

Pressure Filters

HF2P Series

Flows to 90 L/min (24 USgpm)
Pressures to 280 bar (4,000 psi)

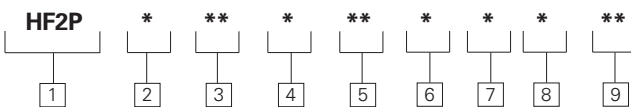


Features and Benefits

- Beta Ratio: $\beta_{x(c)} = 1000$ to ISO 16889
- Designed to comply with ANSI specifications and ISO cleanliness standards
- Visual, electrical, and electrical indicators with lamp options for system design flexibility
- Conforms to HF2 automotive specifications
- Compact design for use with servo and proportional valves
- Manifold mounting option for system flexibility
- High efficiency replacement elements in standard configurations (C-Pak) to meet Target Cleanliness Levels
- High collapse elements available for non-bypass applications

DESIGN SPECIFICATIONS

Rated flow:	Length 1	45 L/min (12 USgpm)
	Length 2	91 L/min (24 USgpm)
Fluid compatibility:	Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.	
Temp range:	-26°C to +121°C (-15°F to +250°F)	
Pressure rating:	Operating	280 bar (4000 psi)
	Fatigue	280 bar (4000 psi)
Material:	Head	Ductile iron
	Bowl	Carbon Steel
Dry weight: (Approximate)	Length 1	4,6 kg (10.1lbs)
	Length 2	5,9 kg (13.4lbs)



HF2P Series Filter and Element Model Code

Sample model code:

HF2P1SA4LNB2C05

1 Filter Series - HF2P

2 Element Collapse Rating

- 1 - 17 bar (250 psi) Low Collapse
4 - 207 bar (3000 psi) High Collapse

NOTE: Use 1 only with bypass valve or monitored P indicator.

3 Port Options

- BA - G3/4 to ISO 228
SA - 1.062 - 12UN SAE-12 (3/4" tube)
WS - Subplate mounting

4 Valve Options

- 1 - Non-Bypass
4 - Bypass set at 2.9 bar (43 psi) cracking pressure
6 - Bypass set at 6 bar (90 psi) cracking pressure

5 Indicator Options

- AN - Visual 4.9 bar (70 psi), No Connector
JN - No Indicator (plug), No Connector
LN - Visual 2 bar (30 psi), No Connector
ON - Visual 7.9 bar (115 psi), No Connector

RB - Electrical 2 bar (30 psi), Brad Harrison

RH - Electrical 2 bar (30 psi), Hirschmann

RJ - Electrical 2 bar (30 psi), Hirschmann w 24 volt light

RK - Electrical 2 bar (30 psi), Hirschmann w 115 volt light

RL - Electrical 2 bar (30 psi), Hirschmann w 230 volt light

TB - Electrical 7.9 bar (115 psi), Brad Harrison

TH - Electrical 7.9 bar (115 psi), Hirschmann

TJ - Electrical 7.9 bar (115 psi), Hirschmann w 24 volt light

TK - Electrical 7.9 bar (115 psi), Hirschmann w 115 volt light

TL - Electrical 7.9 bar (115 psi),

Hirschmann w 230 volt light

UB - Electrical 4.9 bar (70 psi), Brad Harrison

UH - Electrical 4.9 bar (70 psi), Hirschmann

UJ - Electrical 4.9 bar (70 psi), Hirschmann w 24 volt light

UK - Electrical 4.9 bar (70 psi), Hirschmann w 115 volt light

UL - Electrical 4.9 bar (70 psi), Hirschmann w 230 volt light

6 Seal Material

- B - Buna-N
V - Viton-A

7 Assembly Length

- mm (inch)
1 - 211.9 (8.3)
2 - 304.9 (12.0)

8 Element Construction

- C - 17 bar (250 psi) Low Collapse
H - 207 bar (3000 psi) High Collapse
X - no element

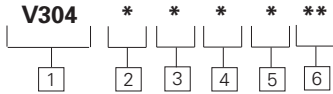
9 Fluid Cleanliness Rating

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
XX	no element

Pressure Filters

HF2P Series

Flows to 90 L/min (24 USgpm)
Pressures to 280 bar (4,000 psi)



V304 Element Model Code

Sample model code:

V3041B1C05

1 Filter Element

V304 - For use with HF2P series filters

2 Element Collapse Rating

- 1** - 17 bar (250 psi)
(C-Pak only)
- 5** - 207 bar (3000 psi)
(H-Pak only)

3 Seal Material

- B** - Buna-N
- V** - Viton-A

4 Element Length

- mm (inch)
- 1** - 101 (4)
- 2** - 203 (8)

5 Element Construction

- C** - C-Pak (code 03, 05, 10, 20)
- H** - H-Pak (code 03, 05, 10)

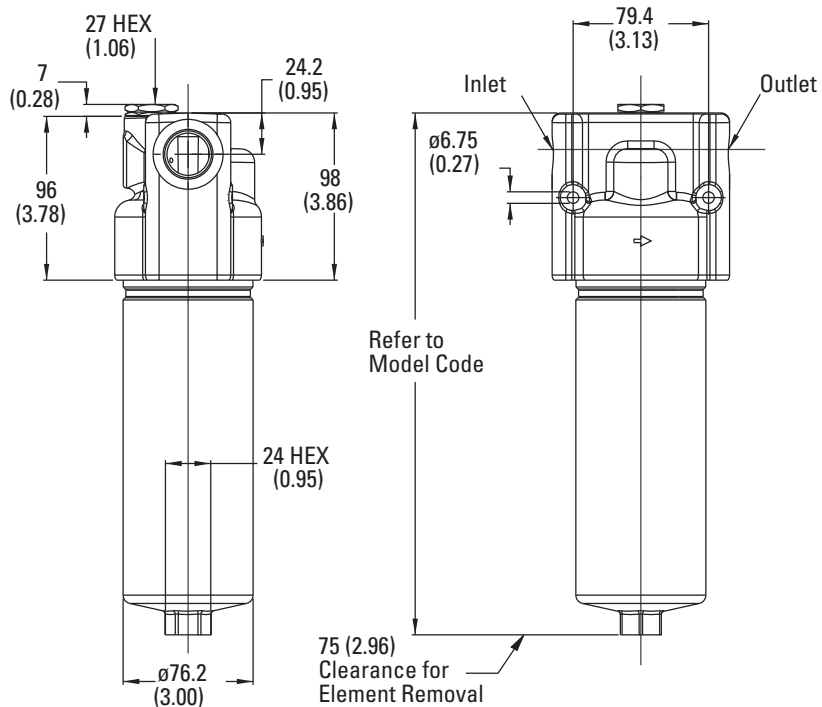
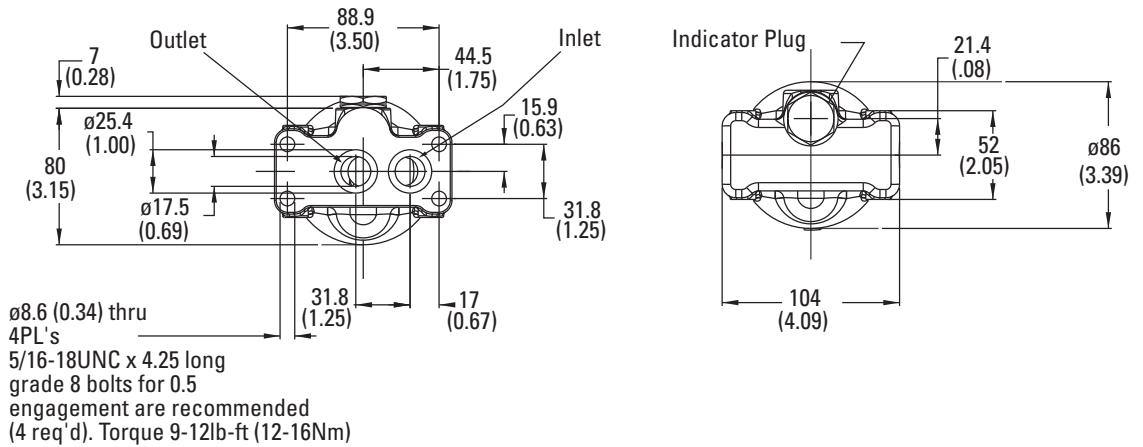
6 Fluid Cleanliness Ratings

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)

Subplate Mounting



Pressure Filters

Flows to 90 L/min (24 USgpm)
Pressures to 280 bar (4,000 psi)

HF2P Series

Flow Data

Flow versus pressure drop:

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

HF2P Filter Elements Flow Data

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

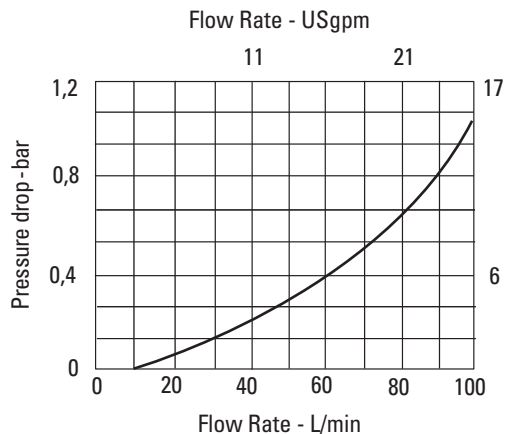
ELEMENT TYPE / SIZE		MICRON RATING			
		03	05	10	25
C - pak	1	0.037 (2.046)	0.032 (1.735)	0.017 (0.924)	0.010 (0.531)
	2	0.018 (1.011)	0.016 (0.858)	0.008 (0.457)	0.005 (0.262)
H - pak	1	0.044 (2.396)	0.031 (1.688)	0.019 (1.026)	xxx
	2	0.021 (0.865)	0.015 (0.820)	0.009 (0.499)	xxx

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

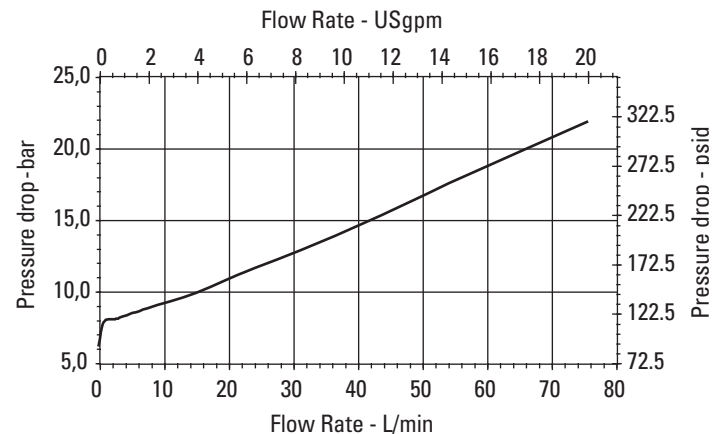
Note: The values for bar/lpm have been rounded to the third decimal.

Housing/Bypass Valve Flow Data

Housing



Bypass Valve



Sample ΔP Calculation :

HF2P1SA4LNB2C05 - Filter assembly having '2' length filter element with micron rating code '05' at 50 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]
	=	0.26 \times 0.8/0.9	+	50 \times 0.016 \times 46/32 \times 0.8/0.9
	=	0.220	+	1.01
	=	1.23 bar		

Pressure Filters

HF3P Series

Flows to 454 L/min (120 USgpm)
Pressures to 410 bar (6,000 psi)

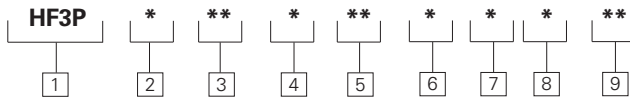


Features and Benefits

- Beta Ratio: $\beta_{x(c)} = 1000$ to ISO 16889
- Designed to comply with ANSI specifications and ISO cleanliness standards
- Visual, electrical, and electrical indicators with lamp options for system design flexibility
- Conforms to HF3 automotive specifications
- Fatigue rated to 6000 psi for maximum reliability in the most rugged applications
- Reverse flow valve option for hydrostatic transmission applications
- Multiple filter element lengths for design flexibility
- High efficiency replacement elements in standard configurations (C-Pak) to meet Target Cleanliness Levels
- High collapse elements available for non-bypass applications

DESIGN SPECIFICATIONS

Rated flow:	Length 1	106 L/min (28 USgpm)
	Length 2	208 L/min (55 USgpm)
	Length 4	344 L/min (91 USgpm)
	Length 5	454 L/min (120 USgpm)
Fluid compatibility:	Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.	
Temp range:	-26°C to +121°C (-15°F to +250°F)	
Pressure rating:	Operating	410 bar (6000 psi)
	Fatigue	410 bar (6000 psi)
Material:	Head	Ductile iron
	Bowl	Carbon Steel
Dry weight: (Approximate)	Length 1	20,3 kg (44.8lbs)
	Length 2	22,5 kg (49.5lbs)
	Length 4	28,5 kg (62.9lbs)
	Length 5	43,4 kg (95.7lbs)



1 Filter Series - HF3P

2 Element Collapse Rating

- 1 - 17 bar (250 psi) Low Collapse
4 - 207 bar (3000 psi) High Collapse

3 Port Options

- BB - G1 to ISO 228
BD - G1-1/2 to ISO 228
ME - 1-1/2" SAE 4 bolt Flange Code 61 (M12 x 1.75)
MJ - 2" SAE 4 bolt Flange Code 61 (M12 x 1.75)
MU - 2" SAE 4 bolt Flange Code 62 (M20 x 2.5)
SB - 1.312 - 12 UN SAE-16 str. Thd. (1" tube)
SD - 1.875 - 12 UN SAE-24 str. Thd. (1-1/2" tube)
FE - 1-1/2" SAE 4 bolt Flange Code 61 (UNC)
FJ - 2" SAE 4 bolt Flange Code 61 (UNC)
FU - 2" SAE 4 bolt Flange Code 62 (UNC)

4 Valve Options

- 1 - Non-Bypass
4 - Bypass set at 2.9 bar (43 psi) cracking pressure
6 - Bypass set at 6 bar (90 psi) cracking pressure
8 - Reverse Flow Valve Non-Bypass*
9 - Reverse Flow Valve 2.9 bar (43 psi) Bypass*

* Reverse flow bypass available with BD, MU, SD and FU ports only.

5 Indicator Options

- AN - Visual 4.9 bar (70 psi), No Connector
JN - No Indicator (plug), No Connector
KN - Visual 1 bar (15 psi), No Connector
LN - Visual 2 bar (30 psi), No Connector
ON - Visual 7.9 bar (115 psi), No Connector
RB - Electrical 2 bar (30 psi), Brad Harrison
RH - Electrical 2 bar (30 psi), Hirschmann
RJ - Electrical 2 bar (30 psi), Hirschmann w 24 volt light
RK - Electrical 2 bar (30 psi), Hirschmann w 115 volt light
RL - Electrical 2 bar (30 psi), Hirschmann w 230 volt light
TB - Electrical 7.9 bar (115 psi), Brad Harrison
TH - Electrical 7.9 bar (115 psi), Hirschmann
TJ - Electrical 7.9 bar (115 psi), Hirschmann w 24 volt light
TK - Electrical 7.9 bar (115 psi), Hirschmann w 115 volt light
TL - Electrical 7.9 bar (115 psi), Hirschmann w 230 volt light
UB - Electrical 4.9 bar (70 psi), Brad Harrison

UH - Electrical 4.9 bar (70 psi), Hirschmann

UJ - Electrical 4.9 bar (70 psi), Hirschmann w 24 volt light

UK - Electrical 4.9 bar (70 psi), Hirschmann w 115 volt light

UL - Electrical 4.9 bar (70 psi), Hirschmann w 230 volt light

6 Seal Material

- B - Buna-N
V - Viton-A

7 Assembly Length

- mm (inch)
1 - 230 (9.1)
2 - 293 (11.5)
4 - 414 (16.3)
5 - 569 (22.4)

8 Element Construction

- C - 17 bar (250 psi) Low Collapse
H - 207 bar (3000 psi) High Collapse
X - no element

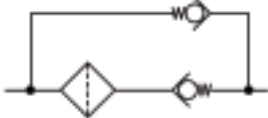
9 Fluid Cleanliness Rating

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 (C-Pak only)
XX	no element

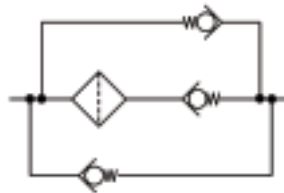
HF3P Series Filter and Element Model Code

Sample model code:

HF3P1SB4LNB2C05



Reverse Flow Non-bypass (Valve Option 8)

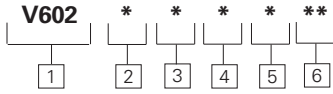


Reverse Flow Bypass (Valve Option 9)

Pressure Filters

HF3P Series

Flows to 454 L/min (120 USgpm)
Pressures to 420 bar (6,000 psi)



V602 Element Model Code

Sample model code:
V6021B1C03

1 Filter element

V602 - For use with HF3P, series filters

2 Element collapse rating

1 - 17 bar (250 psi) Collapse
4 - 207 bar (3000 psi) High Collapse
NOTE: Use 1 only with bypass valve.

3 Seal material

B - Buna-N
V - Viton-A

4 Element length

mm (inch)
1 - 101 (4)
2 - 203 (8)
4 - 330 (13)
5 - 406 (16)

5 Element construction

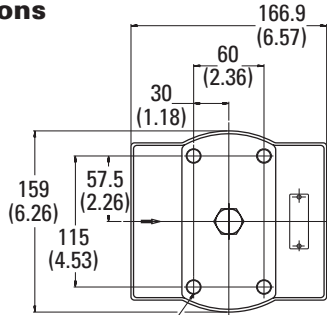
C - C-Pak (code 03, 05, 10, 20)
H - H-Pak (code 03, 05, 10)

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

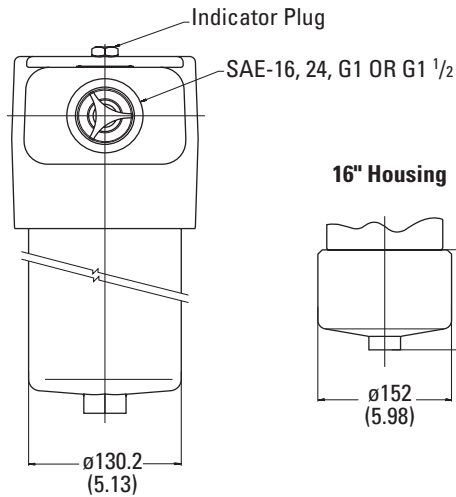
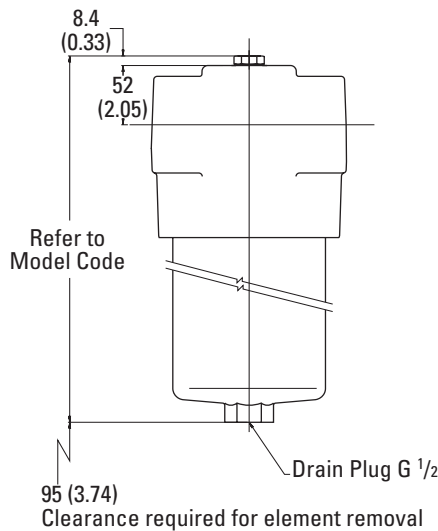
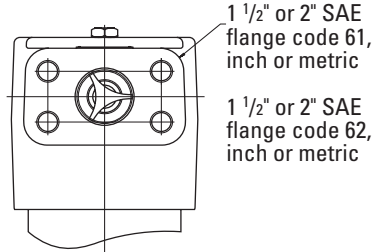
Housing Dimensions

mm (inch)

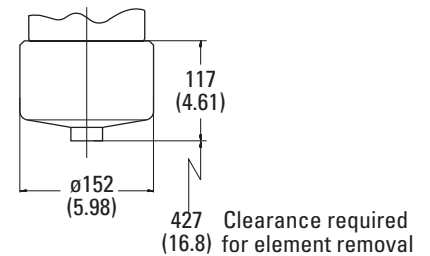


1/2-20UNF-2B in. X 17 (0.67)deep 4 Places

Inlet & Outlet Porting

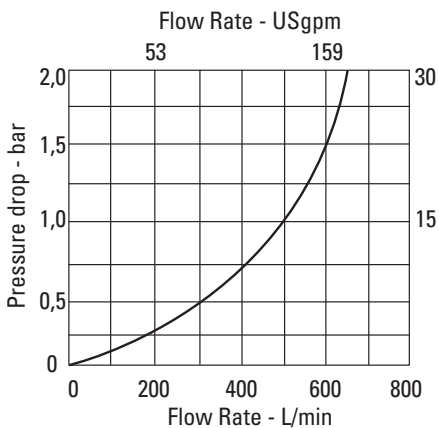


16" Housing

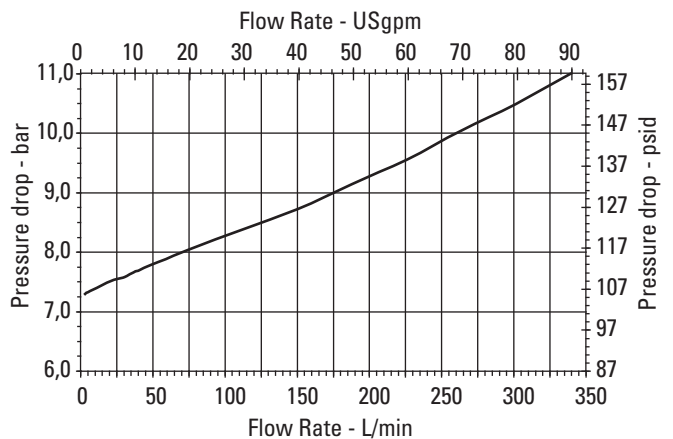


Housing/Bypass Valve Flow Data

Housing



Bypass Valve



Pressure Filters

HF3P Series

Flow Data

Flows to 454 L/min (120 USgpm)
Pressures to 420 bar (6,000 psi)

Flow versus pressure drop:

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

Element Flow Data

HF3P Filter Elements

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

ELEMENT TYPE / SIZE		MICRON RATING			
		03	05	10	20
C -pak	1	0.011 (0.589)	0.009 (0.499)	0.005 (0.266)	0.003 (0.153)
	2	0.005 (0.288)	0.004 (0.241)	0.002 (0.135)	0.001 (0.076)
	4	0.003 (0.175)	0.003 (0.146)	0.001 (0.082)	0.001 (0.046)
	5	0.002 (0.132)	0.002 (0.110)	0.001 (0.061)	0.001 (0.034)
H -pak	1	0.017 (0.936)	0.012 (0.659)	0.007 (0.401)	xxx
	2	0.008 (0.455)	0.006 (0.320)	0.004 (0.195)	xxx
	4	0.005 (0.273)	0.004 (0.192)	0.002 (0.117)	xxx
	5	0.004 (0.206)	0.003 (0.145)	0.002 (0.088)	xxx

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

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

Sample ΔP Calculation : HF3P1SB4LNB2C05 - Filter assembly having '2' length filter element with micron rating code '05' at 100 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]
	=	$0.12 \times 0.8/0.9$	+	$100 \times 0.001 \times 46/32 \times 0.8/0.9$
	=	0.100	+	0.127
	=	0.22 bar		

Pressure Filters

HF3PS Series

Flows to 565 L/min (150 USgpm)
Pressures to 410 bar (6,000 psi)



Features and Benefits

- Beta Ratio: $\beta_{x(c)} = 1000$ to ISO 16889
- Designed to comply with ANSI specifications and ISO cleanliness standards
- Visual, and electrical indicators with lamp options for system design flexibility
- Conforms to HF3 automotive specifications
- Fatigue rated to 6000 psi for maximum reliability in rugged applications
- Side manifold mounting for ease of maintenance in many applications
- Multiple filter element lengths for design flexibility
- High efficiency replacement elements in standard configurations (C-Pak) to meet Target Cleanliness Levels
- High collapse elements available for non-bypass applications

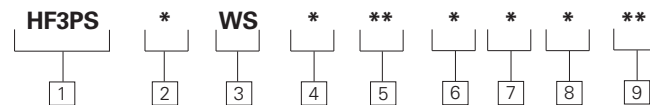
HF3PS Series Filter and Element Model Code

Sample model code:

HF3PS1WS4LNB5C05

DESIGN SPECIFICATIONS

Rated flow:	Length 2	265 L/min (70 USgpm)
	Length 4	454 L/min (120 USgpm)
	Length 5	565 L/min (150 USgpm)
Fluid compatibility:	Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.	
Temp range:	-26°C to +121°C (-15°F to +250°F)	
Pressure rating:	Operating	310 bar (4500 psi)
	Fatigue	410 bar (6000 psi)
Material:	Head	Ductile iron
	Bowl	Carbon Steel
Dry weight: (Approximate)	Length 2	21,8 kg (48.0 lbs)
	Length 4	28,5 kg (62.8 lbs)
	Length 5	41,4 kg (91.3 lbs)

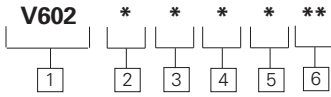


1 Filter Series - HF3PS	RH - Electrical 2 bar (30 psi), Hirschmann	UK - Electrical 4.9 bar (70 psi), Hirschmann w 115 volt light
2 Element Collapse Rating	RJ - Electrical 2 bar (30 psi), Hirschmann w 24 volt light	UL - Electrical 4.9 bar (70 psi), Hirschmann w 230 volt light
1 - 17 bar (250 psi) Low Collapse	RK - Electrical 2 bar (30 psi), Hirschmann w 115 volt light	
4 - 207 bar (3,000 psi) High Collapse	RL - Electrical 2 bar (30 psi), Hirschmann w 230 volt light	
3 Port Options	TB - Electrical 7.9 bar (115 psi), Brad Harrison	6 Seal Material
WS - Subplate mounting	TH - Electrical 7.9 bar (115 psi), Hirschmann	B - Buna-N
4 Valve Options	TJ - Electrical 7.9 bar (115 psi), Hirschmann w 24 volt light	V - Viton-A
1 - Non-Bypass	TK - Electrical 7.9 bar (115 psi), Hirschmann w 115 volt light	7 Assembly Length
4 - Bypass set at 2.9 bar (43 psi) cracking pressure	TL - Electrical 7.9 bar (115 psi), Hirschmann w 230 volt light	mm (inch)
6 - Bypass set at 6 bar (90 psi) cracking pressure	UB - Electrical 4.9 bar (70 psi), Brad Harrison	2 - 340 (13.3)
5 Indicator Options	UH - Electrical 4.9 bar (70 psi), Hirschmann	4 - 461 (18.1)
AN - Visual 4.9 bar (70 psi), No Connector	UJ - Electrical 4.9 bar (70 psi), Hirschmann w 24 volt light	5 - 614 (24.2)
JN - No Indicator (plug), No Connector		8 Element Construction
KN - Visual 1 bar (15 psi), No Connector		C - 17 bar (250 psi) Low Collapse
LN - Visual 2 bar (30 psi), No Connector		H - 207 bar (3000 psi) High Collapse
ON - Visual 7.9 bar (115 psi), No Connector		X - no element
RB - Electrical 2 bar (30 psi), Brad Harrison		9 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
		XX no element

Pressure Filters

HF3PS Series

Flows to 565 L/min (150 USgpm)
Pressures to 310 bar (4,500 psi)



V602 Element Model Code

Sample model code:

V6021B1C03

1 Filter Element

V602 - For use with HF3P, HF3PS and OFR30 series filters

2 Element Collapse Rating

- 1 - 17 bar (250 psi) Low Collapse
- 4 - 206.9 bar (3,000 PSI) High Collapse

NOTE: Use 1 only with bypass valve.

3 Seal Material

- B - Buna-N
- V - Viton-A

4 Element Length

- mm (inch)
- 2 - 203 (8)
- 4 - 330 (13)
- 5 - 406 (16)

5 Element Construction

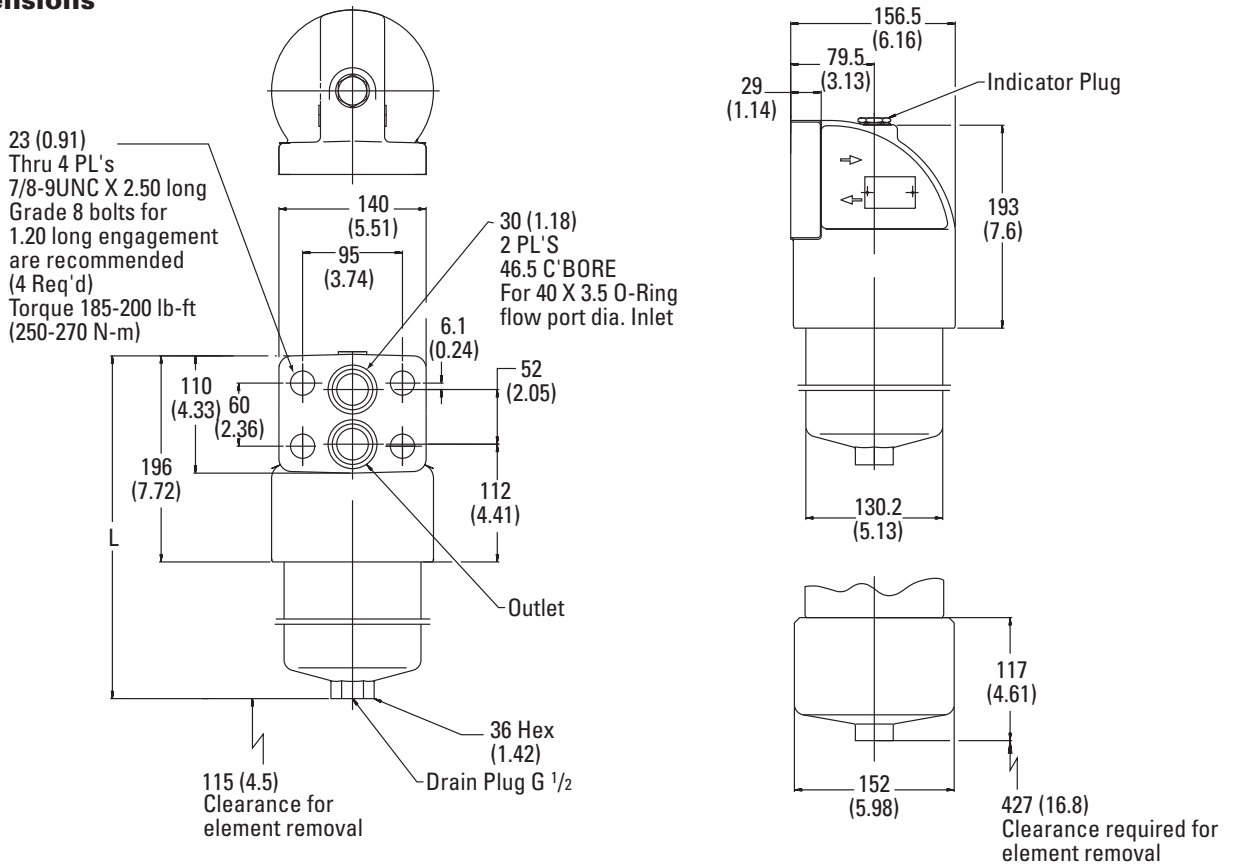
- C - C-Pak (code 3, 5, 10, 20)
- H - H-Pak (code 3, 5, 10)

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)



Pressure Filters

Flows to 565 L/min (150 USgpm)
Pressures to 310 bar (4,500 psi)

HF3PS Series

Flow Data

Flow versus pressure drop:

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

HF3PS Filter Elements Flow Data

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

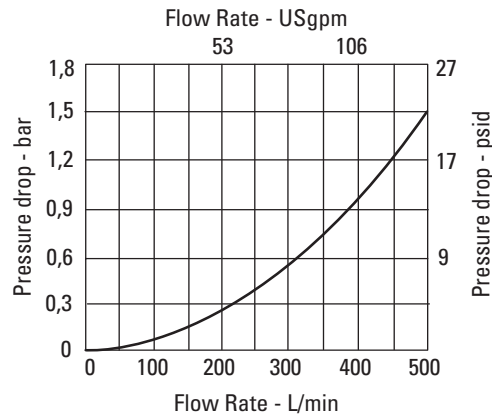
ELEMENT	TYPE / SIZE	MICRON RATING			
		03	05	10	20
C -pak	1	0.011 (0.589)	0.009 (0.499)	0.005 (0.266)	0.003 (0.153)
	2	0.005 (0.288)	0.004 (0.241)	0.002 (0.135)	0.001 (0.076)
	4	0.003 (0.175)	0.003 (0.146)	0.001 (0.082)	0.001 (0.046)
	5	0.002 (0.132)	0.002 (0.110)	0.001 (0.061)	0.001 (0.034)
H -pak	1	0.017 (0.936)	0.012 (0.659)	0.007 (0.401)	xxx
	2	0.008 (0.455)	0.006 (0.320)	0.004 (0.195)	xxx
	4	0.005 (0.273)	0.004 (0.192)	0.002 (0.117)	xxx
	5	0.004 (0.206)	0.003 (0.145)	0.002 (0.088)	xxx

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

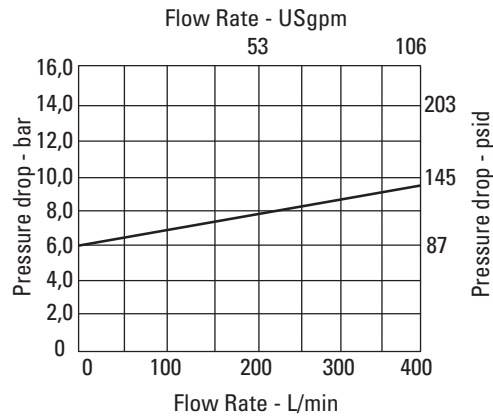
Note: The values for bar/lpm have been rounded to the third decimal.

Housing/Bypass Valve Flow Data

Housing



Bypass Valve



Sample ΔP Calculation :

HF3PS1WS4LNB5C05 - Filter assembly having '5' 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]
	=	$0.28 \times 0.8/0.9$	+	$200 \times 0.002 \times 46/32 \times 0.8/0.9$
	=	0.250	+	0.51
	=	0.76 bar		

Pressure Filters

HF4P Series

Flows to 570 L/min (150 USgpm)
Pressures to 345 bar (5,000 psi)



Features and Benefits

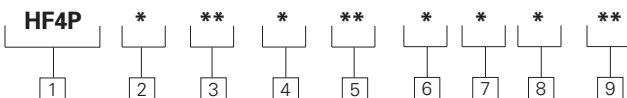
- Beta Ratio: $\beta_{x(c)} = 1000$ to ISO 16889
- Designed to comply with ANSI specifications and ISO cleanliness standards
- Visual and electrical indicators with lamp options for system design flexibility
- Conforms to HF4 specifications
- Fatigue rated to 5000 psi for maximum reliability in rugged applications
- Top loading design to ease maintenance and minimize spillage
- Multiple filter element lengths for design flexibility
- High efficiency replacement elements in standard configurations (C-Pak) to meet Target Cleanliness Levels
- High collapse elements available for non-bypass applications

Series Filter and Element Model Code

Sample model code:
HF4P1SD4LNB6C05

DESIGN SPECIFICATIONS

Rated flow:	Length 3 Length 6 Length 7	189 L/min (50 USgpm) 379 L/min (100 USgpm) 568 L/min (150 USgpm)
Fluid compatibility:	Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.	
Temp range:	-26°C to +121°C (-15°F to +250°F)	
Pressure rating:	Operating Fatigue	345 bar (5000 psi) 345 bar (5000 psi)
Material:	Head Bowl Lid	Ductile Iron Carbon Steel Ductile Iron
Dry weight: (Approximate)	Length 3 Length 6 Length 7	28,8 kg (63.4 lbs) 38,7 kg (85.3 lbs) 51,5 kg (113.6 lbs)



1 Filter Series - HF4P

2 Element Collapse Rating

- 1 - 10 bar (150 psi) Low Collapse
- 4 - 207 bar (3000 psi) High Collapse

3 Port options

- BD - G1½ to ISO 228
- ME - 1½" SAE 4 bolt Flange Code 61 (M12 x 1.75)
- MR - 1½" SAE 4 bolt Flange Code 62 (M16 x 2.0)
- SD - 1.875 - 12 UN SAE-24 str. Thd. (1½" tube)
- FE - 1½" SAE 4 bolt Flange Code 61 (UNC)
- FR - 1½" SAE 4 bolt Flange Code 62 (UNC)
- WS - Subplate mounting

4 Valve options

- 1 - Non-Bypass
- 4 - Bypass set at 2.9 bar (43 psi) cracking pressure
- 6 - Bypass set at 6 bar (90 psi) cracking pressure

5 Indicator options

- AN - Visual 4.9 bar (70 psi), No Connector
- LN - Visual 2 bar (30 psi), No Connector

- JN - No Indicator (plug), No Connector
- RB - Electrical 2 bar (30 psi), Brad Harrison
- RJ - Electrical 2 bar (30 psi), Hirschmann w 24 volt light
- RK - Electrical 2 bar (30 psi), Hirschmann w 115 volt light
- RL - Electrical 2 bar (30 psi), Hirschmann w 230 volt light
- RH - Electrical 2 bar (30 psi), Hirschmann
- TB - Electrical 7.9 bar (115 psi), Brad Harrison
- TJ - Electrical 7.9 bar (115 psi), Hirschmann w/ 24 volt light
- TK - Electrical 7.9 bar (115 psi), Hirschmann w/ 115 volt light
- TL - Electrical 7.9 bar (115 psi), Hirschmann w/ 230 volt light
- TH - Electrical 7.9 bar (115 psi), Hirschmann
- UB - Electrical 4.9 bar (70 psi), Brad Harrison
- UJ - Electrical 4.9 bar (70 psi), Hirschmann w 24 volt light
- UK - Electrical 4.9 bar (70 psi), Hirschmann w 115 volt light

- UL - Electrical 4.9 bar (70 psi), Hirschmann w 230 volt light
- UH - Electrical 4.9 bar (70 psi), Hirschmann

6 Seal material

- B - Buna-N
- V - Viton-A

7 Assembly Length

- mm (inch)
- 3 - 447 (17.6)
- 6 - 685.3 (27)
- 7 - 923.5 (36.4)

8 Element construction

- C - 10 bar (150 psi) Low Collapse
- H - 207 bar (3000 psi) High Collapse
- X - no element

9 Fluid cleanliness rating

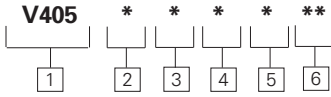
Code	Target fluid cleanliness level
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better
20*	22/19/16 or better
XX	no element

* C-Pak only

Pressure Filters

HF4P Series

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Pressures to 345 bar (5,000 psi)



V405 Element model code

(Meets HF4 Standard)

Sample model code:

V4051B3C03

1 Filter Element - V405

2 Element Collapse Rating

1 - 10 bar (150 psi)
4 - 206.9 bar (3000 psi)
High Collapse

NOTE: Use 1 only with bypass valve or monitored delta P indicator.

3 Seals

B - Buna-N
V - Viton-A

4 Element Length

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

5 Element Construction

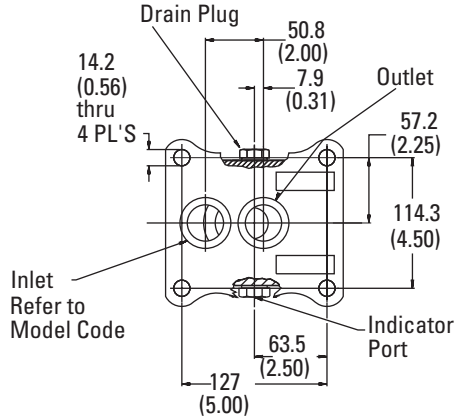
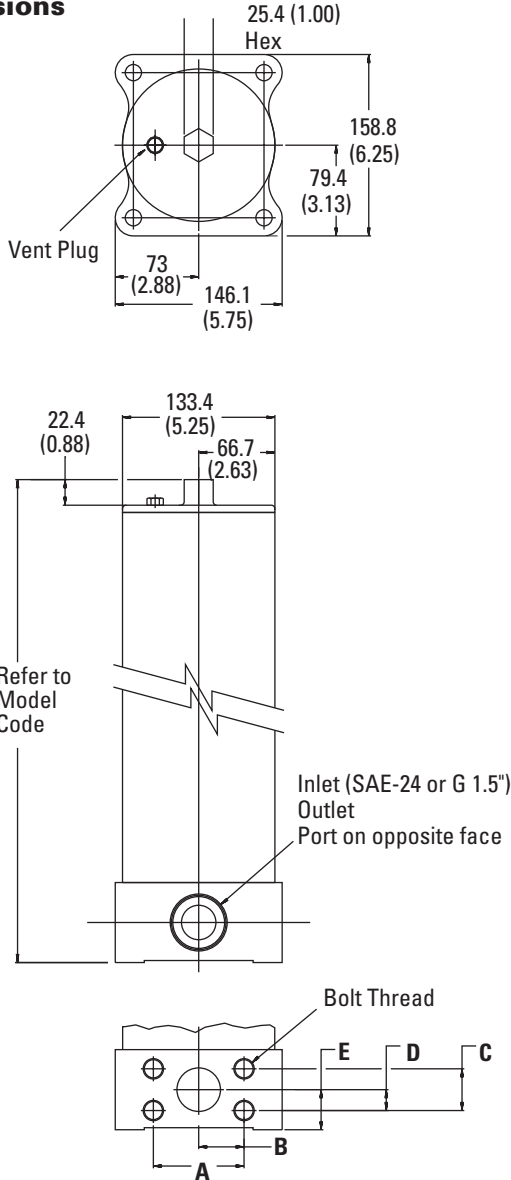
C - C-Pak (code 03, 05, 10, 20)
H - H-Pak (code 03, 05, 10)

6 Fluid Cleanliness Rating

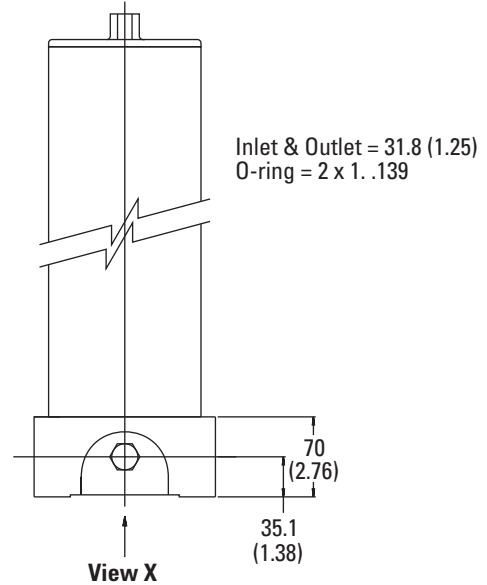
Code	Target fluid cleanliness level
03	16/14/12
05	18/16/14
10	20/18/15
20	22/19/16

Housing Dimensions

mm (inch)



View X - Subplate Mounting



	A	B	C	D	E
	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
ME	69.8 (2.75)	37.9 (1.375)	35.7 (1.406)	17.9 (.703)	35.1 (1.38)
MR	79.3 (3.125)	39.4 (1.56)	36.5 (1.437)	18.2 (.718)	35.1 (1.38)
FE	69.8 (2.75)	37.9 (1.375)	35.7 (1.406)	17.9 (.703)	35.1 (1.38)
FR	79.3 (3.125)	39.4 (1.56)	36.5 (1.437)	18.2 (.718)	35.1 (1.38)

Pressure Filters

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HF4P Series

Flow Data

Flow versus pressure drop:

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

HF4P Filter Elements Flow Data

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

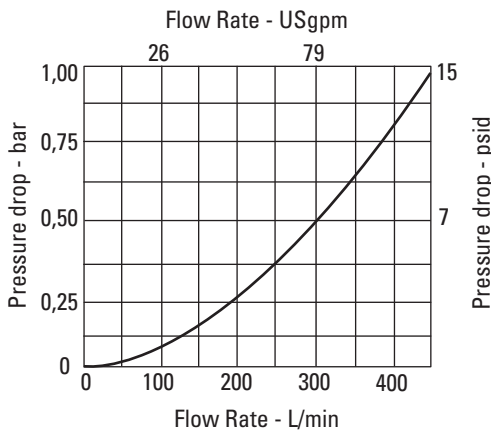
ELEMENT TYPE / SIZE		MICRON RATING			
		03	05	10	20
C -pak	3	0.003 (0.168)	0.003 (0.140)	0.001 (0.078)	0.001 (0.044)
	6	0.001 (0.080)	0.001 (0.066)	0.001 (0.037)	0.001 (0.021)
	7	0.001 (0.051)	0.001 (0.043)	0.001 (0.024)	0.001 (0.013)
H -pak	3	0.004 (0.206)	0.003 (0.145)	0.002 (0.088)	xxx
	6	0.002 (0.096)	0.001 (0.068)	0.001 (0.041)	xxx
	7	0.001 (0.062)	0.001 (0.044)	0.001 (0.026)	xxx

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

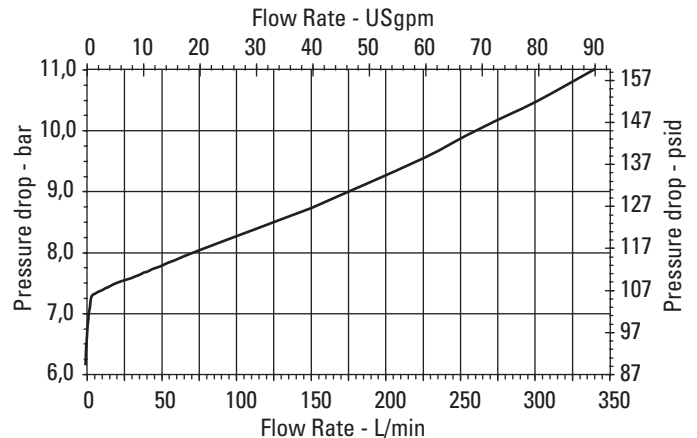
Note: The values for bar/lpm have been rounded to the third decimal.

Housing/Bypass Valve Flow Data

Housing



Bypass Valve



Sample ΔP Calculation :

HF4P1SD4LNB6C05 - Filter assembly having '6' 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]
	=	$0.26 \times 0.8/0.9$	+	$200 \times 0.001 \times 46/32 \times 0.8/0.9$
	=	0.220	+	0.25
	=	0.47 bar		