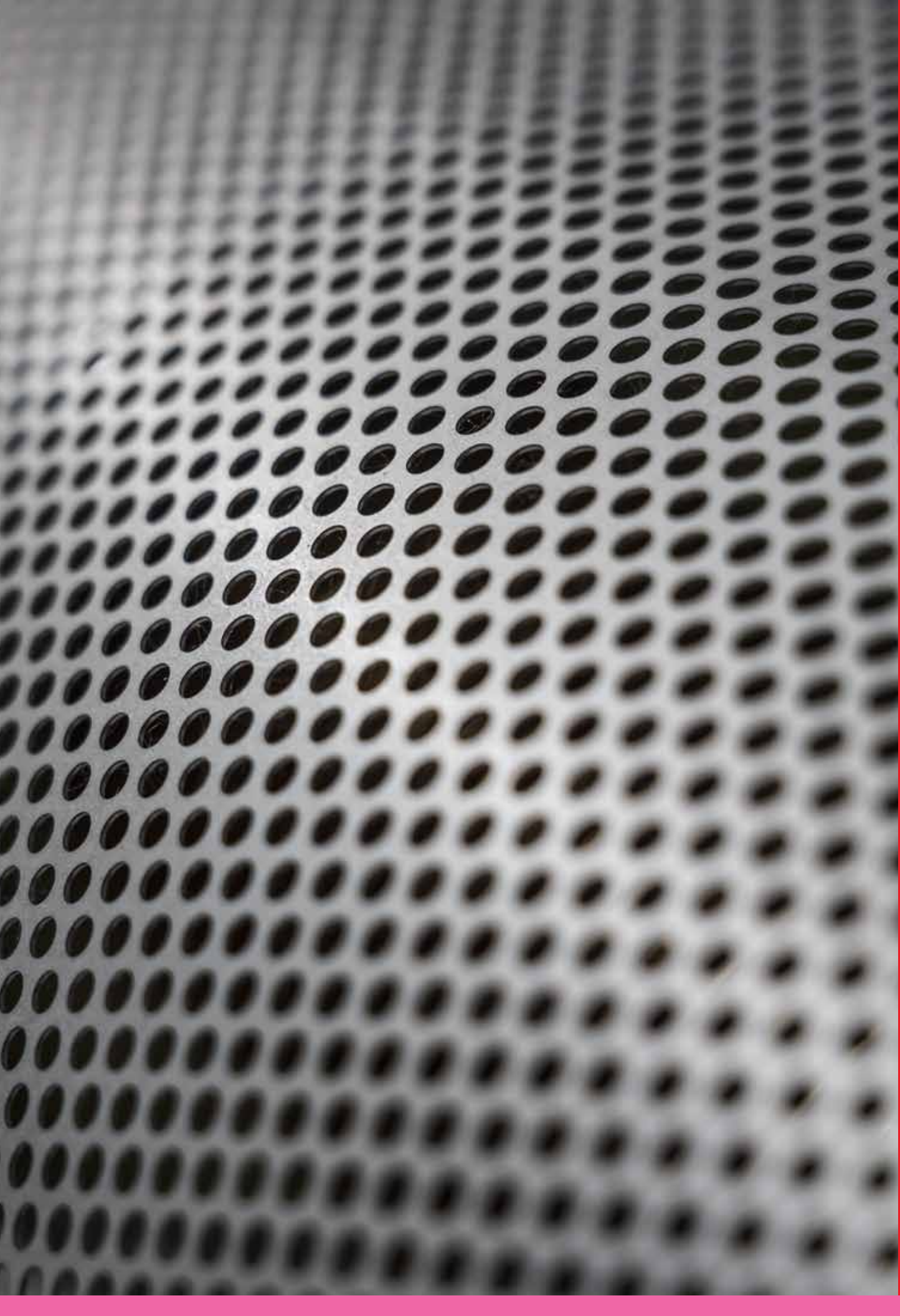


Section 6:

# SUCTION FILTERS



# Section 6

## Suction Filters Selection Guide

		Pressure psi (bar)	Flow gpm (L/min)	Element Length/Size	Page
<b>Suction Filters</b>	<b>Tank-Mounted Suction Filter</b>				
	ST	NA	20 (75)	K, KT	323
	<b>In-Line Magnetic Suction Separators</b>				
	TF-SKB	NA	12.5 (47)	SKB	329
	KF3-SKB	NA	35 (130)	SKB	330
	<b>Tank-Mounted Magnetic Suction Separator</b>				
	BFT-SKB	NA	75 (285)	SKB	331

# Tank-Mounted Suction Filter

**ST**



## 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

**20 gpm**  
**75 L/min**

**ST**

TF-SKB

KF3-SKB

BFT-SKB

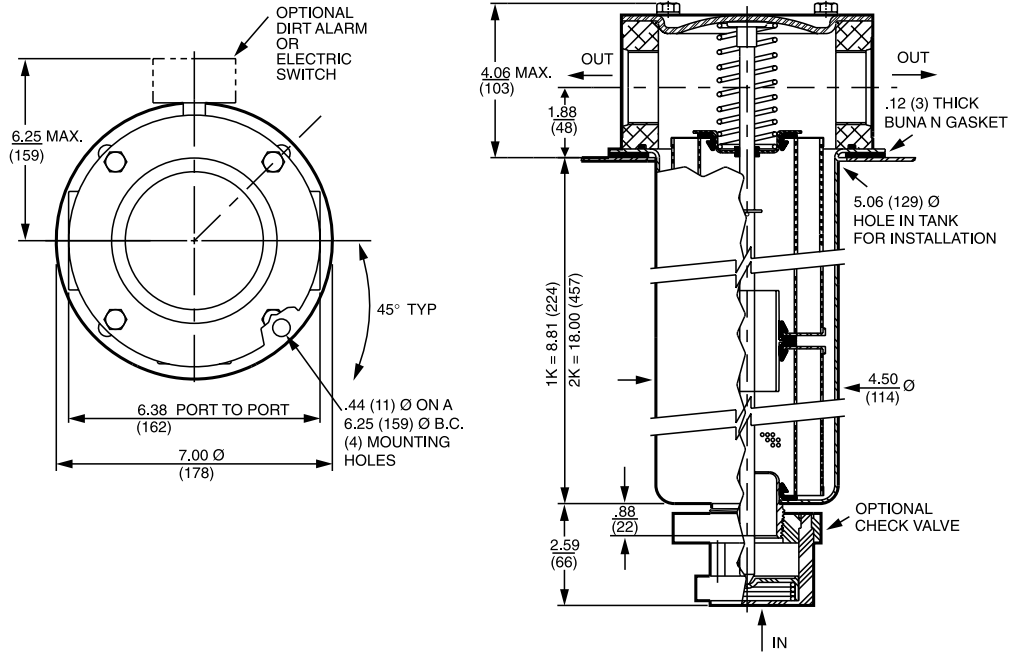
Model No. of filter in photograph is ST1K105Y.

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

## Filter Housing Specifications

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)

## Fluid Compatibility



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
KTZ10	7.4	8.0	10.0	8.0	10.0

Element	DHC (gm)
KTZ10	56

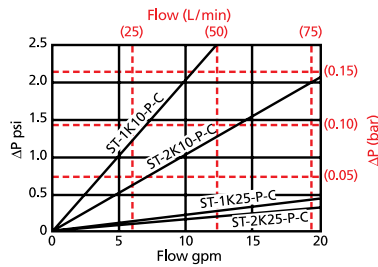
Element Collapse Rating: 150 psid (10 bar)  
 Flow Direction: Inside Out  
 Element Nominal Dimensions: 3.9" (99 mm) O.D. x 9.0" (230 mm) long

# Tank-Mounted Suction Filter

# ST

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

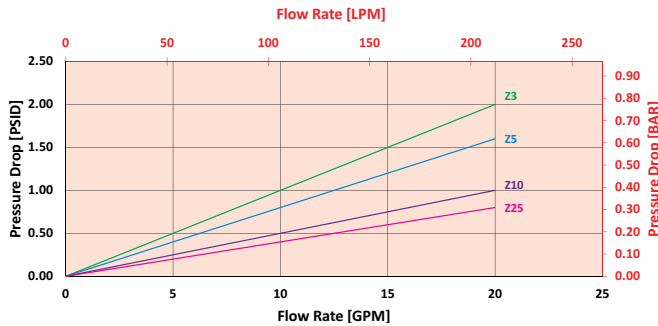
ST  $\Delta P_{\text{housing}}$  for fluids with sp gr (specific gravity) = 0.86:



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

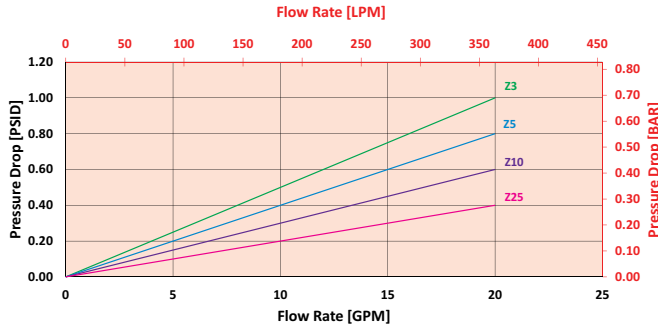
KTZ

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



2KTZ

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 15 gpm (57 L/min) for ST1KTZ10PY using 160 SUS (34 cSt) fluid.

Use the element pressure curve to determine  $\Delta P_{\text{housing}}$  at 15 gpm. In this case,  $\Delta P_{\text{housing}}$  is 1.5 psi (.10 bar) according to the graph for the ST element.

Use the element pressure curve to determine  $\Delta P_{\text{element}}$  at 15 gpm. In this case,  $\Delta P_{\text{element}}$  is .75 psi (.05 bar) according to the graph for the KZT10 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,  $\Delta P_{\text{filter}}$ , 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:

$$\Delta P_{\text{housing}} = 1.5 \text{ psi } [.75 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = .75 \text{ psi } [.05 \text{ bar}]$$

$$v_f = 160 \text{ SUS } (34 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = 1.07$$

$$\Delta P_{\text{filter}} = 1.5 \text{ psi} + (.75 \text{ psi} * 1.07) = 2.3 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .10 \text{ bar} + (0.05 \text{ bar} * 1.07) = 0.15 \text{ bar}$$

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

ST

TF-SKB

KF3-SKB

BFT-SKB

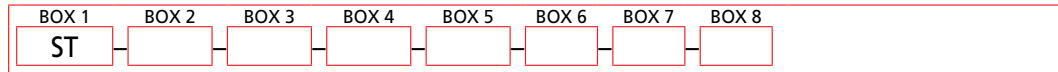
Note:

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.

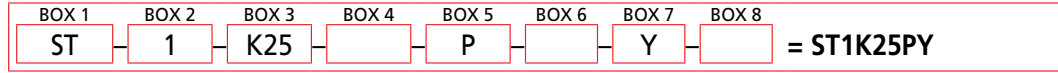
Ele.	$\Delta P$	Ele.	$\Delta P$	Ele.	$\Delta P$
K3	0.25	KZW25	0.14	2KZW10	0.12
K10	0.09	2K3	0.12	2KZW25	0.07
K25	0.02	2K10	0.05	3K3	0.08
KAS3	0.10	2K25	0.01	3K10	0.03
KAS5	0.08	2KAS3	0.05	3K25	0.01
KAS10	0.05	2KAS5	0.04	3KAS3	0.03
KZX10	0.22	2KAS10	0.03	3KAS5	0.02
KZW1	0.43	2KZX10	0.11	3KAS10	0.02
KZW3	0.32	2KZW1	-	3KZX10	0.07
KZW5	0.28	2KZW3	0.16		
KZW10	0.23	2KZW5	0.14		

## Filter Model Number Selection

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



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



BOX 1	BOX 2	BOX 3	BOX 4
<b>Filter Series</b>	<b>Number of Elements</b>	<b>Element Part Number</b>	<b>Seal Material</b>
ST	1 2	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	Omit = Buna N H = EPR W = Buna N H.5 = Skydrol® compatibility
BOX 5	BOX 6	BOX 7	BOX 8
<b>Outlet Port</b>	<b>Optional Check Valve</b>	<b>Dirt Alarm® Options</b>	<b>Additional Options</b>
P = 1½" NPTF PP = Dual 1½" NPTF S = SAE 24 SS = Dual SAE 24 B = ISO 228 G-1½" BB = ISO 228 G-1½"	Omit = None C = Check Valve	Omit = None Visual Y = Vacuum gauge YR = Vacuum gauge 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	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

ST

TF-SKB

KF3-SKB

BFT-SKB

## Features and Benefits

- Protects components downstream by capturing potentially harmful ferrous particles

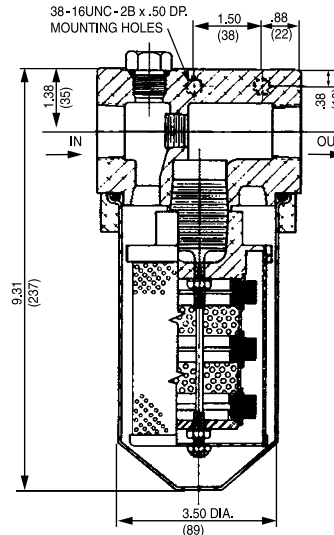
## Specifications

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)

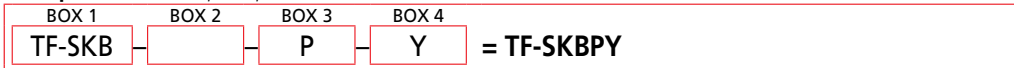


Metric dimensions in ( ).

## How to Build a Valid Model Number for a Schroeder TF-SKB:



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



BOX 1	BOX 2	BOX 3	BOX 4
<b>Filter Series</b>	<b>Seal Material</b>	<b>Porting</b>	<b>Dirt Alarm® Options</b>
TF-SKB	Omit = Buna N	P = 1" NPTF	Omit = None Visual Y = Vacuum gauge Electrical VS = Electrical Vacuum Switch VS1 = Heavy-Duty Vacuum Switch

## Filter Model Number Selection

NOTE:  
Box 1. Element replacement part number: SKB-1.

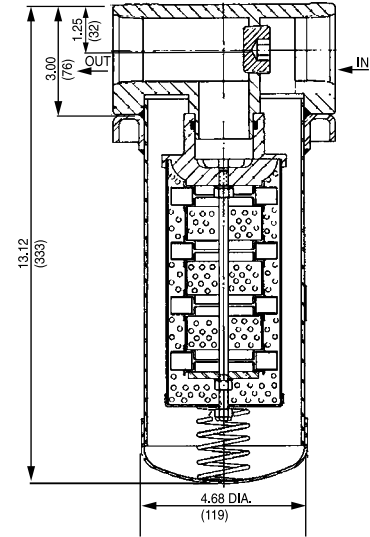
## Features and Benefits

- 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)

Metric dimensions in ( ).

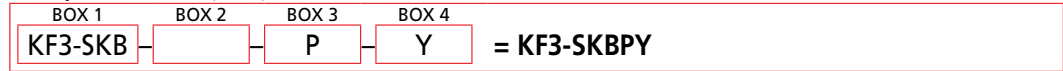


## Filter Model Number Selection

### How to Build a Valid Model Number for a Schroeder KF3-SKB:



Example: NOTE: One option per box



BOX 1	BOX 2	BOX 3	BOX 4
<b>Filter Series</b>	<b>Seal Material</b>	<b>Porting</b>	<b>Dirt Alarm® Options</b>
KF3-SKB	Omit = Buna N	P = 1/2" NPTF	Omit = None Visual Y = Vacuum gauge 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

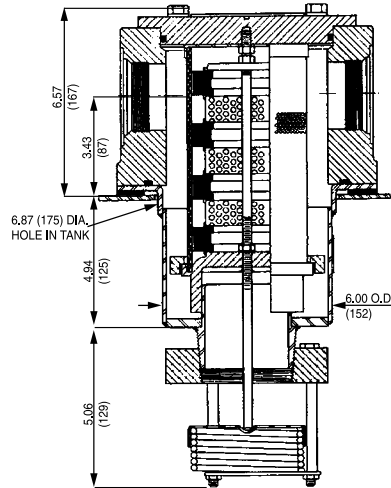
TF-SKB

**KF3-SKB**

**BFT-SKB**

## Features and Benefits

- Protects components downstream by capturing potentially harmful ferrous particles



Metric dimensions in ( ).

## Specifications

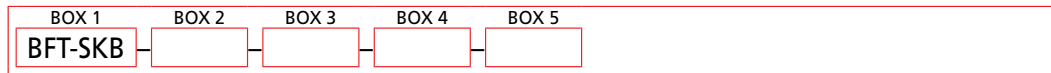
Flow Rating: 75 gpm (285 L/min)

Element Replacement with check valve: A-SKB-3-76  
Part Number: without check valve: SKB-3

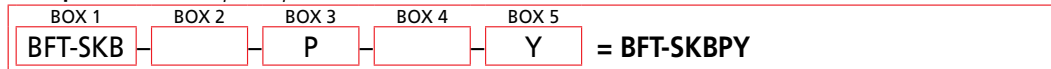
Element Change Clearance: 13.5" (345 mm)

Weight of BFT-SKB: 32.0 lbs (14.5 kg)

## How to Build a Valid Model Number for a Schroeder BFT-SKB::



Example: NOTE: One option per box



BOX 1	BOX 2	BOX 3	Box 4
<b>Filter Series</b>	<b>Seal Material</b>	<b>Porting</b>	<b>Other Options</b>
BFT-SKB	Omit = Buna N	P = 2½" NPTF PP = Dual 2½" NPTF F = 2½" SAE 4-bolt flange Code 61 FF = Dual 2½" SAE 4-bolt flange Code 61	Omit = None C = Check Valve

BOX 5	
Dirt Alarm® Options	
	Omit = None
Visual	Y = Vacuum gauge YR = Vacuum gauge 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

## Filter Model Number Selection

NOTE:

Box 1. See specifications on previous page for element replacement part numbers.

# Magnet Inserts for Filters

## Magnet Inserts for Filters

KF30, KF50, KC50, KC65 and TF50 are available with magnet inserts to trap ferrous material that passes through the filter element.

These inserts are removed with the element each time service is performed and cleaned before being reinserted with new elements.



Replacements are available by ordering parts:

	Single Element	Double Element	Triple Element
KF30, KF50, KC50, KC65, KF3, LF1, MLF1	A-LF-1592	A-LF-1593	A-LF-1594
TF50	A-TF-301-1	A-TF-302-1	

