

In-tank Filters

HF4RT Series

Flows to 454 L/min (120 USgpm)
Pressures to 7 bar (100 psi)



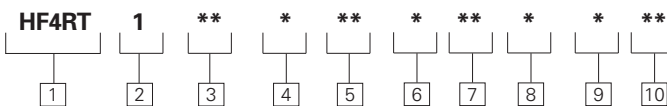
Pop-rivets for shipping purposes only. Remove prior to installation.

Features and Benefits

- Beta Ratio: $\beta_{x(c)} = 1000$ to ISO 16889
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Conforms to HF4 specifications
- Gauge and electrical switch options available to monitor element loading
- In-tank configuration minimizes space requirements and potential system leakage points
- Optional secondary port allows filtration of a second return line without additional fittings or filtered fill port
- High efficiency replacement elements in standard configurations (C-Pak) to meet Target Cleanliness Levels. Optional extend tube allows smaller filtration unit to be used where needed

DESIGN SPECIFICATIONS

Rated flow:	Length 3	189 L/min (50 USgpm)
	Length 6	379 L/min (100 USgpm)
	Length 7	454 L/min (120 USgpm)
Fluid compatibility:	Compatible with most petroleum oil, oil-in-water and water-in-oil fluids Optional seals available for phosphate esters.	
Temp range:	-30°C to 121°C (-22°F to 250°F)	
Pressure rating:	Operating	7 bar (100 psi)
	Fatigue	7 bar (100 psi)
Material:	Head	Aluminum
	Cover	Aluminum
	Bowl	Carbon Steel
Dry weight: (Approximate)	Length 3	4,5 kg. (10.0 lbs.)
	Length 6	6,6 kg. (14.5 lbs.)
	Length 7	8,4 kg. (18.6 lbs.)



HF4RT Series Filter and Element Model Code

Sample model code:

HF4RT1SD313XXBC05

1 Filter Series - HF4RT

2 Element Collapse Rating

1 - 10 bar (150 psi) Low Collapse

3 Port Options

BC - G1¹/₄ to ISO 228
ME - 1¹/₂" - SAE 4 bolt Flange Code 61 (M12 x 1.75)

SD - 1.875 - 12 UN SAE-24 str. Thd. (1¹/₂" tube)

FE - 1¹/₂" - SAE 4 bolt Flange Code 61 (UNC)

4 Valve Options

3 - Bypass set at 1.7 bar (25 psi) cracking pressure

4 - Bypass set at 3 bar (43 psi) cracking pressure

5 Indicator Options*

XX - No indicator
GA - Gauge 0-4 bar (0-60psi)
GB - Gauge 0-10 bar (0-160psi)
MB - Electrical, 15 PSI Brad Harrison
RB - Electrical, 30 PSI Brad Harrison
MH - Electrical, 15 PSI Hirschmann
RH - Electrical, 30 PSI Hirschmann

6 Assembly Length

mm (inch)
3 - 378 (14.9)
6 - 584 (23)
7 - 787 (31)

7 Secondary Port

BC - G1¹/₄ to ISO 228 - use with BC Inlet Port
SD - 1.875 - 12 UN SAE-24 str. Thd. (1¹/₂" tube) - use with SD Inlet Port

SZ - 2.50 - 12 UN SAE-32 str. Thd. (2" tube) - use with FE Inlet Port

XX - No Secondary Port
Note: No secondary port option is available with the ME inlet port option.

8 Seal Material

B - Buna-N
V - Viton-A

9 Element Construction

C - Standard Construction
X - no element

10 Fluid Cleanliness Rating Target fluid

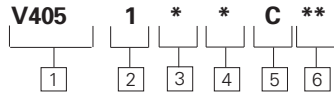
Code	cleanliness level
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better
20	22/19/16 or better
XX	no element

* For indicator options, refer to Static Indicators on page 150.

In-tank Filters

HF4RT Series

Flows to 280 L/min (75 USgpm)
Pressures to 50 bar (725 psi)



V405 Element Model Code

Sample model code:
V4051B3C05

1 Filter Element
V405 - For use with HF4RT

2 Element Collapse Rating
1 - 10 bar (150 psi)
Low Collapse

3 Seal Material
B - Buna-N
V - Viton-A

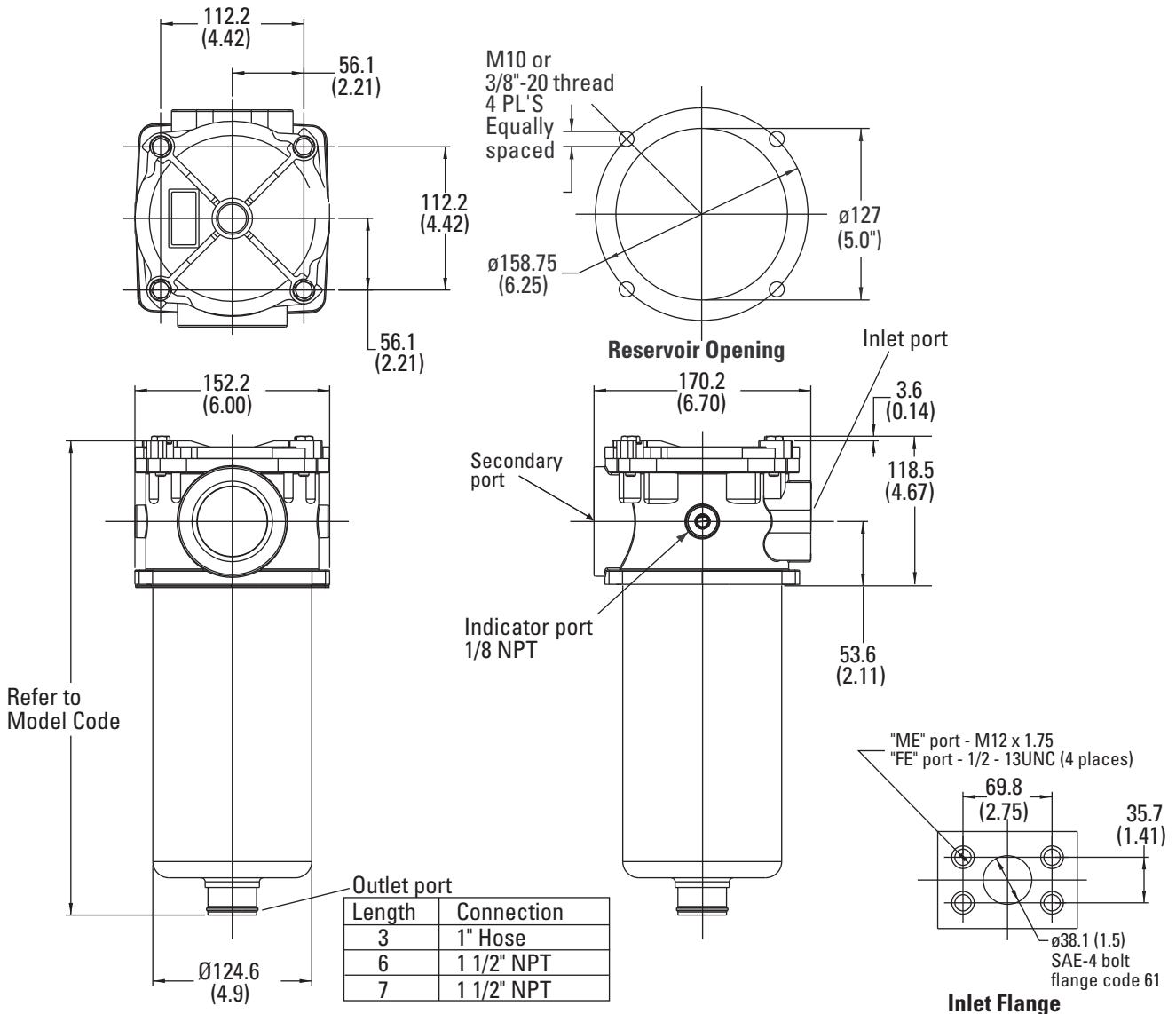
4 Element Length
mm (inch)
3 - 229 (9)
6 - 457 (18)
7 - 686 (27)

5 Element Construction
C - C-Pak (code 03, 05, 10, 20)

6 Fluid Cleanliness Rating	
Code	Target fluid cleanliness level
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better
20	22/19/16 or better

Housing Dimensions

mm (inch)



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Flow Data

Flows to 280 L/min (75 USgpm)
Pressures to 50 bar (725 psi)

Flow versus pressure drop:

150 SUS (32 cSt) oil with specific gravity of ≤ 0.9

HF4RT Filter Elements Flow Data

'K' factor - bar/lpm (psi/gpm)

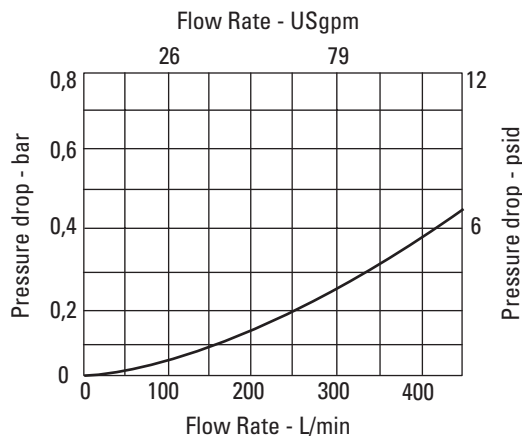
ELEMENT TYPE / SIZE		MICRON RATING			
		03	05	10	20
C -pak	3	0.003 (0.168)	0.003 (0.140)	0.001 (0.078)	0.001 (0.044)
	6	0.001 (0.080)	0.001 (0.066)	0.001 (0.037)	0.001 (0.021)
	7	0.001 (0.051)	0.001 (0.043)	0.001 (0.024)	0.001 (0.013)

Note: For flow in gpm, use the values inside the brackets.

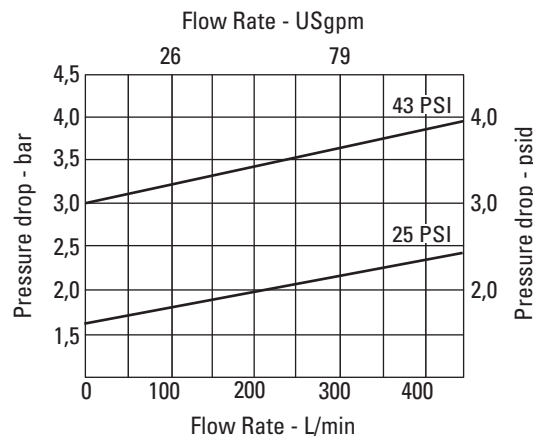
Note: The values for bar/lpm have been rounded to the third decimal.

Housing/Bypass Valve Flow Data

Housing



Bypass Valve



Sample ΔP Calculation :

HF4RT1SD3XX3XXBC05 - Filter assembly having '3' length filter element with micron rating code '05' at 200 L/min flow rate using a hydraulic fluid at 46 cSt viscosity & specific gravity (sp.gr.)0.8.

ΔP Assembly	=	ΔP Housing	+	ΔP Element
	=	Housing factor from graph $\times \text{sp.gr.}(\text{actual})/0.9$	+	Flow Rate (Lpm) \times Element 'K' factor (bar/lpm) \times [actual cSt / 32] \times [Sp.Gr(actual) / 0.9]
	=	0.15 \times 0.8/0.9	+	200 \times 0.003 \times 46/32 \times 0.8/0.9
	=	0.130	+	0.76
	=	0.89 bar		