

# Medium Pressure Filter

**RLT**



### 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
- Various Dirt Alarm® options
- Same day shipment model available

**70 gpm**  
**265 L/min**  
**1000 psi**  
**69 bar**

GH

**RLT**

KF5

SRLT

K9

2K9

3K9

QF5

QF5i

3QF5

QFD2

QFD5

QF15

QLF15

SSQLF15

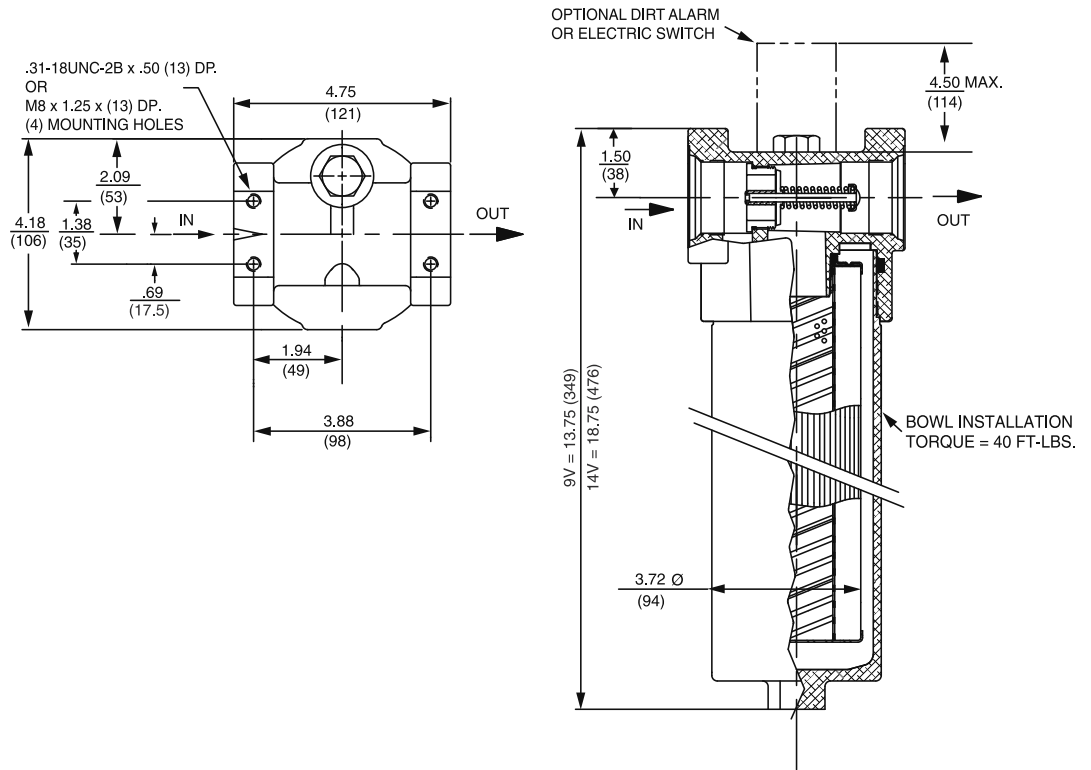
Model No. of filter in photograph is RLT9VZ10P20D5.

<b>Flow Rating:</b>	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
<b>Max. Operating Pressure:</b>	1000 psi (69 bar)
<b>Min. Yield Pressure:</b>	4200 psi (290 bar), per NFPA T2.6.1
<b>Rated Fatigue Pressure:</b>	415 psi (29 bar), per NFPA T2.6.1-R1-2005
<b>Temp. Range:</b>	-20°F to 225°F (-29°C to 107°C)
<b>Bypass Setting:</b>	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
<b>Porting Head:</b>	Aluminum
<b>Element Case:</b>	Aluminum
<b>Weight of RLT-9V:</b>	6.7 lbs. (3.0 kg)
<b>Weight of RLT-14V:</b>	8.0 lbs. (3.6 kg)
<b>Element Change Clearance:</b>	9V & 14V: 2.75" (70 mm)

### Filter Housing Specifications

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)

### Fluid Compatibility



Metric dimensions in ( ).  
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.  
 For complete dimensions please contact Schroeder Industries to request a certified print.

## Element Performance Information & Dirt Holding Capacity

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

Element	DHC (gm)	Element	DHC (gm)
9VZ1	55	14VZ1	102
9VZ3	57	14VZ3	105
9VZ5	62	14VZ5	115
9VZ10	52	14VZ10	104
9VZ25	48	14VZ25	94

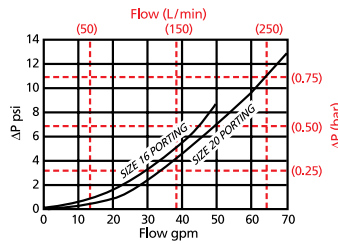
Element Collapse Rating: 150 psid (10 bar)  
 500 psid (34.5 bar) for hydrostatic high collapse (9V5Z and 14V5Z) version

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

$\Delta P_{\text{housing}}$

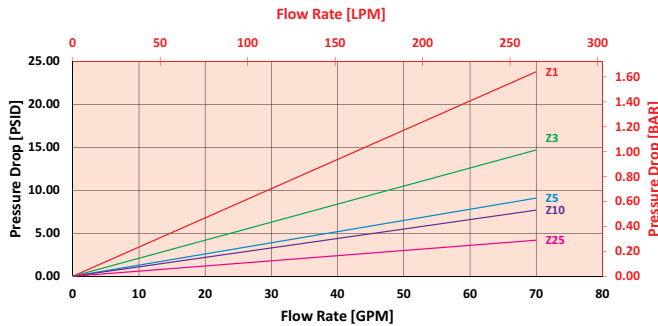
RLT  $\Delta P_{\text{housing}}$  for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

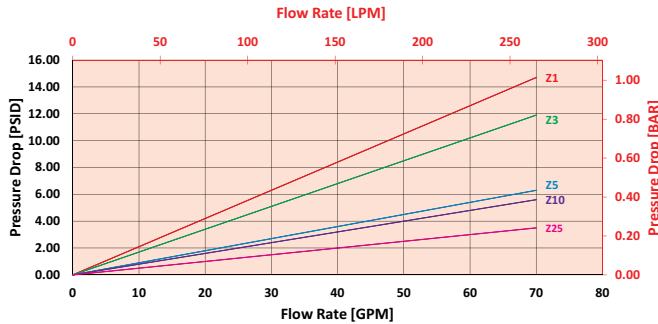
9VZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



14VZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

**Exercise:**

Determine  $\Delta P_{\text{filter}}$  at 40 gpm (151.6 L/min) for RLT9VZ10S20D5 using 175 SUS (37.2 cSt) fluid.

Use the housing pressure curve to determine  $\Delta P_{\text{housing}}$  at 40 gpm. In this case,  $\Delta P_{\text{housing}}$  is 4.5 psi (.31 bar) on the graph for the RLT housing.

Use the element pressure curve to determine  $\Delta P_{\text{element}}$  at 40 gpm. In this case,  $\Delta P_{\text{element}}$  is 6 psi (.415 bar) according to the graph for the 9VZ10 element.

Because the viscosity in this sample is 175 SUS (37.2 cSt), we determine the **Viscosity Factor ( $V_f$ )** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential,  $\Delta P_{\text{filter}}$ , is calculated by adding  $\Delta P_{\text{housing}}$  with the true element pressure differential,  $(\Delta P_{\text{element}} * V_f)$ . The  $\Delta P_{\text{element}}$  from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

**Solution:**

$\Delta P_{\text{housing}} = 4.5 \text{ psi } [.31 \text{ bar}] \mid \Delta P_{\text{element}} = 6 \text{ psi } [.415 \text{ bar}]$

$V_f = 175 \text{ SUS } (37.2 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = 1.2$

$\Delta P_{\text{filter}} = 4.5 \text{ psi} + (6 \text{ psi} * 1.2) = 11.7 \text{ psi}$

**OR**

$\Delta P_{\text{filter}} = .31 \text{ bar} + (.415 \text{ bar} * 1.2) = .808 \text{ bar}$

**Pressure Drop Information Based on Flow Rate and Viscosity**

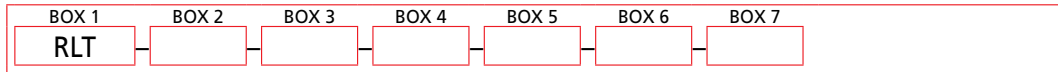
Note:  
If your element is not graphed, use the following equation:  
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$  Plug this variable into the overall pressure drop equation.

Ele.	$\Delta P$	Ele.	$\Delta P$
9V3	0.32	14V3	0.19
9V10	0.24	14V10	0.15

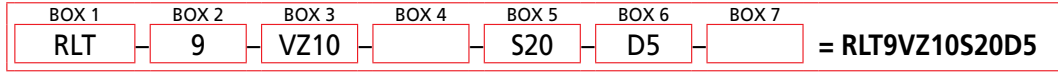
## Filter Model Number Selection

Highlighted product eligible for **QuickDelivery**

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



**Example:** NOTE: One option per box



BOX 1	BOX 2	BOX 3	BOX 4
<b>Filter Series</b>	<b>Element Length (in)</b>	<b>Element Size and Media</b>	
RLT	9	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) V5Z3 = V size 3 μ Excellement® media, 500 psid collapse V5Z5 = V size 5 μ Excellement® media, 500 psid collapse V5Z10 = V size 10 μ Excellement® media, 500 psid collapse V5Z25 = V size 25 μ Excellement® media, 500 psid collapse	
RLTN <small>(Non-bypassing: requires V5Z high collapse elements)</small>	14	<b>Water Service Element Options</b> 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)	
WRLT <small>(Water)</small>			
		<b>Seal Material</b>	
		Omit = Buna N H = EPR V = Viton® H.5 = Skydrol® Compatibility	

BOX 5	BOX 6	BOX 7
<b>Porting Options</b>	<b>Dirt Alarm® Options</b>	<b>Additional Options</b>
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"	None      Omit = None Visual      D5 = Visual pop-up 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      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      MS13 = Supplied w/ threaded connector & light Visual            MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end) Electrical      MS13DCT = MS13 (see above), direct current, w/ thermal lockout Visual            MS13DCLCT = Low current MS13DCT with                MS14DCT = MS14 (see above), direct current, w/ thermal lockout Thermal            MS14DCLCT = Low current MS14DCT Lockout	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.