Buna N
V = Viton®

Refer to 2K9 catalog page 185 for options in boxes 7 through 11.

NOTES:

Box 2. Number of elements must equal 1 when using KKG or 27KG elements. For replacement element part numbers, please see page 301 in this catalog section. Double and triple stacking of K-size elements can be replaced by single KKG and 27KG elements, respectively.

G3K9

How to Build a Valid Model Number for a Schroeder G3K9:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
G3K9										

Example: *NOTE: One option per boxw*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11	
G3K9	1	09	E	C	A	B	P16	P16	D5		= G3K9109ECABP16P16D5

BOX 1

Filter Series
G3K9

BOX 2

Number of Elements
1
2
3

BOX 3

Length of Elements
09 = K size element
18 = KK size element
27 = 27K size element

BOX 4

First Housing (with GeoSeal®)
A = 1 μ Excellement® Z-Media® (synthetic)
B = 3 μ Excellement® Z-Media® (synthetic)
C = 5 μ Excellement® Z-Media® (synthetic)
D = 10 μ Excellement® Z-Media® (synthetic)
E = 25 μ Excellement® Z-Media® (synthetic)
F = W media (water removal)

BOX 5

Second Housing
A = 1 μ Excellement® Z-Media® (synthetic)
B = 3 μ Excellement® Z-Media® (synthetic)
C = 5 μ Excellement® Z-Media® (synthetic)
D = 10 μ Excellement® Z-Media® (synthetic)
E = 25 μ Excellement® Z-Media® (synthetic)
F = W media (water removal)

BOX 6

Third Housing
A = 1 μ Excellement® Z-Media® (synthetic)
B = 3 μ Excellement® Z-Media® (synthetic)
C = 5 μ Excellement® Z-Media® (synthetic)
D = 10 μ Excellement® Z-Media® (synthetic)
E = 25 μ Excellement® Z-Media® (synthetic)
F = W media (water removal)

BOX 7

Seal Material
B = Buna N
V = Viton®

Refer to 3K9 catalog page 189 for options in boxes 8 through 11.

NOTES:

Box 2. Number of elements must equal 1 when using KKG or 27KG elements.

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4 combined. Double and triple stacking of K-size elements can be replaced by single KKG and 27KG elements, respectively.

Low Pressure Filters with GeoSeal® Elements

Patented

Filter Model Number Selection

GKF3

SAME DAY SHIPMENT MODEL AVAILABLE!

How to Build a Valid Model Number for a Schroeder GKF3:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKF3									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKF3	1KG	Z	25		S		D5		

= GKF31KGZ25SD5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Number of Elements**	**Media Type**	**Micron Rating**	**Seal Material**
GKF3	1KG, KKG, 27KG	Z = Excellement® Z-Media™ (Synthetic)	1 = 1 μ Z, ZW, DZ media	Omit = Buna N
			3 = 3 μ AS, E, Z, ZW, DZ media	V = Viton®
	2KG	AS = Anti-Static Pleat Media (Synthetic)	5 = 5 μ AS, Z, ZW, DZ media	
	3KG	DZ = Dirt Catcher® with Excellement® Z-Media™	10 = 10 μ 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	

NOTES:

Box 2. Double and triple stacking of K-size elements can be replaced by single KKG and 27KG respectively. Number of elements must equal 1 when using KKG or 27KG elements.

Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5 combined.

Refer to KF3 catalog page 231 for options in boxes 6 through 10.

Please note: No-Element Indicator and Magnetic Inserts ***not offered***.

GKL3

How to Build a Valid Model Number for a Schroeder GKL3:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKL3									

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKL3	1KG	Z	25		S		D5		

= GKL31KGZ25SD5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	**Number of Elements**	**Media Type**	**Micron Rating**	**Seal Material**
GKL3	1KG, KKG, 27KG	Z = Excellement® Z-Media™ (Synthetic)	1 = 1 μ Z, ZW, DZ media	Omit = Buna N
			3 = 3 μ AS, E, Z, ZW, DZ media	V = Viton®
	2KG	AS = Anti-Static Pleat Media (Synthetic)	5 = 5 μ AS, Z, ZW, DZ media	
	3KG	DZ = Dirt Catcher® with Excellement® Z-Media™	10 = 10 μ 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	

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.

Refer to KL3 catalog page 235 for options in boxes 6 through 10.

Low Pressure Filters with GeoSeal® Elements

Patented

GKF30
GKF50
GKC50
GMKF50
GKC65
GKF5
GK9
G2K9
G3K9
GKF3
GKL3
GMLF1
GRT

GMLF1

How to Build a Valid Model Number for a Schroeder GMLF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GMLF1	–	–	–	–	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
GMLF1	1KG	Z	25		S		D5			= GMLF11KGZ25SD5

BOX 1
Filter Series
GMLF1

BOX 2
Number of Elements
1 KG, KKG, 27KG
2 KG
3 KG

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)

BOX 4
Micron Rating
1 = 1 μ Z, ZW, DZ media
3 = 3 μ AS, E, Z, ZW, DZ media
5 = 5 μ AS, Z, ZW, DZ media
10 = 10 μ AS, E, M, Z, ZW, DZ media
25 = 25 μ E, M, Z, ZW, DZ media
60 = 60 μ M media

BOX 5
Seal Material
Omit = Buna N
V = Viton®

Refer to MLF catalog page 243 for options in boxes 6 through 10.

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.

GRT

SAME DAY SHIPMENT MODEL AVAILABLE!

How to Build a Valid Model Number for a Schroeder GRT:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
GRT	–	–	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
GRT	1	KBGZ10		S24 S24 N		Y2		= GRT1KBGZ10S24S24NY2

BOX 1
Filter Series
GRT

BOX 2
Number of Elements
1

BOX 3

Element Part Number (with GeoSeal®)

K Length	KK Length	27K Length	
KBGZ1	KKBGZ1	27KBGZ1	= 1 μ Excellement® Z-Media® (synthetic)
KBGZ3/ KBGAS3	KKBGZ3/ KKBGAS3	27KBGZ3/ 27KBGAS3	= 3 μ Excellement® Z-Media® (synthetic)
KBGZ5/ KBGAS5	KKBGZ5/ KKBGAS5	27KBGZ5/ 27KBGAS5	= 5 μ Excellement® Z-Media® (synthetic)
KBGZ10/ KBGAS10	KKBGZ10/ KKBGAS10	27KBGZ10/ 27KBGAS10	= 10 μ Excellement® Z-Media® (synthetic)
KBGZ25	KKBGZ25	27KBGZ25	= 25 μ Excellement® Z-Media® (synthetic)
KBGW	KKBGW	27KBGW	= W media (water removal)

BOX 4
Seal Material
Omit = Buna N

Refer to RT catalog page 271 for options in boxes 6 through 10.

NOTES:

Box 2. Number of elements must equal 1 when using KKG or 27KG elements.

Box 3. Replacement element part numbers are identical to contents Boxes 3 and 4 combined.

Low Pressure Filters with GeoSeal® Elements

Patented

Filter Model Number Selection

GZT

SAME DAY SHIPMENT MODEL AVAILABLE!

How to Build a Valid Model Number for a Schroeder GZT:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
GZT						

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
GZT	8	GTZZ10		S	Y2		**= GZT8GTZZ10SY2**

BOX 1

Filter Series
GZT

BOX 2

Element Length (in)
8

BOX 3

Element Size and Media
GTZZ1 = Z size 1 μ Excellement® Z-Media® (synthetic)
GTZZ3 = Z size 3 μ Excellement® Z-Media® (synthetic)
GTZZ5 = Z size 5 μ Excellement® Z-Media® (synthetic)
GTZZ10 = Z size 10 μ Excellement® Z-Media® (synthetic)
GTZZ25 = Z size 25 μ Excellement® Z-Media® (synthetic)

BOX 4

Seal Material
Omit = Buna N
H = EPR

BOX 5

Inlet Porting
P = 1" NPTF
PP = Dual 1" NPTF
S = SAE-16
SS = Dual SAE-16
B = ISO 228 G-1"
BB = Dual ISO 228 G-1"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	Y2 = Back-mounted tri-color gauge
	Y2C = Bottom-mounted gauge in cap
	Y5 = Back-mounted gauge in cap
Electrical	ES = Electric switch
	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: 8Z10H

Box 3. E media elements are only available with Buna N seals.

Box 4. For option H, all seals are Viton®.

Filter Dirt Alarm® 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.

Step 2: 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.

Step 3: Review the descriptions, photographs, part numbers and specifications (where applicable) on pages 350-355 to verify your dirt alarm selection.

Step 4: APPLIES ONLY TO ELECTRICAL INDICATORS. Review the cross reference of old electrical indicator part numbers to the new ones on pages 356-359.

CHART 1 High Pressure Filters

	Visual						Visual with Thermal Lockout			Electrical									Electrical with Thermal Lockout						Electrical Visual				Electrical Visual with Thermal Lockout	
Filter	**D**	**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	✓	✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
NFS30	✓	✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
YF30		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
DF40	✓	✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
PF40		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
CF40	✓	✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
RF60		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
RFS50		✓					✓			✓	✓	✓	✓	✓		✓			✓	✓	✓	✓					✓	✓	✓	✓
CF60		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
VF60		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
KF30	✓	✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
TF50	✓	✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
KF50	✓	✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
KC50	✓	✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
KC65					✓	✓	✓			✓	✓	✓	✓	✓		✓			✓	✓	✓	✓			✓					
KFH50	✓	✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
MKF50	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
FOF60-03		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
NOF30-05		✓					✓			✓	✓	✓	✓	✓		✓			✓	✓	✓	✓					✓	✓	✓	✓
NOF50-760		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓

Chart 2 HydraSPIN and RLD

	Visual					Electrical				
Filter	**L**	**R**	**B**	**VA**	**VM**	**M**	**DTC**	**DTO**	**DW**	
GH	✓	✓	✓	✓	✓	✓	✓	✓	✓	
RLD					✓				✓	

Appendix A Filter Dirt Alarm® Selection: Step 1

CHART 3 Tank-Mounted, Return Line and Low Pressure Filters

	Visual							Electrical								
Filter	**D**	**Y**	**YR**	**Y2**	**Y2R**	**Y2C**	**Y5**	**VS**	**V5R**	**V51**	**ES**	**ESR**	**ES1**	**ES1R**	**ES6**	**ESC**
ST		✓	✓					✓	✓	✓						
MTA						✓	✓									✓
MTB						✓	✓									✓
ZT				✓		✓	✓				✓		✓			
GRTB				✓							✓		✓			✓
RT				✓	✓	✓	✓				✓	✓	✓	✓		
RTI				✓	✓	✓	✓					✓	✓	✓	✓	
LRT				✓	✓	✓	✓				✓	✓	✓	✓		
BFT				✓	✓							✓	✓	✓	✓	
PAF1				✓								✓				
MAF1				✓							✓					
IRF				✓	✓						✓	✓	✓	✓		
KF3	✓															
WKF3	✓															
TF1	✓															
LF1-2	✓															
MLF1	✓															
KF5	✓															
TF-SKB		✓						✓		✓						
KF3-SKB		✓						✓		✓						
BFT-SKB		✓						✓	✓	✓						

CHART 4 Tank-Mounted, Return Line and Low/Medium Pressure Filters

	Visual							Visual with Thermal Lockout		Electrical									Electrical with Thermal Lockout							Electrical Visual				Electrical Visual with Thermal Lockout	
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		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
KF3		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
KL3		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
TF1		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LF1-2"		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MLF1		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SRLT		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
RLT		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
KF5		✓					✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
QT			✓c					✓c		✓c	✓c	✓c	✓c	✓c	✓c	✓c	✓c	✓c	✓c	✓c	✓c	✓c	✓c	✓c	✓c			✓c	✓c	✓c	✓c
QF5	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
3QF5	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
QF15	✓	✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
QLF15	✓	✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
SSQLF15	✓	✓			✓	✓																									
QFD5/QFD2	✓	✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
K9		✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
2K9		✓	✓				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
3K9		✓	✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓

✓c = cap installation only.

CHART 5 Electrical Ratings: Electrical Cartridge Indicators Without Thermal Lockout

Voltage	Voltage Volts@ Amps	Current Range (amps)	MS5	MS5LC	MS10	MS10LC	MS11	MS12	MS12LC	MS13DC	MS13DCLC	MS14DC	MS14DCLC	MS16	MS16LC	MS17	MS17LC	MS13AC	MS13ACLC	MS14AC	MS14ACLC	MS18	MS18LC	MS19	MS19LC
AC	240 @ 3	0.02 to 3	✓		✓		✓	✓									✓		✓						
AC	220 @ 0.05	0.005 to 0.05		✓		✓			✓														✓		✓
AC	120 @ 5	0.02 to 5	✓		✓		✓	✓										✓							
AC	120 @ 0.05	0.005 to 0.05		✓		✓			✓										✓		✓		✓		✓
AC	24 @ 0.10	0.005 to 0.010		✓		✓			✓										✓		✓				
AC	12 @ 0.25	0.005 to 0.025		✓		✓			✓										✓		✓				
AC	120 @ 4	0.05 to 4																		✓					
AC	115 @ 0.05	0.01 to 0.05														✓						✓		✓	
DC	110 @ 0.3	0.02 to 0.3	✓		✓		✓	✓						✓		✓						✓		✓	
DC	110 @ 0.05	0.005 to 0.05		✓		✓			✓						✓		✓						✓		✓
DC	24 @ 3	0.01 to 3																				✓		✓	
DC	24 @ 2	0.02 to 2	✓		✓		✓	✓		✓		✓		✓											
DC	24 @ 1	0.01 to 1														✓									
DC	24 @ 0.20	0.0 to 0.20																							
DC	24 @ 0.10	0.005 to 0.10		✓		✓			✓		✓		✓		✓		✓						✓		✓
DC	12 @ 5	0.01 to 5																				✓		✓	
DC	12 @ 2	0.02 to 2	✓		✓		✓	✓		✓		✓		✓											
DC	12 @ 1	0.01 to 1														✓									
DC	12 @ 0.25	0.005 to 0.25		✓		✓			✓		✓		✓		✓		✓						✓		✓

CHART 6 Electrical Ratings: Electrical Cartridge Indicators With Thermal Lockout*

Voltage	Voltage Volts @ Amps	Current Range (amps)	MS5T	MS5LCT	MS10T	MS10LCT	MS12T	MS12LCT	MS13DCT	MS13DCLCT	MS14DCT	MS14DCLCT	MS16T	MS16LCT	MS17	MS17T	MS17LCT	MS13ACT	MS13ACLCT	MS14ACT	MS14ACLCT	MS18	MS18T	MS18LCT	MS19	MS19T	MS19LCT
AC	120 @ 5	0.02 to 5	✓		✓		✓											✓									
AC	220 @ 0.05	0.005 to 0.05		✓		✓		✓											✓		✓			✓			✓
AC	120 @ 5	0.05 to 4																		✓							
AC	115 @ 0.05	0.01 to 0.05													✓								✓			✓	
DC	24 @ 2	0.02 to 2	✓		✓		✓		✓		✓		✓			✓							✓			✓	
DC	24 @ 0.10	0.005 to 0.10		✓		✓		✓		✓		✓		✓			✓							✓			✓
DC	12 @ 2	0.02 to 2	✓		✓		✓		✓		✓		✓			✓							✓			✓	
DC	12 @ 0.25	0.005 to 0.25		✓		✓		✓		✓		✓		✓			✓							✓			✓

*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® 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®
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

Y2—Back mounted ⅛" 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 ⅛" 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

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.

DPG—Standard Differential Pressure Gauge
P/N LF-10454 or LF-10454V

Visual with Thermal Lockout

The thermal lockout feature prevents activation of the indicator below temperatures of 90°F (32°C). This is a welcome feature in mobile applications where fluid temperatures may be well below 90°F at equipment start-up, and will prevent the indicator from showing a premature need to change the element.

D8—Orange Pop Up Visual Indicator with Thermal Lock-out P/N A-LF-3870

D8C—Same as D8 but mounted in cap P/N A-LF-3870

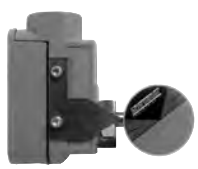
D8R—Same as D8 but mounted on opposite side of standard location P/N A-LF-3870

Filter Dirt Alarm® Selection: Step 3

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
MS	SPDT	15 Amps @ 125/250 vac, 0.5 Amp @ 125 VDC	½" conduit, female

Electrical

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

VS1—Heavy Duty Vacuum Switch (⅛" 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

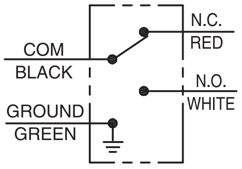
ES3—Electric pressure switch (1⁄8"NPT) with DIN connector P/N LF-4499
(Black = common; Red = N.O.; Blue = N.C.)

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	½" Conduit, Male

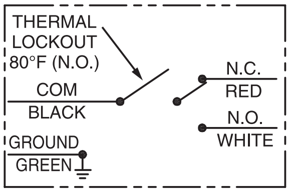
Appendix A Filter Dirt Alarm® Selection: Step 3

Electrical and Electrical with Thermal Lockout

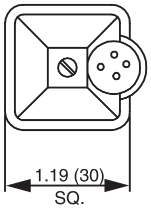
MS5 MS5LC MS5T MS5LCT	MS10 MS10LC MS10T MS10LCT	MS11
Supplied with 12 inch long 18 gauge 4-conductor cable	Supplied with DIN connector (male end only) (conforming to DIN 43650)	Supplied with 12 inch long 18 gauge 4-conductor cable

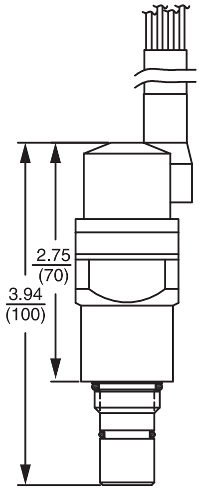


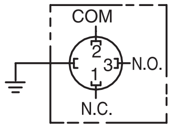
MS5/MS5LC



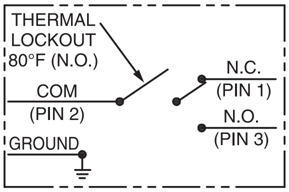
MS5T/MS5LCT



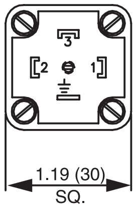


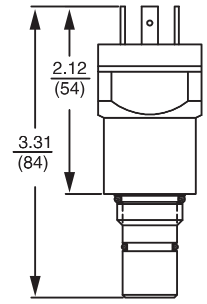


MS10/MS10LC

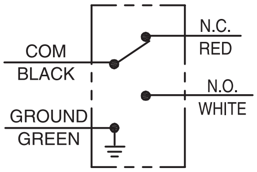


MS10T/MS10LCT

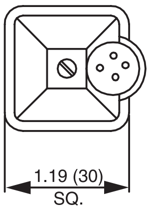


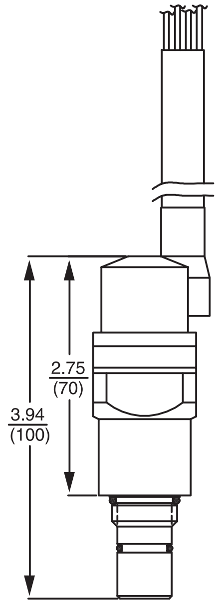


Model Codes of MSHA Version of MS10 are MS10DCM and MS10DCCM (DC only; second C designates cap). For electrical and dimensional drawings, contact factory.



MS11

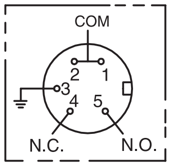




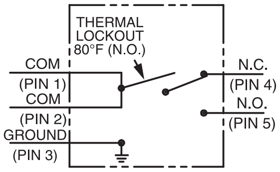
Electrical and Electrical with Thermal Lockout (cont'd.)

MS12
MS12LC
MS12T
MS12LCT

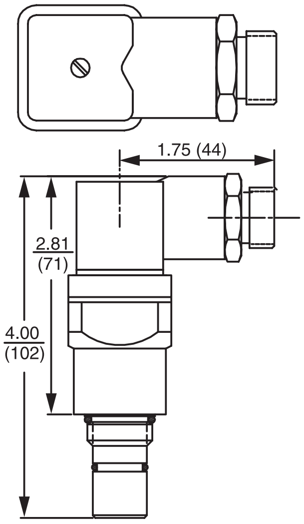
Supplied with 5 pin Brad Harrison connector (male end only)



MS12/MS12LC



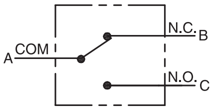
MS12T/MS12LCT



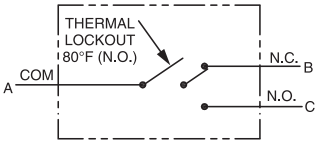
Model Codes of MSHA Version of MS12 are MS12DCM and MS12DCCM (DC only; second C designates cap). For electrical and dimensional drawings, contact factory.

MS16
MS16LC
MS16T
MS16LCT

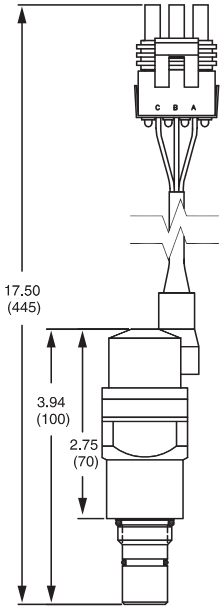
Supplied with a female (3) contact weather-packed sealed connectorSupplied with DIN connector (male end only) (conforming to DIN 43650)



MS16/MS16LC

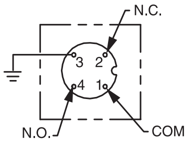


MS16T/MS16LCT

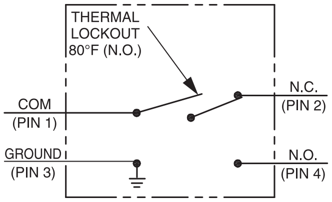


MS17LC
MS17LCT

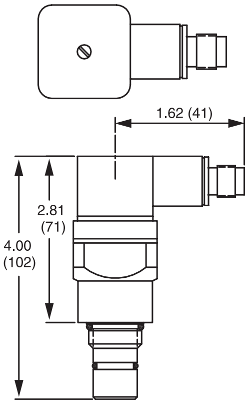
Supplied with a 4 pin Brad Harrison "micro" connector (male end only)



MS17LC



MS17LCT

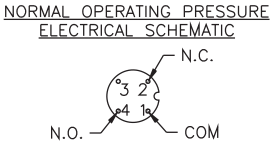


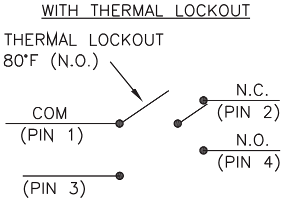
Appendix A Filter Dirt Alarm® Selection: Step 3

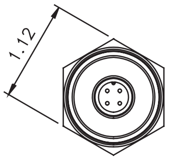
Electrical and Electrical with Thermal Lockout (cont'd.)

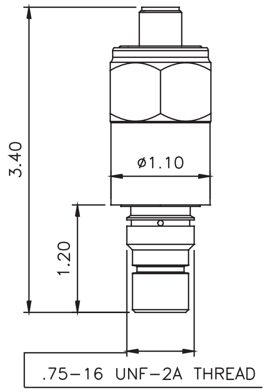
MS17
MS17T

Supplied with a 4 pin M12 "micro" connector (male end only) (confirming to IEC 60947-5-2)



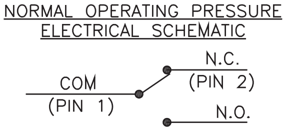


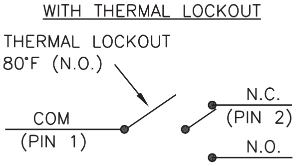


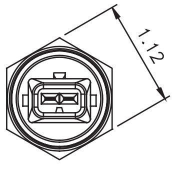


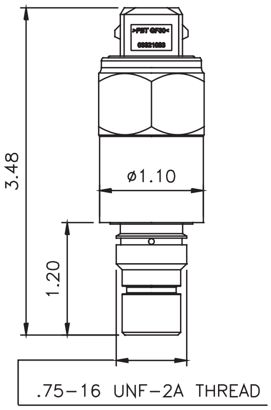
MS18
MS18LC
MS18T
MS18LCT

Supplied with a 2 pin amp junior power timer connector (male end only) (must designate N.O. or N.C.)



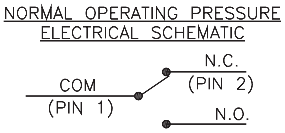


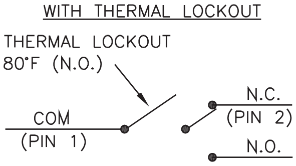


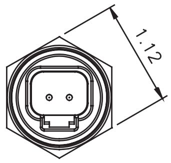


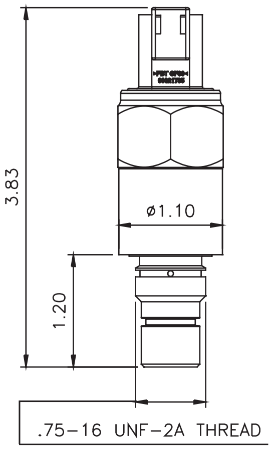
MS19
MS19LC
MS19T
MS19LCT

Supplied with a 2 pin deutsch connector (DTO4-2-P, male end only) (must designate N.O. or N.C.)









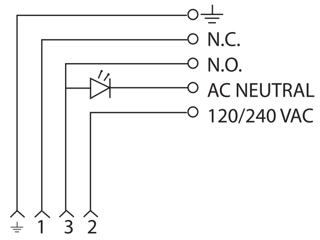
Electrical Visual and Electrical Visual with Thermal Lockout

MS13AC, MS13ACLC, MS13ACLCT
MS13DC, MS13DCLC
MS13DCT, MS13DCLCT

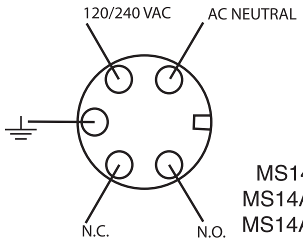
Supplied with
threaded connector
with light

MS14AC, MS14ACLC, MS14ACLCT
MS14DC, MS14DCLC
MS14DCT, MS14DCLCT

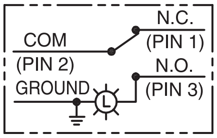
Supplied with
5 pin
Brad Harrison connector
with light
(male end only)



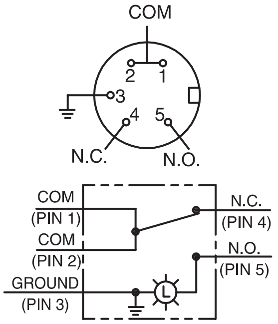
MS13AC, MS13ACLC, MS13ACLCT



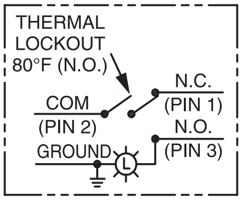
MS14AC,
MS14ACLC,
MS14ACLCT



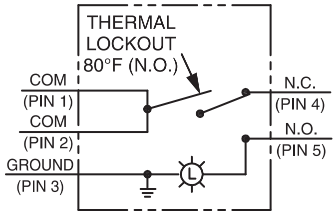
MS13DC / MS13DCLC



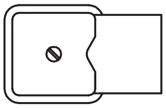
MS14DC / MS14DCLC

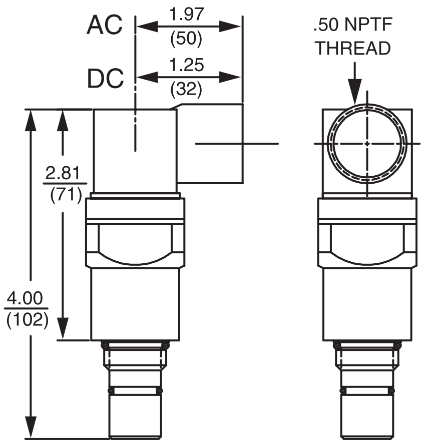


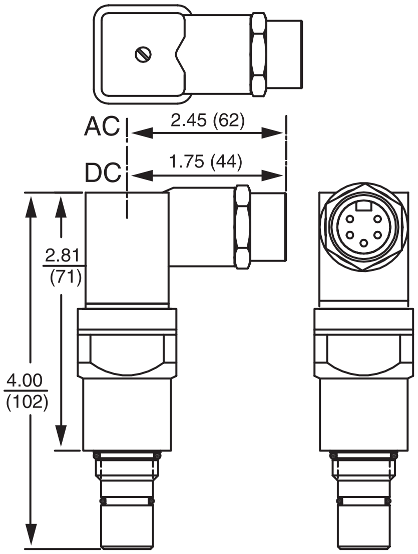
MS13DCT / MS13DCLCT



MS14DCT / MS14DCLCT







Appendix A Filter Dirt Alarm® 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		
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	MS5AC	MS5V-30	MS5
A-LF-2548VAC-40	MS5AC	MS5V-40	MS5
A-LF-2548VAC-50	MS5AC	MS5V-50	MS5
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-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	MS5LC	MS5VLC-40	MS5LC
A-LF-2548VLC-50	MS5LC	MS5VLC-50	MS5LC
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

Cross Reference of Old to New Indicators: Part Numbers and Codes (cont.)

Old Part Number	Old Indicator Code	New Part Number	New Indicator Code
	MS10		
A-LF-2919AC-15	MS10AC	MS10-15	MS10
A-LF-2919AC-30	MS10AC	MS10-30	MS10
A-LF-2919AC-40	MS10AC	MS10-40	MS10
A-LF-2919AC-50	MS10AC	MS10-50	MS10
A-LF-2919AC-60	MS10AC	MS10-60	MS10
A-LF-2919AC-75	MS10AC	MS10-75	MS10
A-LF-2919AC-90	MS10AC	MS10-90	MS10
A-LF-2919BAC-40	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	MS10LC	MS10BLC-50	MS10LC
ALF-2919LCSS-40	MS10LC	MS10SSLC-40	MS10LC
ALF-2919SSLC-30	MS10LC	MS10SSLC-30	MS10LC
ALF-2919SSLC-50	MS10LC	MS10SSLC-50	MS10LC
A-LF-2919VLC-30	MS10LC	MS10VLC-30	MS10LC
A-LF-2919VLC-40	MS10LC	MS10VLC-40	MS10LC
A-LF-2919VLC-50	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
	MS11		
A-LF-3011AC-15	MS11AC	MS11-15	MS11
A-LF-3011AC-30	MS11AC	MS11-30	MS11
A-LF-3011AC-40	MS11AC	MS11-40	MS11
A-LF-3011AC-50	MS11AC	MS11-50	MS11
A-LF-3011AC-90	MS11AC	MS11-90	MS11
A-LF-3011VAC-30	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

Appendix A Filter Dirt Alarm® 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
MS12			
A-LF-4498AC-25	MS12AC	MS12-25	MS12
A-LF-4498AC-30	MS12AC	MS12-30	MS12
A-LF-4498AC-40	MS12AC	MS12-40	MS12
A-LF-4498AC-50	MS12AC	MS12-50	MS12
A-LF-4498AC-75	MS12AC	MS12-75	MS12
A-LF-4498VAC-30	MS12AC	MS12V-30	MS12
A-LF-4498VAC-40	MS12AC	MS12V-40	MS12
A-LF-4498VAC-50	MS12AC	MS12V-50	MS12
A-LF-4498DC-30	MS12DC	MS12-30	MS12
A-LF-4498DC-40	MS12DC	MS12-40	MS12
A-LF-4498DC-50	MS12DC	MS12-50	MS12
A-LF-4498DC-75	MS12DC	MS12-75	MS12
A-LF-4498VDC-30	MS12DC	MS12V-30	MS12
A-LF-4498VDC-40	MS12DC	MS12V-40	MS12
A-LF-4498LC-30	MS12LC	MS12LC-30	MS12LC
A-LF-4498LC-40	MS12LC	MS12LC-40	MS12LC
A-LF-4498LC-50	MS12LC	MS12LC-50	MS12LC
A-LF-4498LC-75	MS12LC	MS12LC-75	MS12LC
ALF-4498SSLC-30	MS12LC	MS12SSLC-30	MS12LC
A-LF-4498VLC-30	MS12LC	MS12VLC-30	MS12LC
A-LF-4498VLC-40	MS12LC	MS12VLC-40	MS12LC
A-LF-4498VLC-50	MS12LC	MS12VLC-50	MS12LC
A-LF-4498LCT-40	MS12LCT	MS12LCT-40	MS12LCT
A-LF-4498LCT-75	MS12LCT	MS12LCT-75	MS12LCT
MS13			
A-LF-5099AC1	MS13AC1	MS13AC-30	MS13AC
A-LF-5099AC1-15	MS13AC1	MS13AC-15	MS13AC
A-LF-5099AC1-30	MS13AC1	MS13AC-30	MS13AC
A-LF-5099AC1-40	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
A-LF-5099DC2-30	MS13DC2	MS13DC-30	MS13DC
A-LF-5099DC2-40	MS13DC2	MS13DC-40	MS13DC

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
MS14			
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-5100DC1-30	MS14DC1	MS14DC-30	MS14DC
A-LF-5100DC1-40	MS14DC1	MS14DC-40	MS14DC
ALF-5100VDC1-40	MS14DC1	MS14VDC-40	MS14DC
A-LF-5100DC2-30	MS14DC2	MS14DC-30	MS14DC
A-LF-5100DC2-40	MS14DC2	MS14DC-40	MS14DC
A-LF-5100DC2-50	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
MS16			
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
MS17			
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-LF-6288VLC-40	MS17LC	MS17VLC-40	MS17LC
A-LF-6288VLC-50	MS17LC	MS17VLC-50	MS17LC

Appendix B Unique Non-Bypassing Filtration

Unique Non-Bypassing Filtration:

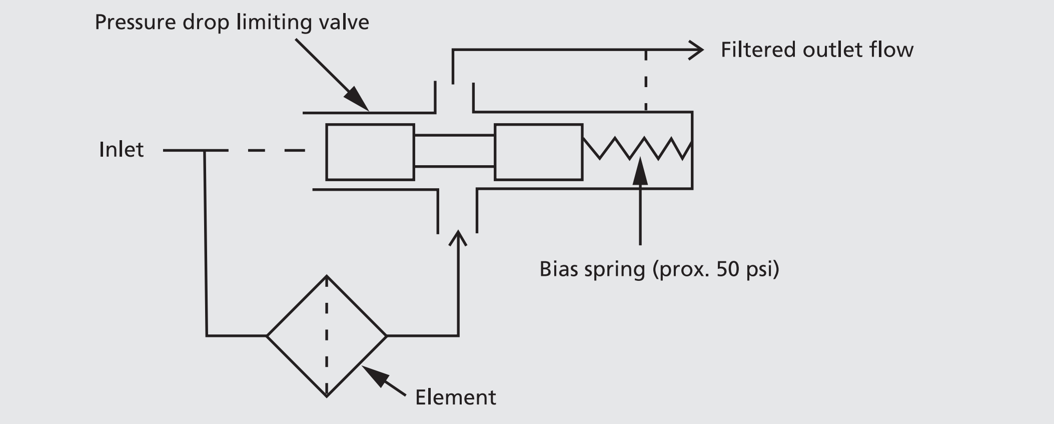
A Better Way That
Does Not Require
High Crush Elements

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® (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.

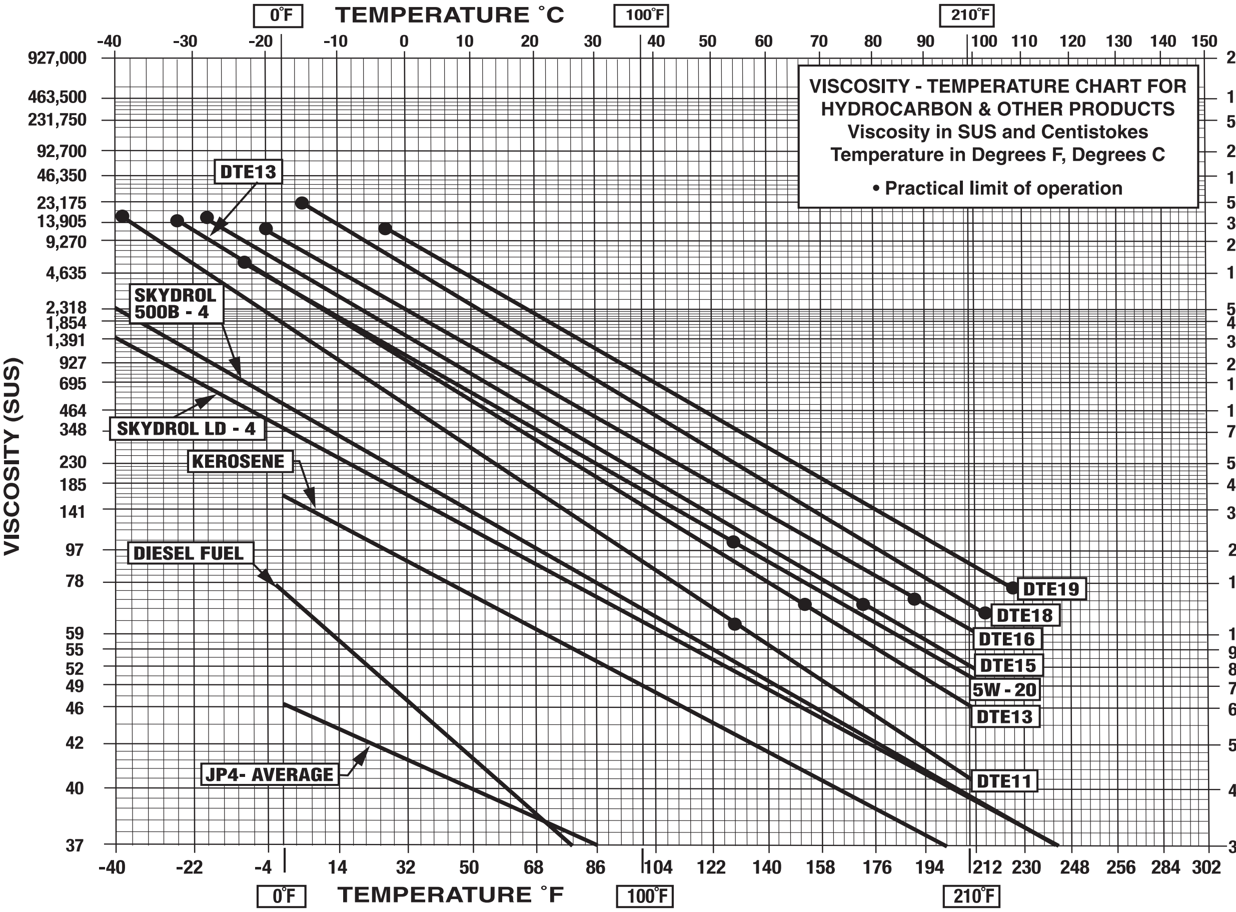


Appendix C Element Case Weights

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.)
A	paper	12	7	K	paper	12	17	8Z	paper	12	12
AZ	synthetic (Z)	12	8	KZ	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	KK	paper	6	18	14V	synthetic (Z)	6	10
C	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
CC	paper	12	11	M	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


0˚F
TEMPERATURE ˚C
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-40
-30
-20
-10
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
VISCOSITY - TEMPERATURE CHART FOR
HYDROCARBON & OTHER PRODUCTS
Viscosity in SUS and Centistokes
Temperature in Degrees F, Degrees C
• Practical limit of operation
VISCOSITY (SUS)
927,000
463,500
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JP4- AVERAGE
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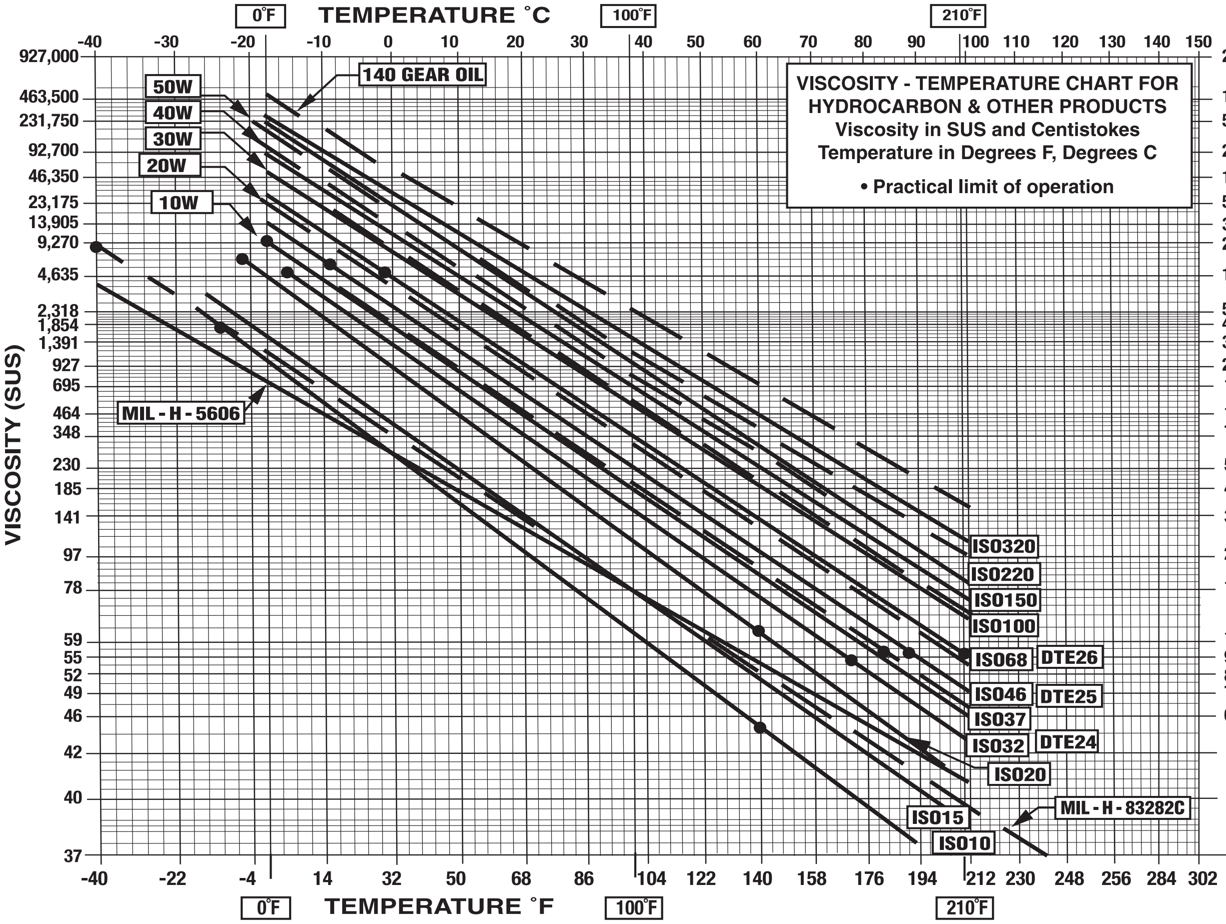
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VISCOSITY - TEMPERATURE CHART FOR
HYDROCARBON & OTHER PRODUCTS
Viscosity in SUS and Centistokes
Temperature in Degrees F, Degrees C
• Practical limit of operation
VISCOSITY (SUS)
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Glossary of Standard 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° 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.

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 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.

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.

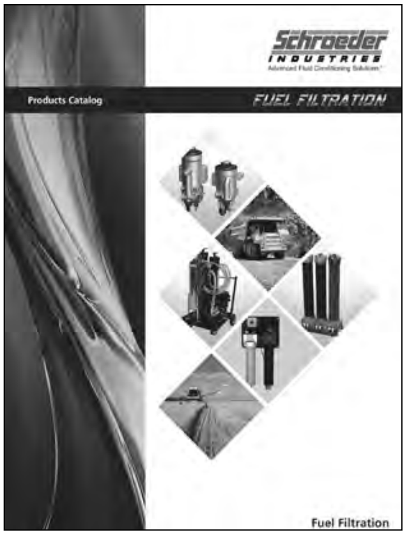
Schroeder Industries LLC wishes to thank both the National Fluid Power Association and Penton Publishing for the use of certain generic terms shown in this glossary.
Excerpts taken from ANSI B93.2-1986/NFPA T3.10.3. 1967(R1980) and Penton Publishing's Fluid Power Handbook & Directory (2006-2007).

*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

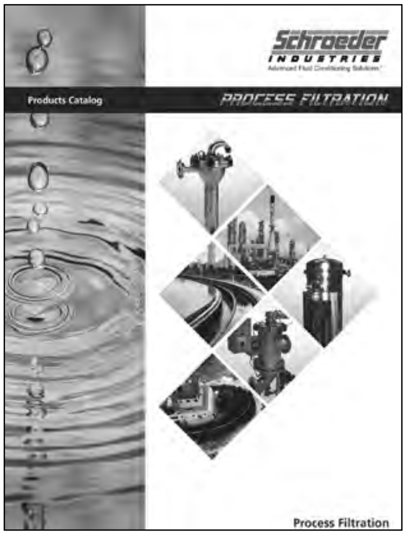
Filter Systems

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® technology.



Fuel Filtration

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.

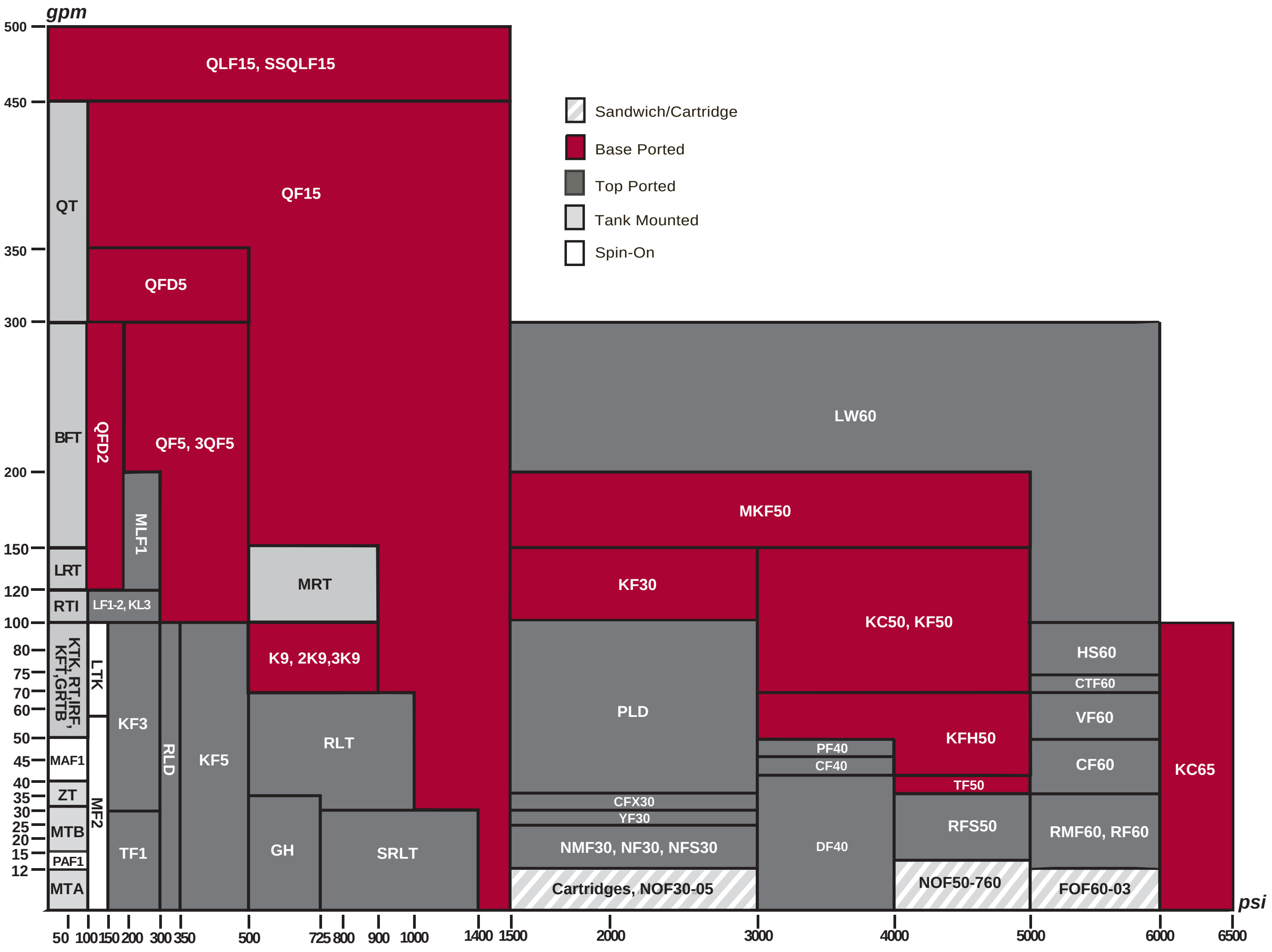


Process Filtration

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.

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	NF301NZ10SD5	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	GRT1KBGZ10S24S24NY2 (GRT-6915)	K3, K10, K25, KZ1, KZ3, KZ25
Low Pressure, Tank-Mounted	GRT	100 gpm, 100 psi, 1 SAE 1.25” straight inlet port, tri-color visible dirt alarm	GRT1KBGZ10S20NNY2 (GRT-6916)	KBG3, KBG10, BG25, KBGZ1, BGZ3,KBGZ25
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

Schroeder
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Filter Systems

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