Tank-Mounted Filter (Inside Out Flow)

RTI

120 *gpm*
455 L/min
100 psi
7 bar

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.

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)

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)
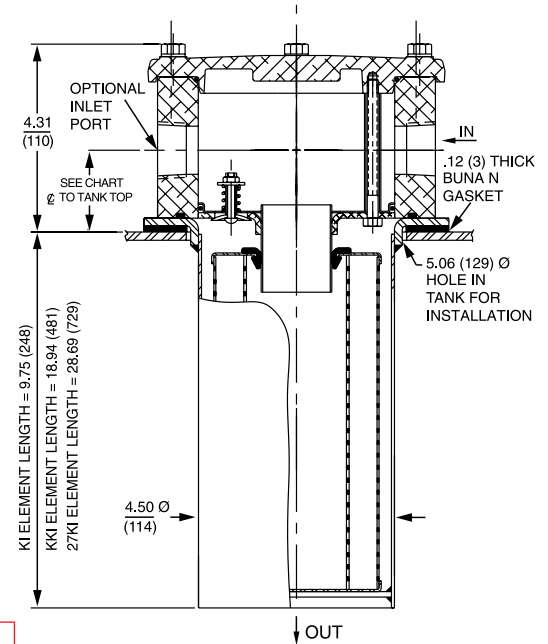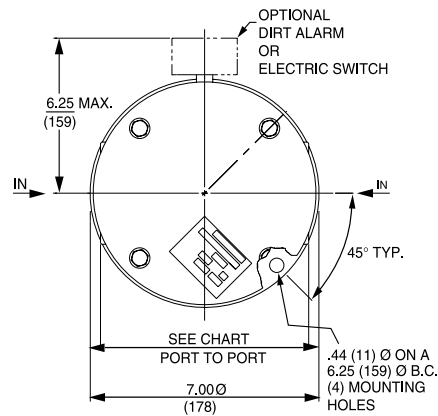
	1¼", 1½" Standard Ports	1½" Ports 4-Bolt Flange Only
Port to Port	6.38"	7.12"
Ç to Casting Base	1.56"	1.75"
Ç to Tank Top	1.88"	2.06"

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 & 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	
	$ß_x \geq 75$	$ß_x \geq 100$	$ß_x \geq 200$	$ß_x(c) \geq 200$	$ß_x(c) \geq 1000$
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

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)
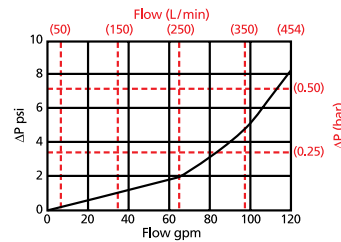
Flow Direction: Inside Out

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
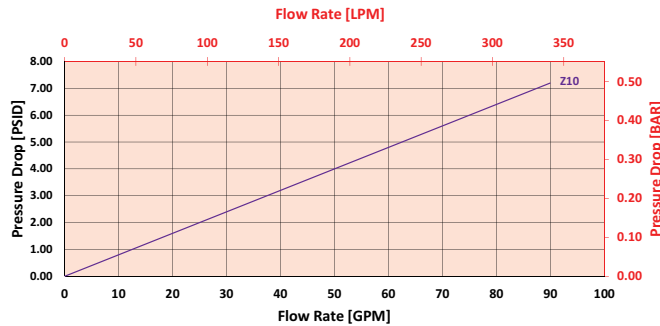
Tank-Mounted Filter (Inside Out Flow)

$\triangle \mathbf{P_{housing}}$

RTI $\triangle P_{housing}$ for fluids with sp gr (specific gravity) = 0.86:
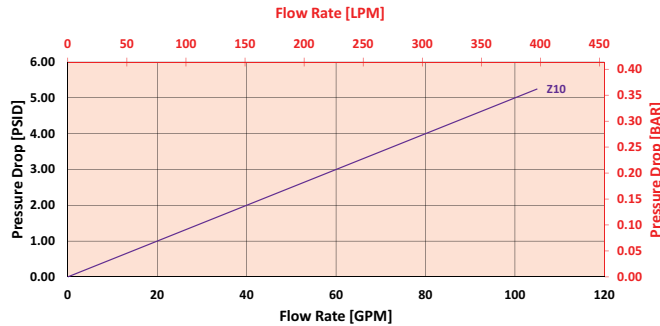

$\triangle \mathbf{P_{element}}$

KIZ

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

KKIZ

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

$$\triangle \mathbf{P_{filter}} = \triangle \mathbf{P_{housing}} + (\triangle \mathbf{P_{element}} * V_f)$$

Exercise:

Determine $\triangle \mathbf{P_{filter}}$ at 80 gpm (303.2 L/min) for RTIKIZ10S20S20NY2 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\triangle \mathbf{P_{housing}}$ at 80 gpm. In this case, $\triangle \mathbf{P_{housing}}$ is 3 psi (.21 bar) on the graph for the RTI housing.

Use the element pressure curve to determine $\triangle \mathbf{P_{element}}$ at 80 gpm. In this case, $\triangle \mathbf{P_{element}}$ is 6.5 psi (.45 bar) according to the graph for the KIZ10 element.

Because the viscosity in this sample is 160 SUS (34 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, $\triangle \mathbf{P_{filter}}$, is calculated by adding $\triangle \mathbf{P_{housing}}$ with the true element pressure differential, ($\triangle \mathbf{P_{element}} * V_f$). The $\triangle \mathbf{P_{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$\triangle \mathbf{P_{housing}}$ = 3 psi [.21 bar] | $\triangle \mathbf{P_{element}}$ = 6.5 psi [.45 bar]

V_f = 160 SUS (34 cSt) / 150 SUS (32 cSt) = 1.1

$\triangle \mathbf{P_{filter}}$ = 3 psi + (6.5 psi * 1.1) = 10.2 psi

   OR

$\triangle \mathbf{P_{filter}}$ = .21 bar + (.45 bar * 1.1) = .71 bar

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

Ele.	$\triangle \mathbf{P}$
KIAS10	0.08
KKIAS10	0.05
27KIAS10/ 27KIAS10	0.04

Tank-Mounted Filter (Inside Out Flow)

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 / BOX 2

Filter Series	Element Part Number			
RTI	**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 = Anodized Aluminum Parts
H.5 = Skydrol® Compatibility

Inlet Porting Location

D 1/8" NPTF Standard
A — Top View — B
C
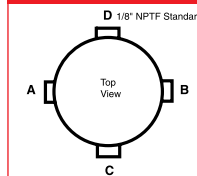
BOX 4 *Specification of all 3 ports is required*

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.