

# 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.



INDUSTRIAL



AUTOMOTIVE  
MANUFACTURING



MACHINE  
TOOL



MINING  
TECHNOLOGY



STEEL  
MAKING



MARINE



MOBILE  
VEHICLES

**120 gpm**  
**455 L/min**

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**100 psi**  
**7 bar**

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

## Applications

Accessories  
for Tank-  
Mounted  
Filters

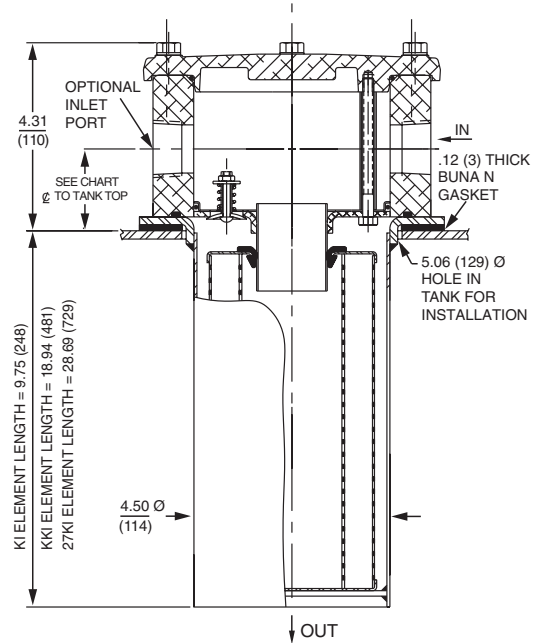
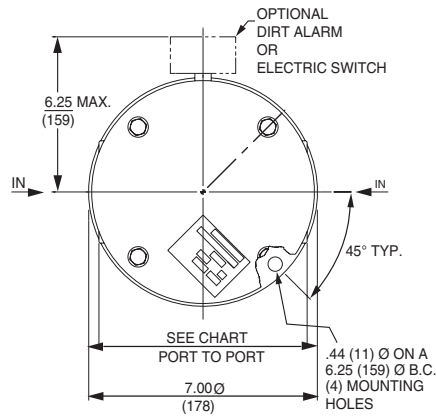
PAF1  
MAF1  
MF2  
TF1  
KF3  
LF1—2"  
MLF1  
SRLT  
RLT

## Filter Housing Specifications

KF8  
K9  
2K9  
3K9  
QF15  
QLF15  
SSQLF15  
QFD5

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)
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)

# RTI Tank-Mounted Filter (Inside Out Flow)



	1/4", 1/2" Standard Ports	1/2" 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 (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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
KIZ1	<1.0	<1.0	<1.0	<4.0	4.2
KIZ3	<1.0	<1.0	<2.0	<4.0	4.8
KIZ10	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	88	KKIZ3	185	27KIZ3	283
KIZ10	82	KKIZ10	174	27KIZ10	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**

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
Skydrol®	3, 5, 10 and 25 μ Z (synthetic) 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

**RTI**

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	Z Media	Z10	KI	KKI	27KI	
Flow	gpm	0		90	105	120
	(L/min)	0		340	400	455

## Element Selection

Based on Flow Rate

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

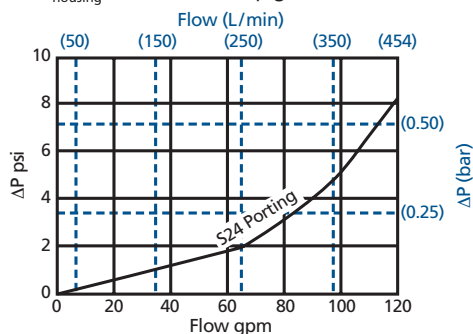
Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 19 and 20.

KFT  
LRT  
BFT  
QT  
KTK  
LTK

## Accessories for Tank-Mounted Filters

### ΔP<sub>housing</sub>

RT ΔP<sub>housing</sub> 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<sub>element</sub>

ΔP<sub>element</sub> = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

KIZ10	.08
KKIZ10	.05
27KIZ10	.04

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"

## Notes

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

### Exercise:

Determine ΔP at 80 gpm (300 L/min) for RTIKKIZ10P24NN using 200 SUS (44 cSt) fluid.

### Solution:

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

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

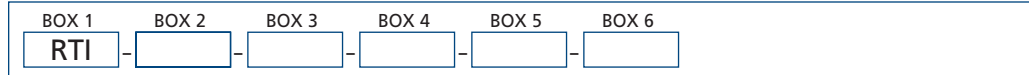
$$\begin{aligned} \Delta P_{\text{total}} &= 3.0 + 5.3 = 8.3 \text{ psi} \\ &\text{or} \\ &= [.20 + .38] = .58 \text{ bar} \end{aligned}$$

MLF1  
SRLT  
RLT  
KF8  
K9  
2K9  
3K9  
QF15  
QLF15  
SSQLF15  
QFD5

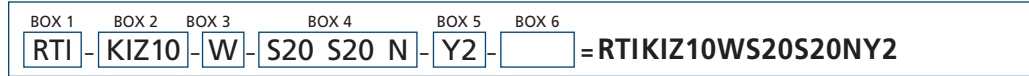
# RTI Tank-Mounted Filter (Inside Out Flow)

## Filter Model Number Selection

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

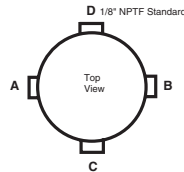


**Example:** NOTE: Only box 6 may contain more than one option



BOX 1	BOX 2				BOX 3
Filter Series	Element Part Number				Seal Material
RTI	K Length	KK Length	27K Length		Omit = Buna N H = EPR W = Buna N H.5 = Skydrol® compatibility
	KIZ1	KKIZ1	27KIZ1	= 1 μ Excellement® Z media (synthetic)	
	KIZ3	KKIZ3	27KIZ3	= 3 μ Excellement Z media (synthetic)	
	KIZ10	KKIZ10	27KIZ10	= 10 μ Excellement Z media (synthetic)	

### Inlet Porting Location



BOX 4  
Specification of all 3 ports is required

Inlet Porting		
Port A	Port B	Port C
P16 = 1" NPTF P20 = 1¼" NPTF P24 = 1½" NPTF	N = None	N = None
S16 = SAE-16 S20 = SAE-20 S24 = SAE-24	P16 = 1" NPTF P20 = 1¼" NPTF P24 = 1½" NPTF	P2 = ½" NPTF P16 = 1" NPTF
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	S16 = SAE-16
	F20 = 1¼" SAE 4-bolt flange Code 61 F24 = 1½" SAE 4-bolt flange Code 61	

#### NOTES:

- Box 2. Replacement element part numbers are identical to contents of Boxes 2 and 3.
- 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 183.

### 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
	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 6

Additional Options
Omit = None
G547 = Two ½" gauge ports
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each port designation)