

Tank-Mounted Filter **RT**



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
- Same day shipment model available
- Allows consolidation of inventoried replacement elements by using K-size elements

100 gpm
380 L/min
100 psi
7 bar

Model No. of filter in photograph is RT1K10S24NP16CY2.



INDUSTRIAL



AUTOMOTIVE
MANUFACTURING



MACHINE
TOOL



MINING
TECHNOLOGY



STEEL
MAKING



MARINE



MOBILE
VEHICLES

Applications

Accessories
for Tank-
Mounted
Filters

ST
SKB
Housings
MTA
MTB
ZT
KT
RT
RTI
KFT
LRT
BFT
QT
KTK
LTK

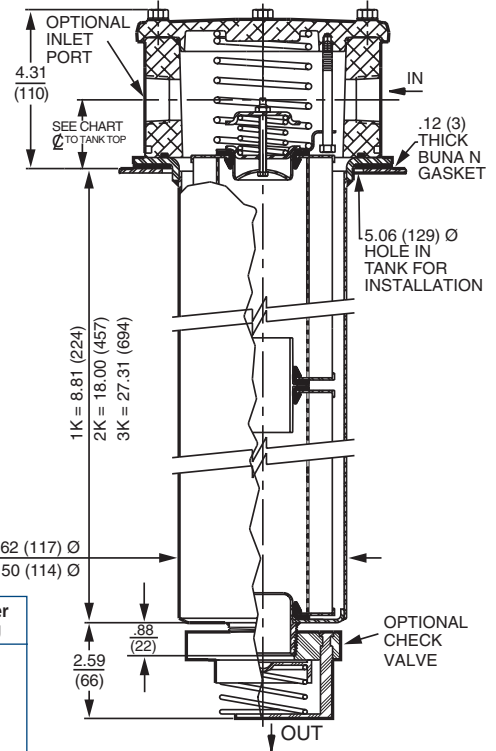
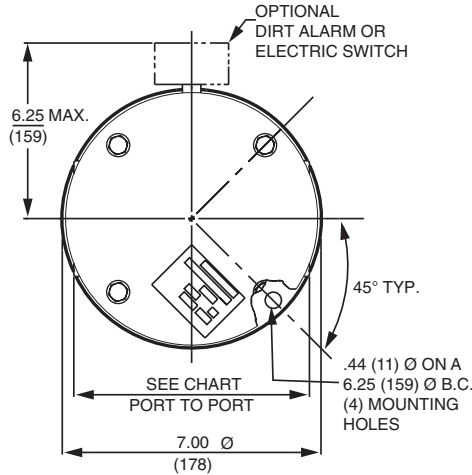
PAF1
MAF1
MF2
TF1
KF3
LF1—2"
MLF1
SRLT
RLT
KF8

K9
2K9
3K9
QF15
QLF15
SSQLF15
QFD5

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:	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

RT 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 (P/N A-LFT-813 and A-LFT-1448; see page 183 for details) available to weld to tank.

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 wrt 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	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	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)	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
KZ3	115	KKZ3	230	27KZ3	345	KDZ3	71	KKDZ3	150
KZ5	119	KKZ5	238	27KZ5	357	KDZ5	100	KKDZ5	210
KZ10	108	KKZ10	216	27KZ10	324	KDZ10	80	KKDZ10	168
KZ25	93	KKZ25	186	27KZ25	279	KDZ25	81	KKDZ25	171

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

Flow Direction: Outside In **See RTI, page 155 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

Tank-Mounted Filter **RT**

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

Fluid Compatibility

Skydrol is a registered trademark of Solutia Inc.

ST
SKB
Housings
MTA
MTB
ZT
KT
RT

Pressure	Element		Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.			
	Series	Part No.				
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

Element Selection Based on Flow Rate

RTI
KFT
LRT
BFT
QT
KTK
LTK

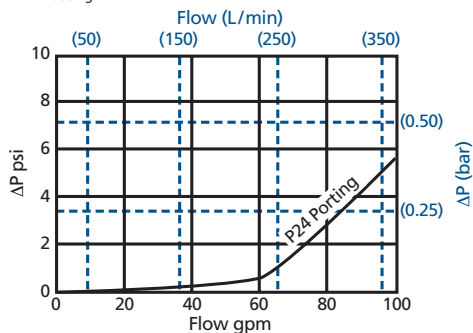
†Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively. Shown above are the elements most commonly used in this housing.

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 19 and 20.

Accessories for Tank-Mounted Filters

ΔP_{housing}

RT 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_{element}

ΔP_{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	.10	.05	.03	KDZ3	.12 .06
KZ5	.08	.04	.02	KDZ5	.1 .05
KZ10	.05	.03	.02	KDZ10	.06 .03
KZ25	.04	.02	.01	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).

Pressure Drop Information

Based on Flow Rate and Viscosity

PAF1
MAF1
MF2
TF1
KF3
LF1—2"
MLF1
SRLT
RLT
KF8
K9
2K9
3K9
QF15
QLF15
SSQLF15
QFD5

Notes

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

Exercise:

Determine ΔP at 80 gpm (300 L/min) for RT1KZ10P24NN using 200 SUS (44 cSt) fluid.

Solution:

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

$$\begin{aligned} \Delta P_{\text{element}} &= 80 \times .05 \times (200 \div 150) = 5.3 \text{ psi} \\ &\text{or} \\ &= [300 \times (.05 \div 54.9) \times (44 \div 32)] = .38 \text{ bar} \end{aligned}$$

$$\begin{aligned} \Delta P_{\text{total}} &= 3.0 + 5.3 = 8.3 \text{ psi} \\ &\text{or} \\ &= [.20 + .38 = .58 \text{ bar}] \end{aligned}$$

RT Tank-Mounted Filter

Filter Model Number Selection

Same Day Shipment Model See Appendix E for details.

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

BOX 1 - [RT] - BOX 2 - [] - BOX 3 - [] - BOX 4 - [] - BOX 5 - [] - BOX 6 - [] - BOX 7 - [] - BOX 8 - []

Example: NOTE: Only box 8 may contain more than one option

BOX 1 - [RT] - BOX 2 - [1] - BOX 3 - [KZ10] - BOX 4 - [] - BOX 5 - [S24 S24 N] - BOX 6 - [] - BOX 7 - [Y2] - BOX 8 - [] = RT1KZ10S24S24NY2

Filter Series	Number of Elements	Element Part Number				Seal Material
RT	1	K Length	KK Length	27K Length		Omit = Buna N
	2	K3	KK3	27K3	= 3 μ E media (cellulose)	H = EPR
	3	K10	KK10	27K10	= 10 μ E media (cellulose)	W = Buna N
RTW		K25	KK25	27K25	= 25 μ E media (cellulose)	H.5 = Skydrol® compatibility
		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)	
		KDZ1	KKDZ1		= DirtCatcher® 1 μ Excellement Z media	
		KDZ3	KKDZ3		= DirtCatcher 3 μ Excellement Z media	
		KDZ5	KKDZ5		= DirtCatcher 5 μ Excellement Z media	
		KDZ10	KKDZ10		= DirtCatcher 10 μ Excellement Z media	
	KDZ25	KKDZ25		= DirtCatcher 25 μ Excellement Z media		
	KM60			= 60 μ M media (reusable metal)		
	KW			= W media (water removal)		

BOX 5 Specification of all 3 ports is required

Inlet Porting		
Port A	Port B	Port C
	N = None	N = None
P16 = 1" NPTF P20 = 1 1/4" NPTF P24 = 1 1/2" NPTF P32 = 2" NPTF	P16 = 1" NPTF P20 = 1 1/4" NPTF P24 = 1 1/2" NPTF P32 = 2" NPTF	P2 = 1/4" NPTF P16 = 1" NPTF S16 = SAE-16
S16 = SAE-16 S20 = SAE-20 S24 = SAE-24 S32 = SAE-32	S16 = SAE-16 S20 = SAE-20 S24 = SAE-24 S32 = SAE-32	
F20 = 1 1/4" SAE 4-bolt flange Code 61 F24 = 1 1/2" SAE 4-bolt flange Code 61 F32 = 2" SAE 4-bolt flange Code 61 B24 = ISO 228 G-1 1/2"	F20 = 1 1/4" SAE 4-bolt flange Code 61 F24 = 1 1/2" SAE 4-bolt flange Code 61 F32 = 2" SAE 4-bolt flange Code 61 B24 = ISO 228 G-1 1/2"	

Inlet Porting Location

Outlet Porting Options
Omit = 1 1/2" NPT male
C = Check valve
D = Diffuser
CD = Check valve & diffuser
T = 13" Tube extension
A = Non-threaded outlet

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 3 and 4. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively.
 - 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
- To qualify for same day shipment, inlet porting must be S24S24N or S20NN.

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
	Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location
Located @ Port C	Visual	ESR = Electric switch mounted on opposite side of standard location
	Electrical	ES1R = Heavy-duty electric switch with conduit connector

BOX 8

Additional Options
Omit = None
G2293 = Cork gasket
G547 = Two 1/4" gauge ports
G820 = Stamped cap
N = No-Element indicator
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each port designation)