

Suction and return in line Spin-On filters

HF 620 / HF 625 series



## THE IMPORTANCE OF AN EFFICIENT FILTRATION

The main cause of anomalies in hydraulic systems has to be attributed to the presence of contaminants in the fluid. The nature of the contaminant may be: gaseous, namely air mixed with the fluid; fluid, it depends on water penetrating the fluid; solid, therefore particles of various origins and dimensions.

Customers who operate equipments are always focused on obtaining the best possible performance, lower energy consumptions and greater respect for the environment.

These characteristics can be attained by using top quality components in the hydraulic system, which are more sensitive to the presence of contaminants in the fluid.

Starting from these requirements, we understand how important and fundamental it is to prevent the presence of air and water from mixing in the fluid tank by using dedicated solutions.

It is also crucial to limit the presence of solid particles in the hydraulic circuit through a suitable filtering system, which is indispensable to maintain the project requirements of the system over time and to keep running costs low.

The correct choice of a filter and its optimum position in the hydraulic system requires the same care and experience needed to choose all the other components.

The use of filters with larger filtering surfaces reduces, at equal flow rates, the superficial contaminant load and therefore the filter's life is extended proportionally.

To maintain the maximum efficiency of the system, the filters must have a clogging indicator showing the differential pressure on the filtering cartridge and to immediately point out when the cartridge needs replacing in order to prevent the by-pass valve from opening.

### **The following factors should be analysed when choosing the ideal filter:**

- The filtration degree required to protect the most sensitive component from contamination
- The points of the circuit in which the filters have to be installed
- The working pressure of the system
- The maximum flow rate and the type of fluid to be filtered
- The duty cycle
- The retention efficiency of the filtering cartridge
- The contaminant accumulation capacity of the filtering cartridge
- The working ambient temperature

Each filter used generates a pressure drop that increases continuously as time goes by. This pressure drop represents an efficiency index of the filter itself.

When the hydraulic system is about to be assembled, all the components must be perfectly clean and the fluid has to be added through a device complete with a filter.

During the test phase, it is advisable to run some work cycles at low pressure in order to create the best possible conditions for all the components.

## TECHNICAL CHARACTERISTICS

HF 620 filter series are directly connected to the suction line or return line of hydraulic circuit.  
 HF 625 filter series can be used in applications with 363 psi (25 bar) working pressure.  
 Both series safeguard the hydraulic circuit from contaminating particles.

- Flow up to 50 US gpm (190 l/min) on the suction line and 92 US gpm (350 l/min) on the return line
- 363 psi (25 bar) maximum working pressure
- Quick replacement of the filtering element

### MATERIALS

Head	Aluminum
Bowl	Steel
Seals	Buna - Viton
End cap	Zinc plated steel
Inner tube	Zinc plated steel
	Stainless steel
Filter media	Cellulose
	Micro-fibre glass

### FLUID COMPATIBILITY

Conforming to ISO 2943 (Norm ISO 6743/4)

Oli mineral (1)	HH - HL - HM - HR - HV - HG
Water emulsion (1)	HFAE - HFAS
Syntetic fluid (2)	HS - HFDR - HFDU - HFDS
(1) With Buna seals	
(2) With Viton seals	

### FLOW

Max. flow (Suction)	50 US gpm (190 l/min)
Max. flow (Return)	92 US gpm (350 l/min)

### PRESSURE

#### HF 620

Working pressure	174 psi (12 bar)
Testing pressure	232 psi (16 bar)
Burst pressure	305 psi (21 bar)
Element collapse pressure rating (conforming to ISO 2941)	72.5 psi (5 bar)(only cellulose element) 145 psi (10 bar)

#### HF 625

Working pressure	363 psi (25 bar)
Testing pressure	435 psi (30 bar)
Burst pressure	653 psi (45 bar)
Element collapse pressure rating (conforming to ISO 2941)	72.5 psi (5 bar)(only cellulose element) 145 psi (10 bar)

### BY-PASS VALVE

By-pass setting	2.9 psi (0,2 bar) (Suction)
By-pass setting	25 psi (1,7 bar) (Return)

### OPERATING TEMPERATURE

With Buna seals	-22 ÷ 195 °F (-30 ÷ 90 °C)
With Viton seals	-4 ÷ 230 °F (-20 ÷ 110 °C)

### DEGREE OF FILTRATION

#### Absolute Filtration

Code	Material	Degree of filtration
FG010	Micro-fibre glass	10 µm
FG025	Micro-fibre glass	25 µm

#### Nominal Filtration

Code	Material	Degree of filtration
SP010	Cellulose	10 µm
SP025	Cellulose	25 µm
MS060	Steel	60 µm
MS090	Steel	90 µm

### INDICATORS (3)

Rear manometer
Visual indicator
Electrical indicator
Visual differential indicator
Visual electrical differential indicator

(3) Characteristics and dimensions at page 20 and 21

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## SIZING – PRESSURE DROP

The total pressure drop of the filter is calculated by summing the pressure drop value in the housing to the one in the filtering element.

**Total  $\Delta p = \Delta p$  in housing +  $\Delta p$  in element**

In filters of HF 620 series in normal working conditions, the total  $\Delta p$  must not be more than 1.4 psi (0,1 bar) on suction line and 5.8 (0,4 bar) on return line.

In filters of HF 625 series in normal working conditions, the total  $\Delta p$  must not be more than 5.8 psi (0,4 bar).

To establish the values of pressure drop involved, the following pages provide some diagrams with curves referred to the use of mineral oils SAE 10 with kinematic viscosity of 120 SSU (30 cSt) and density of 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).

### Calculation example

Filter HF620-30.155-AS-FG010-B17-GG-B-XB-DA-G

Flow rate= 29 US gpm (110 l/min)

Kinematic viscosity: 120 SSU (30 cSt)

Oil density : 7.29 lb/gal (0,856 kg/dm<sup>3</sup>)

Filtering degree: 10  $\mu$ m

Data obtained from the diagrams:

$\Delta p$  in housing = 1.45 psi (0,10 bar) (page 5)

$\Delta p$  in element = 3.77 psi (0,26 bar) (page 8)

Total  $\Delta p = 1.45 + 3.77 = 5.22$  psi (0,36 bar) ( $\Delta p$  is lower than maximum value admitted – therefore sizing is correct).

If oil with different kinematic viscosity and different density is used, the values obtained from the diagrams will be re-calculated considering the following indications:

1) The pressure drop of the housing is proportional with the oil density, therefore for oil with density different to 7.29 lb/gal (0,856 kg/dm<sup>3</sup>) the value of the  $\Delta p$  in the head-bowl will be:

$$\Delta p \text{ in housing} = \frac{\Delta p \text{ of diagram (psi)} \cdot \text{Oil density ( lb/gal)}}{7.29 \text{ (lb/gal)}} \quad [\text{psi}]$$

Or

$$\Delta p \text{ in housing} = \frac{\Delta p \text{ of diagram (bar)} \cdot \text{Oil density ( kg/dm}^3\text{)}}{0,856 \text{ (kg/dm}^3\text{)}} \quad [\text{bar}]$$

2) The pressure drop of the element is proportional with the oil density and kinematic viscosity, therefore for oil with density different to 7.29 lb/gal (0,856 kg/dm<sup>3</sup>) and kinematic viscosity different to 120 SSU (30 cSt) the value of  $\Delta p$  in the element will be:

$$\Delta p \text{ in element} = \Delta p \text{ of diagram (psi)} \cdot \frac{\text{Oil density (lb/gal)}}{7.29 \text{ (lb/gal)}} \cdot \frac{\text{Oil viscosity (SSU)}}{120 \text{ (SSU)}} \quad [\text{psi}]$$

Or

$$\Delta p \text{ in element} = \Delta p \text{ of diagram (bar)} \cdot \frac{\text{Oil density (kg/dm}^3\text{)}}{0,856 \text{ (kg/dm}^3\text{)}} \cdot \frac{\text{Oil viscosity (cSt)}}{30 \text{ (cSt)}} \quad [\text{bar}]$$

Now you sum the values of the pressure drop of the housing to the value of the pressure drop of the filtering element, always making sure the total  $\Delta p$  does not exceed the pressure indicated above.

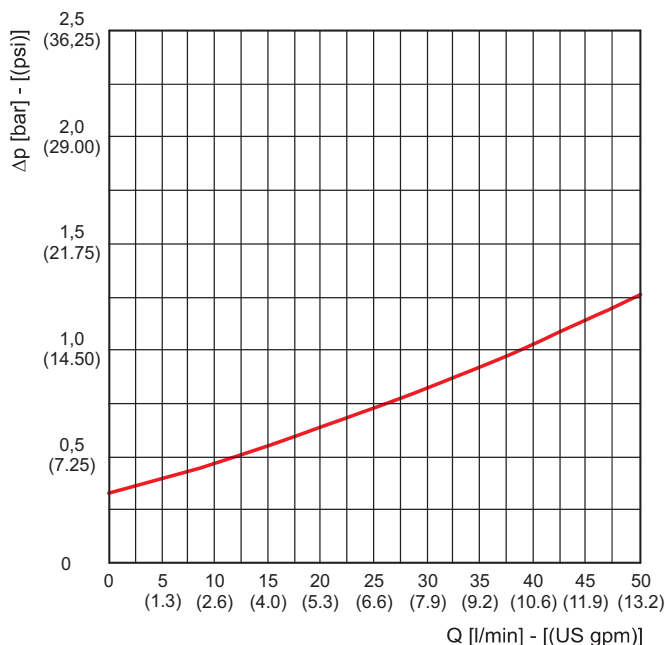
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## PRESSURE DROP CURVES THROUGH THE BY-PASS VALVES B02

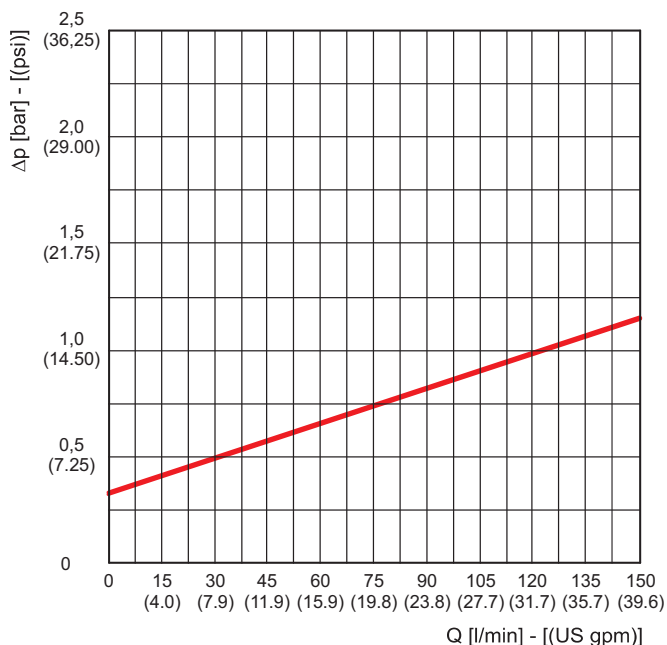
The pressure drop values are directly proportional with the specific weight of the fluid and do not affect the establishment of the total pressure drop of the complete filter.

The curves are obtained in the following conditions:  
Mineral oil type SAE 10  
Kinematic viscosity 120 SSU (30 cSt)  
Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).

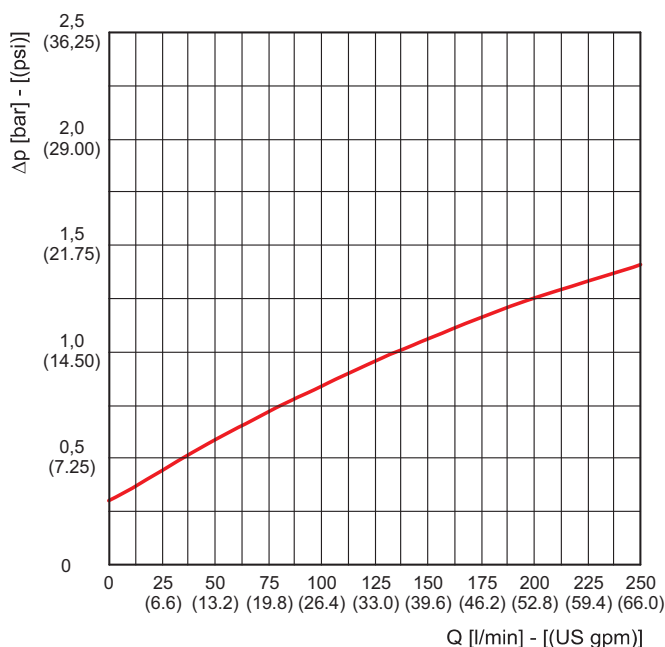
**HF 620-20 / HF 625-20**



**HF 620-30 / HF 625-30**



**HF 620-40 / HF 620-50**



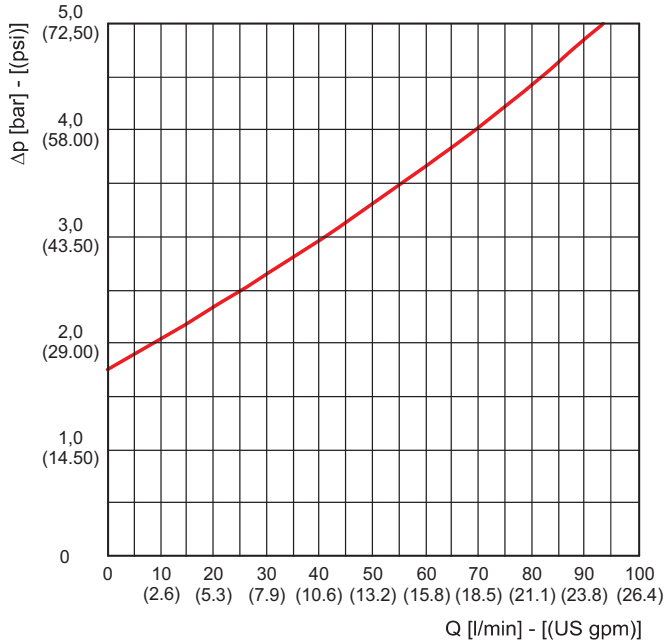
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**PRESSURE DROP CURVES THROUGH THE BY-PASS VALVES B17**

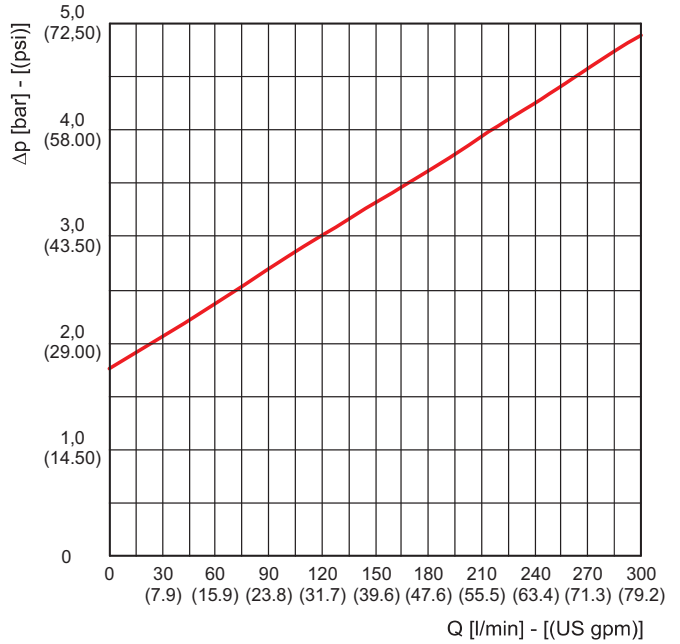
The pressure drop values are directly proportional with the specific weight of the fluid and do not affect the establishment of the total pressure drop of the complete filter.

The curves are obtained in the following conditions:  
Mineral oil type SAE 10  
Kinematic viscosity 120 SSU (30 cSt)  
Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).

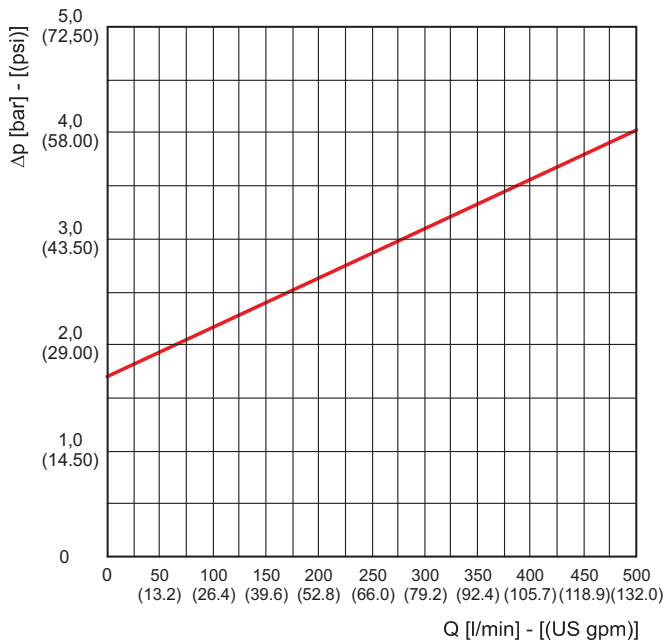
**HF 620-20 / HF 625-20**



**HF 620-30 / HF 625-30**



**HF 620-40 / HF 625-50**



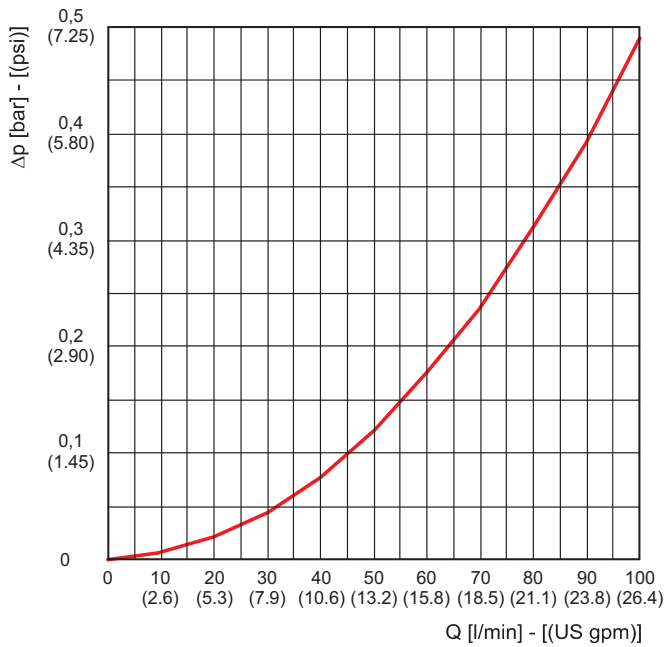
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## PRESSURE DROP CURVES THROUGH THE HOUSING

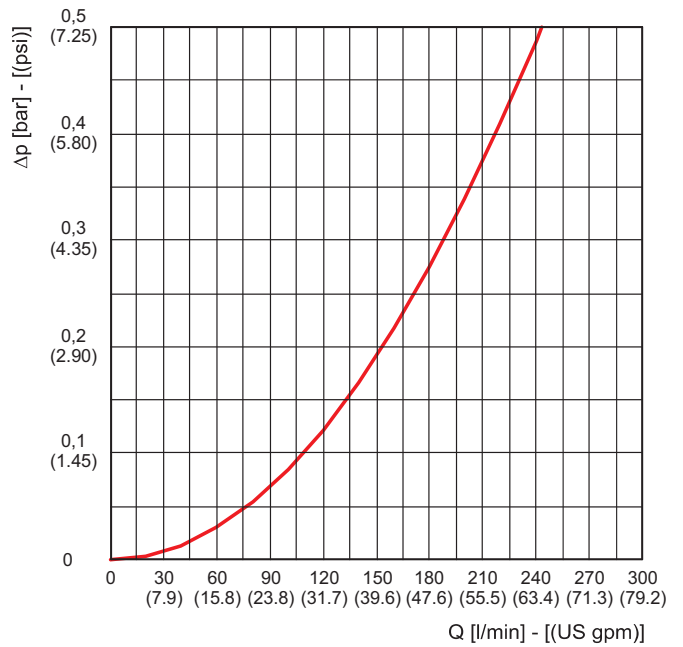
The curves are obtained in the following conditions:  
 Mineral oil type SAE 10  
 Kinematic viscosity 120 SSU (30 cSt)  
 Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).

Series 20 G 3/4  
 Series 30 G 1 1/4  
 Series 40 / 50 G 1 1/2

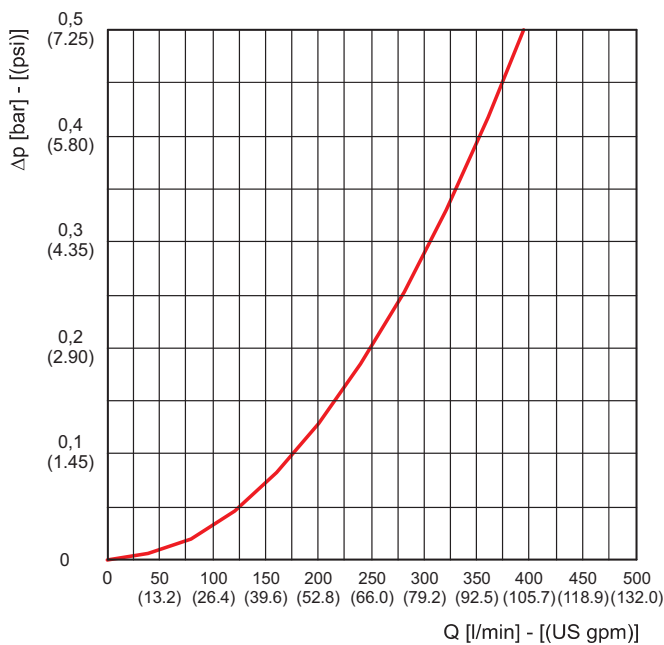
**HF 620-20 / HF 625-20**



**HF 620-30 / HF 625-30**



**HF 620-40 / HF 620-50**



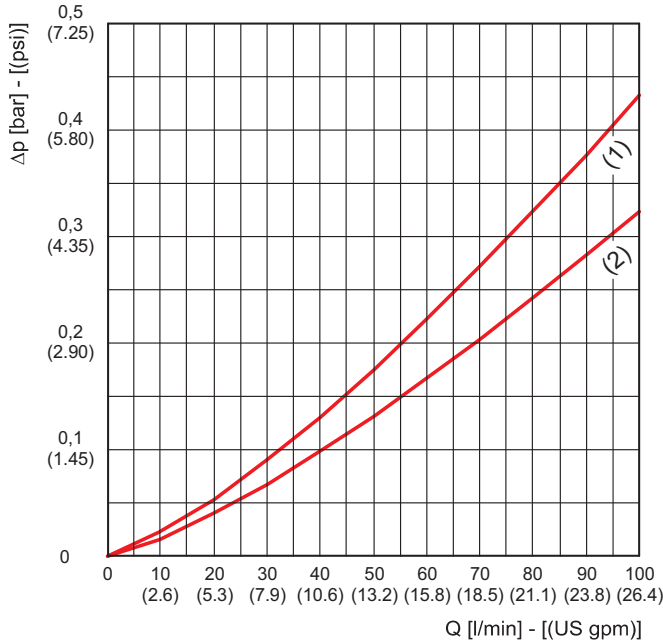
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**PRESSURE DROP CURVES THROUGH THE ELEMENT HE K45/46-20**

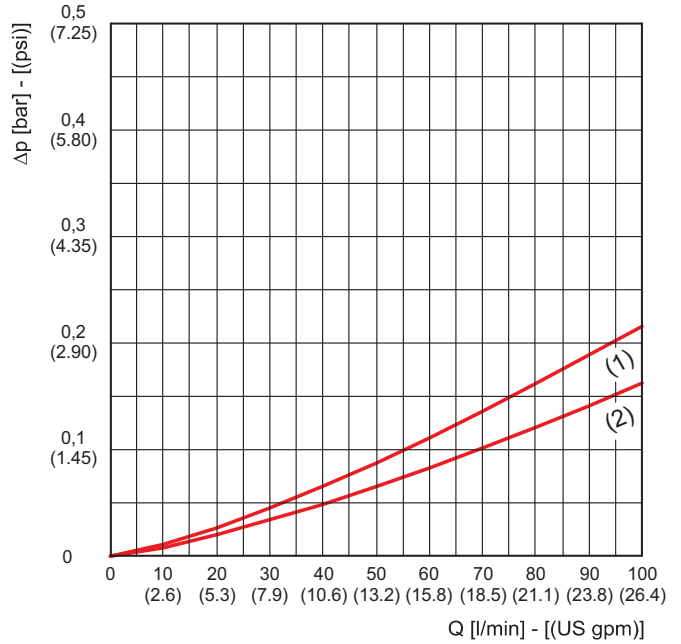
The curves are obtained in the following conditions:  
 Mineral oil type SAE 10  
 Kinematic viscosity 120 SSU (30 cSt)  
 Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).

- (1) HE K45-20.135 / HE K46-20.135
- (2) HE K45-20.180 / HE K46-20.180

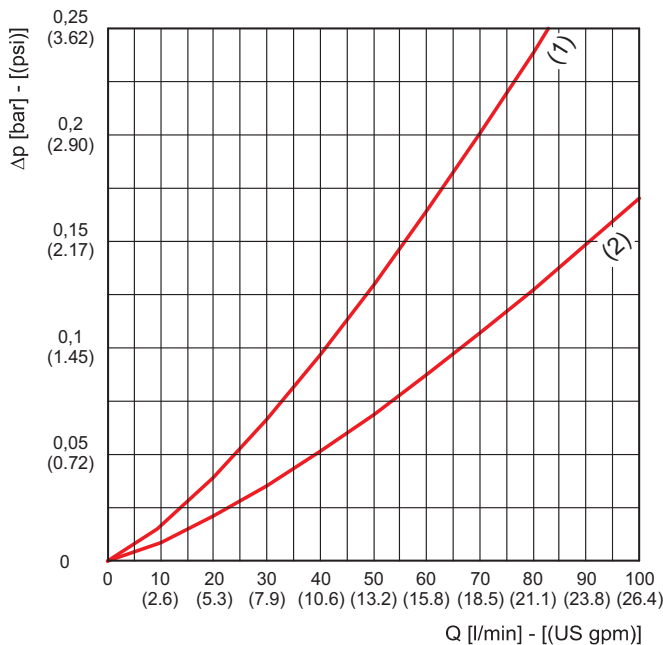
**FG010**



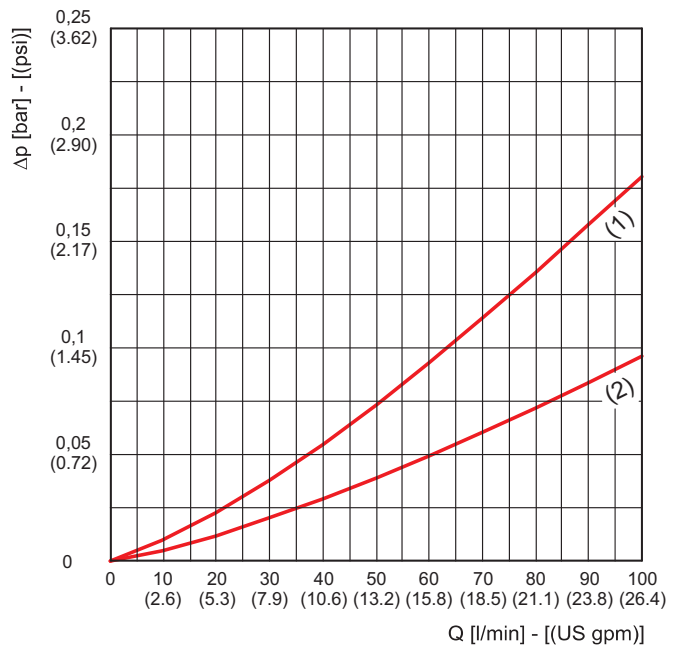
**FG025**



**SP010**



**SP025**



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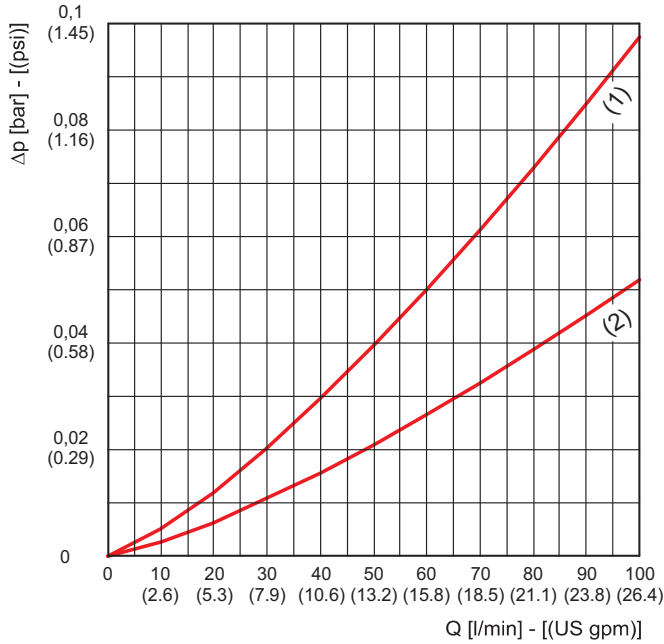


**PRESSURE DROP CURVES THROUGH THE ELEMENT HE K45/46-20**

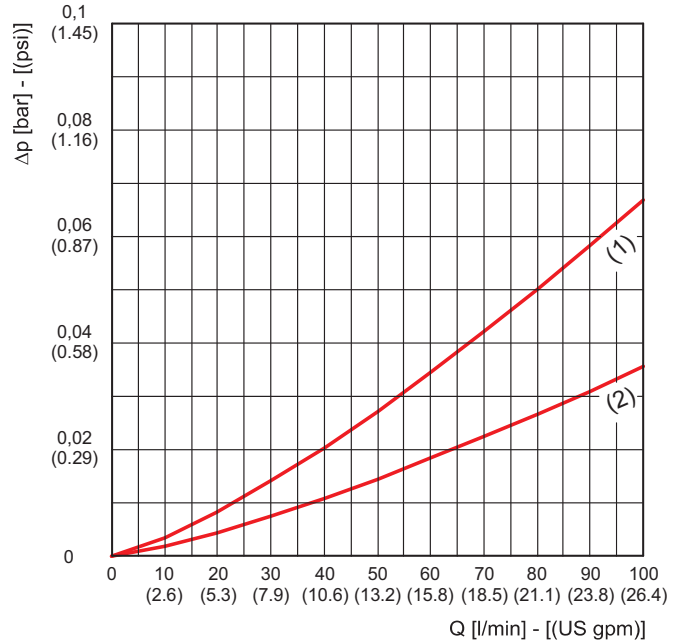
The curves are obtained in the following conditions:  
 Mineral oil type SAE 10  
 Kinematic viscosity 120 SSU (30 cSt)  
 Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).

- (1) HE K45-20.135 / HE K46-20.135
- (2) HE K45-20.180 / HE K46-20.180

**MS060**



**MS090**



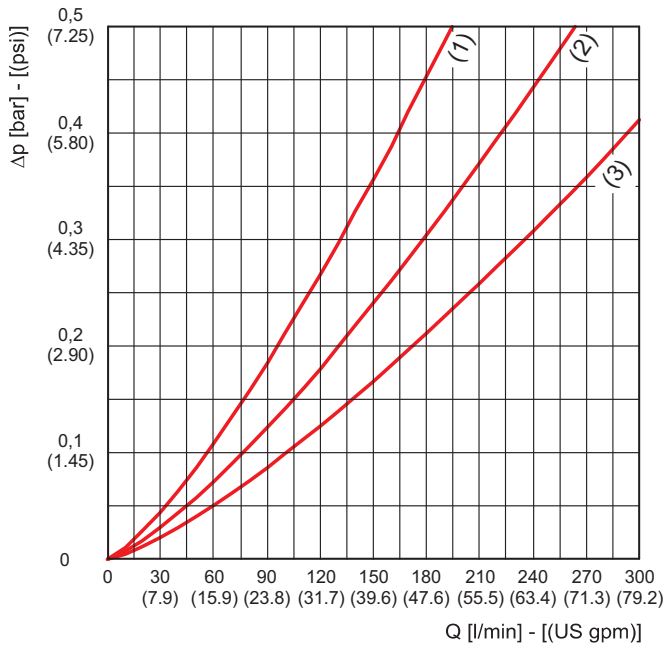
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**PRESSURE DROP CURVES THROUGH THE ELEMENT HE K45/46-30**

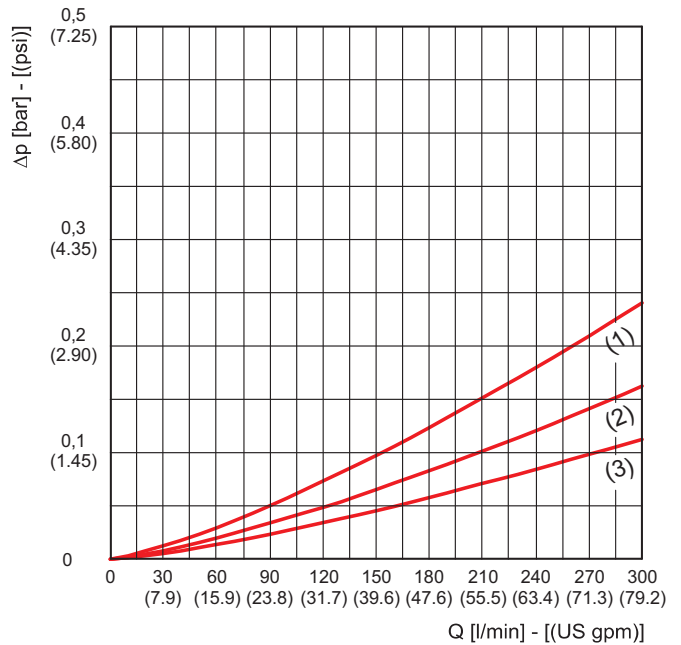
The curves are obtained in the following conditions:  
 Mineral oil type SAE 10  
 Kinematic viscosity 120 SSU (30 cSt)  
 Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).

- (1) HE K45-30.155 / HE K46-30.155
- (2) HE K45-30.210 / HE K46-30.210
- (3) HE K45-30.305 / HE K46-30.305

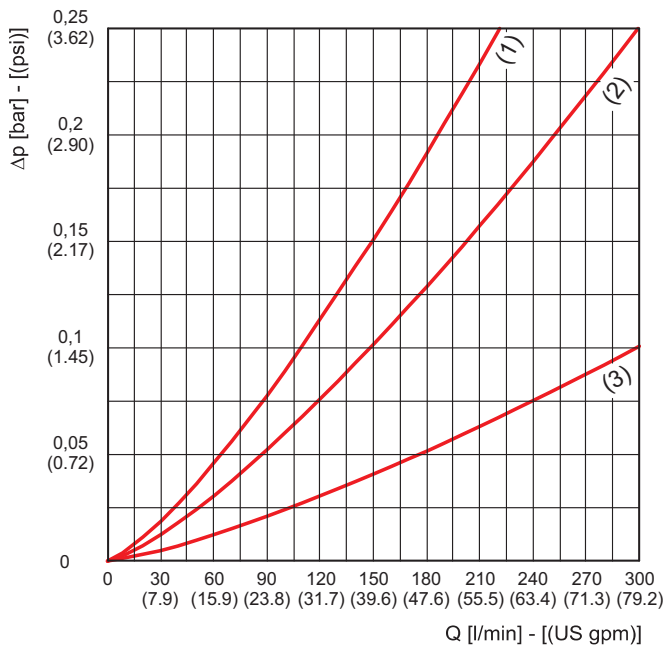
**FG010**



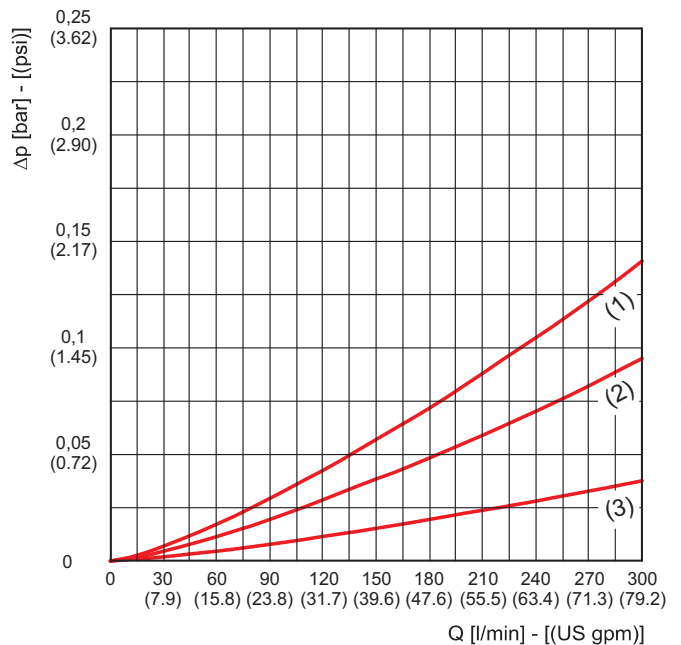
**FG025**



**SP010**



**SP025**



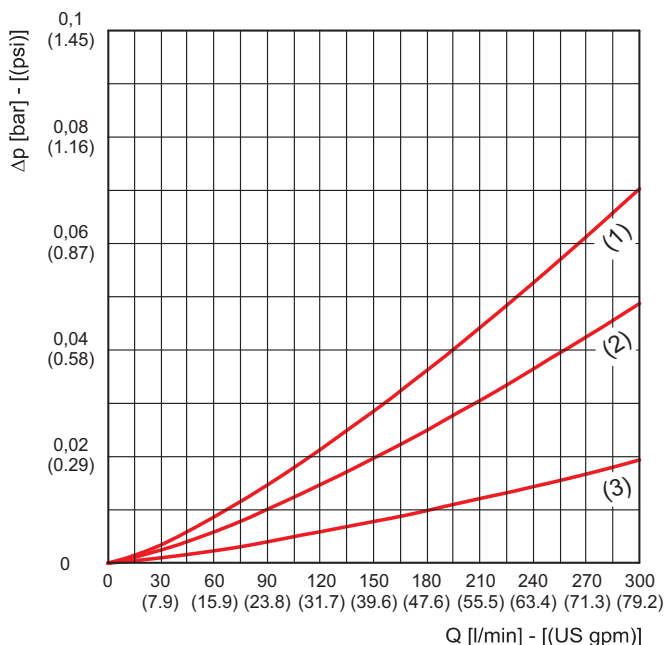
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**PRESSURE DROP CURVES THROUGH THE ELEMENT HE K45/46-30**

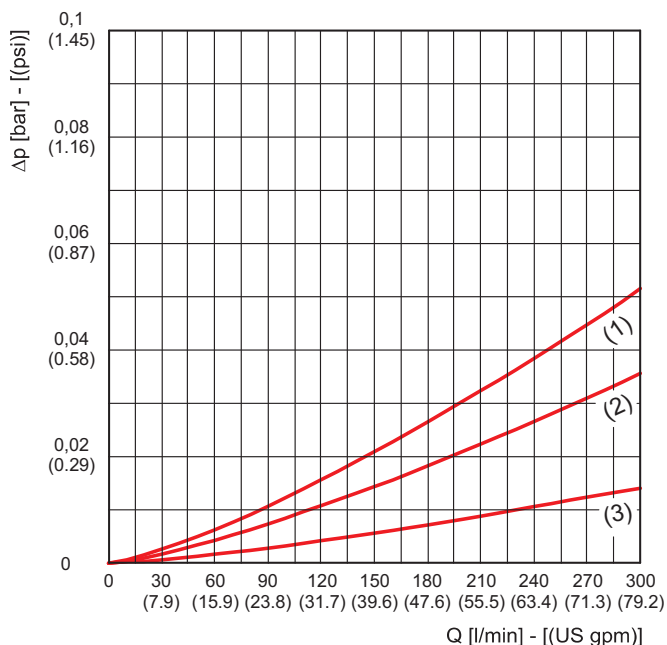
The curves are obtained in the following conditions:  
 Mineral oil type SAE 10  
 Kinematic viscosity 120 SSU (30 cSt)  
 Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).

- (1) HE K45-30.155 / HE K46-30.155
- (2) HE K45-30.210 / HE K46-30.210
- (3) HE K45-30.305 / HE K46-30.305

**MS060**



**MS090**



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**SUCTION FILTERS FLOWS**

Filter type	Inlet ports			Degree of filtration			
				FG010	FG025	SP010	SP025
	GAS (BSPP)	NPT	SAE J514b	Flow			
				$\Delta p = 1.45 \text{ psi (0,1 bar)}$ (values referred to standard filtering surfaces)			
				US gpm (l/min)			
<b>HF 620-20.135</b> <b>HF 625-20.135</b>	G 3/4	3/4 NPT	1 1/16-12 UNF-2B	5.3 (25)	9.2 (35)	7.9 (30)	9.2 (35)
<b>HF 620-20.180</b> <b>HF 625-20.180</b>	G 3/4	3/4 NPT	1 1/16-12 UNF-2B	5.3 (25)	9.2 (35)	9.2 (35)	10.6 (40)
<b>HF 620-30.155</b> <b>HF 625-30.155</b>	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	14.5 (55)	21.1 (80)	19.8 (75)	23.8 (90)
<b>HF 620-30.210</b> <b>HF 625-30.210</b>	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	15.8 (60)	23.8 (90)	21.1 (80)	26.4 (100)
<b>HF 620-30.305</b> <b>HF 625-30.305</b>	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	18.5 (70)	25.1 (95)	26.4 (100)	27.7 (105)
<b>HF 620-40.155</b> <b>HF 620-50.155</b>	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	18.5 (70)	31.7 (120)	26.4 (100)	37.0 (140)
<b>HF 620-40.210</b> <b>HF 620-50.210</b>	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	23.8 (90)	34.3 (130)	34.3 (130)	39.6 (150)
<b>HF 620-40.305</b> <b>HF 620-50.305</b>	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	26.4 (100)	37.0 (140)	39.6 (150)	42.3 (160)

Filter type	Inlet ports			Degree of filtration	
				MS060	MS090
	GAS (BSPP)	NPT	SAE J514b	Flow	
				$\Delta p = 1.45 \text{ psi (0,1 bar)}$ (values referred to standard filtering surfaces)	
				US gpm (l/min)	
<b>HF 620-20.135</b> <b>HF 625-20.135</b>	G 3/4	3/4 NPT	1 1/16-12 UNF-2B	10.6 (40)	11.9 (45)
<b>HF 620-20.180</b> <b>HF 625-20.180</b>	G 3/4	3/4 NPT	1 1/16-12 UNF-2B	10.6 (40)	11.9 (45)
<b>HF 620-30.155</b> <b>HF 625-30.155</b>	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	26.4 (100)	27.7 (105)
<b>HF 620-30.210</b> <b>HF 625-30.210</b>	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	27.7 (105)	29.0 (110)
<b>HF 620-30.305</b> <b>HF 625-30.305</b>	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	29.0 (110)	30.4 (115)
<b>HF 620-40.155</b> <b>HF 620-50.155</b>	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	42.3 (160)	44.9 (170)
<b>HF 620-40.210</b> <b>HF 620-50.210</b>	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	44.9 (170)	47.5 (180)
<b>HF 620-40.305</b> <b>HF 620-50.305</b>	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	47.5 (180)	50.2 (190)

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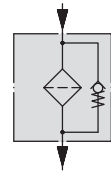
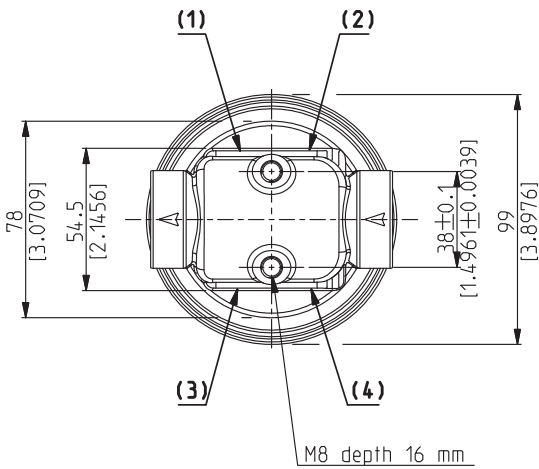
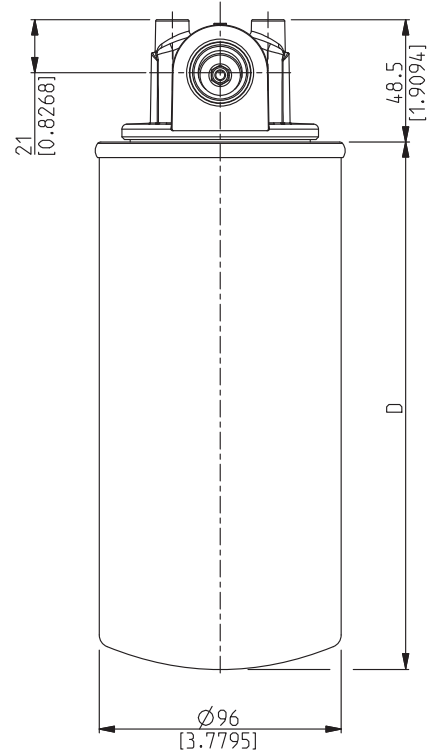
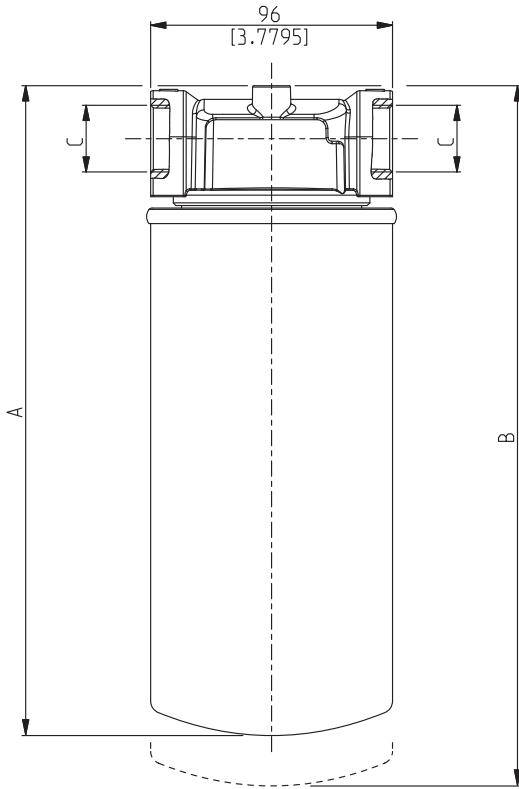
## RETURN FILTERS FLOWS

Filter type	Inlet ports			Degree of filtration			
				FG010	FG025	SP010	SP025
	GAS (BSPP)	NPT	SAE J514b	Flow $\Delta p = 5.8 \text{ psi (0,4 bar)}$ (values referred to standard filtering surfaces) US gpm (l/min)			
HF 620-20.135 HF 625-20.135	G 3/4	3/4 NPT	1 1/16-12 UNF-2B	17.2 (65)	19.8 (75)	17.2 (65)	19.8 (75)
HF 620-20.180 HF 625-20.180	G 3/4	3/4 NPT	1 1/16-12 UNF-2B	17.2 (65)	19.8 (75)	19.8 (75)	21.1 (80)
HF 620-30.155 HF 625-30.155	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	33.0 (125)	47.5 (180)	43.6 (165)	51.5 (195)
HF 620-30.210 HF 625-30.210	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	38.3 (145)	50.2 (190)	47.5 (180)	52.8 (200)
HF 620-30.305 HF 625-30.305	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	42.3 (160)	52.8 (200)	52.8 (200)	55.5 (210)
HF 620-40.155 HF 620-50.155	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	44.9 (170)	71.3 (270)	60.8 (230)	79.2 (300)
HF 620-40.210 HF 620-50.210	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	50.2 (190)	76.6 (290)	71.3 (270)	81.9 (310)
HF 620-40.305 HF 620-50.305	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	60.8 (230)	81.9 (310)	81.9 (310)	89.8 (340)

Filter type	Inlet ports			Degree of filtration	
				MS060	MS090
	GAS (BSPP)	NPT	SAE J514b	Flow $\Delta p = 5.8 \text{ psi (0,4 bar)}$ (values referred to standard filtering surfaces) US gpm (l/min)	
HF 620-20.135 HF 625-20.135	G 3/4	3/4 NPT	1 1/16-12 UNF-2B	21.1 (80)	22.4 (85)
HF 620-20.180 HF 625-20.180	G 3/4	3/4 NPT	1 1/16-12 UNF-2B	21.1 (80)	22.4 (85)
HF 620-30.155 HF 625-30.155	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	54.1 (205)	56.8 (215)
HF 620-30.210 HF 625-30.210	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	55.5 (210)	58.1 (220)
HF 620-30.305 HF 625-30.305	G 1 1/4	1 1/4 NPT	1 5/8-12 UNF-2B	56.8 (215)	59.4 (225)
HF 620-40.155 HF 620-50.155	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	84.5 (320)	87.1 (330)
HF 620-40.210 HF 620-50.210	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	87.1 (330)	89.8 (340)
HF 620-40.305 HF 620-50.305	G 1 1/2	1 1/2 NPT	1 7/8-12 UNF-2B	89.8 (340)	92.5 (350)

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**HF 620-20 DIMENSIONS**



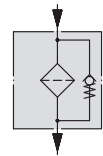
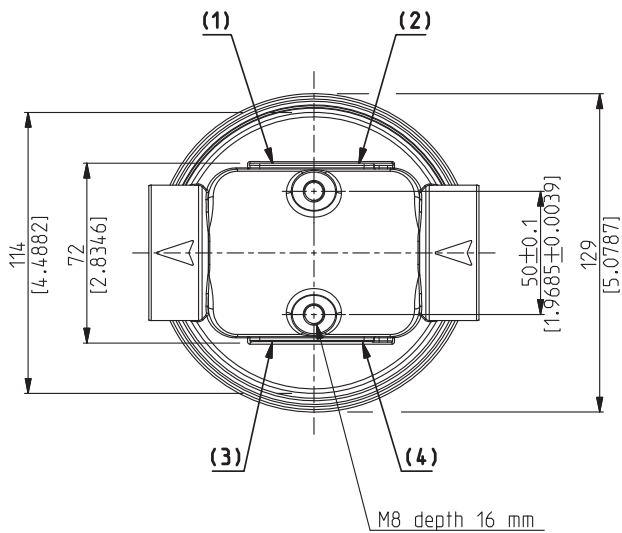
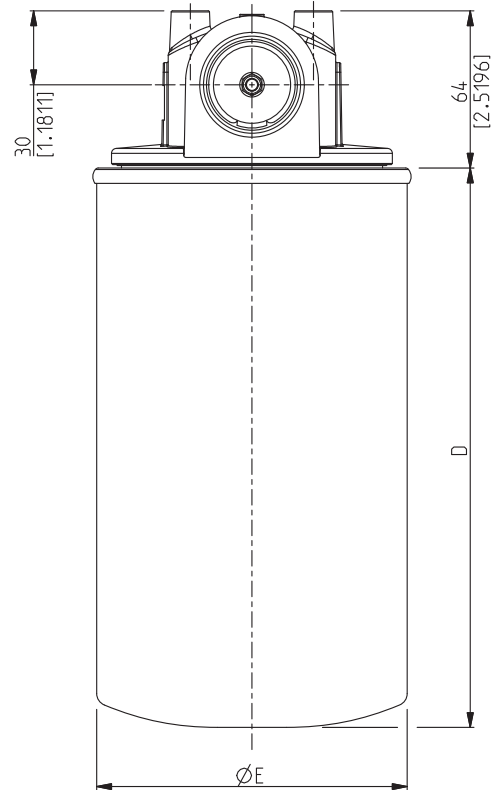
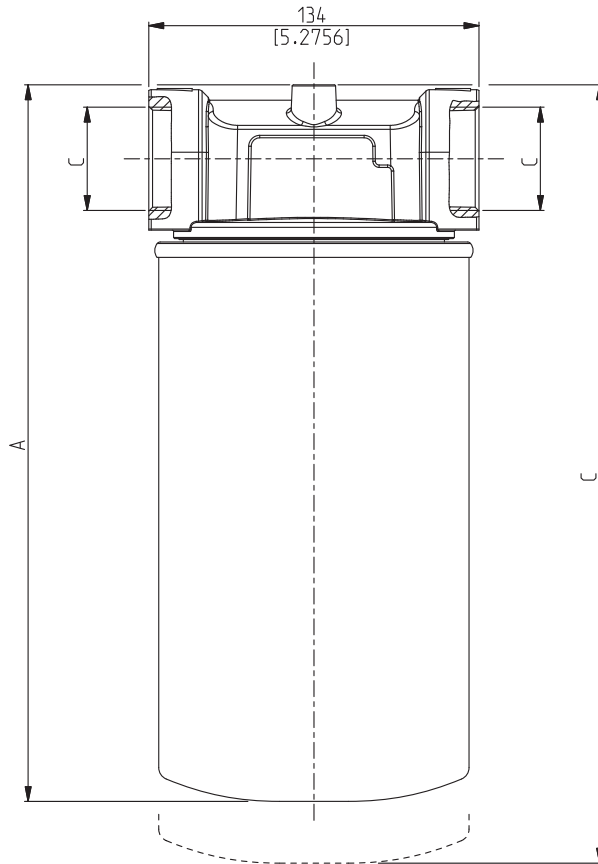
ICAT\_008\_001\_HF620

01/03.2011

Filter type	Weight	A	B	C	D	(1)(3)(GAS-BSPP)	(2)(4)(GAS-BSPP)
	kg(lbs)	mm(in)	mm(in)	(GAS-BSPP)	mm(in)	Suction indicators	Return indicators
<b>HF 620-20.135</b>	1,05 (2.31)	195 (7.6771)	215 (8.4645)	G 3/4	147 (5.7873)	G 1/8	G 1/8
<b>HF 620-20.180</b>	1,28 (2.82)	257 (10.1180)	277 (10.9054)		209 (8.2283)		

NPT, metric and SAE UN-UNF threads are available (consult our technical department).

**HF 620-30 DIMENSIONS**



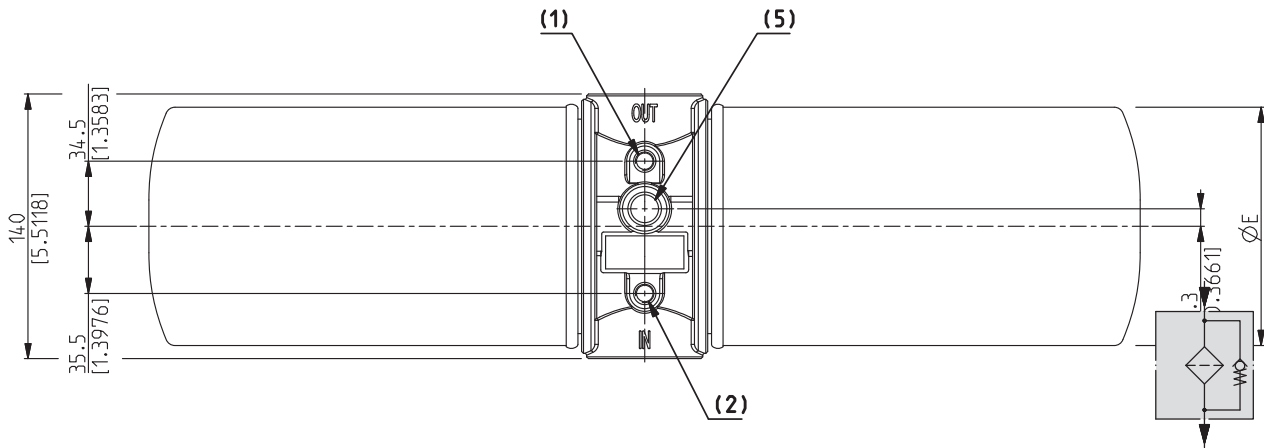
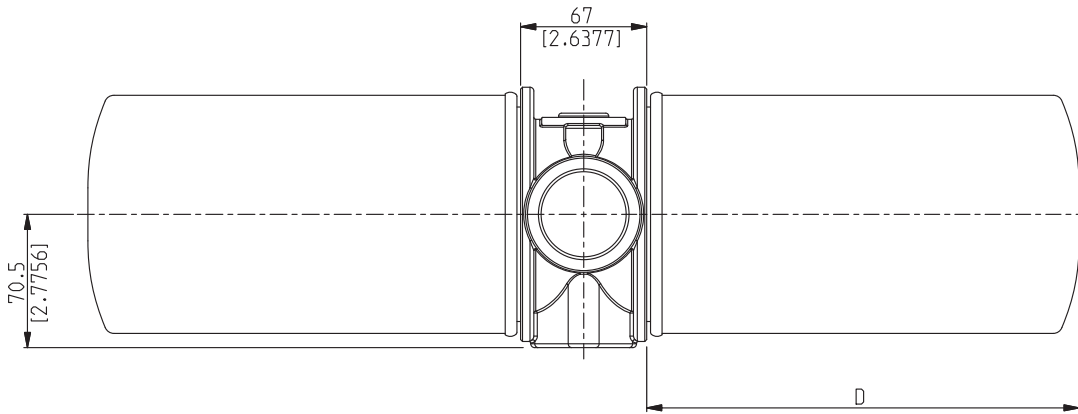
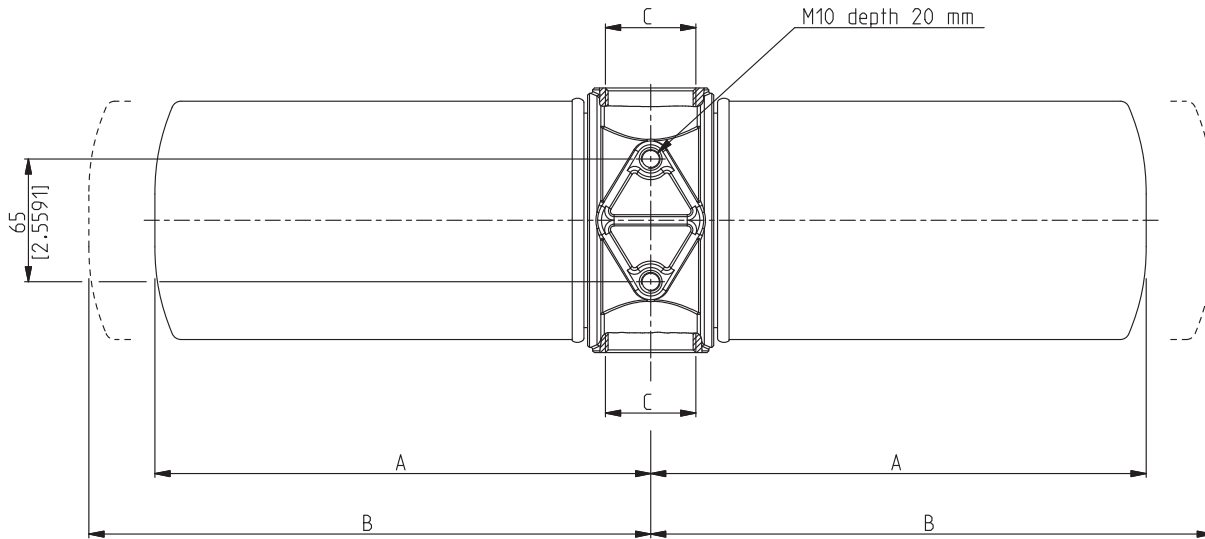
01/03.2011

ICAT\_008\_002\_HF620

Filter type	Weight kg(lbs)	A mm(in)	B mm(in)	C (GAS-BSP) mm(in)	D mm(in)	E mm(in)	(1)(3)(GAS-BSP)	(2)(4)(GAS-BSP)
							Suction indicators	Return indicators
<b>HF 620-30.155</b>	1,87 (4.12)	243 (9.5669)	268 (10.5511)		179 (7.0472)	126 (4.9606)		
<b>HF 620-30.210</b>	2,17 (4.78)	291 (11.4566)	316 (12.4409)	G 1 1/4	227 (8.9369)		G 1/8	G 1/8
<b>HF 620-30.305</b>	3,15 (6.94)	373 (14.6850)	398 (15.6692)		309 (12.1653)	138 (5.4330)		

NPT, metric and SAE UN-UNF threads are available (consult our technical department).

**HF 620-40 DIMENSIONS**



ICAT\_008\_004\_HF620

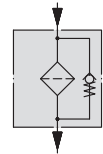
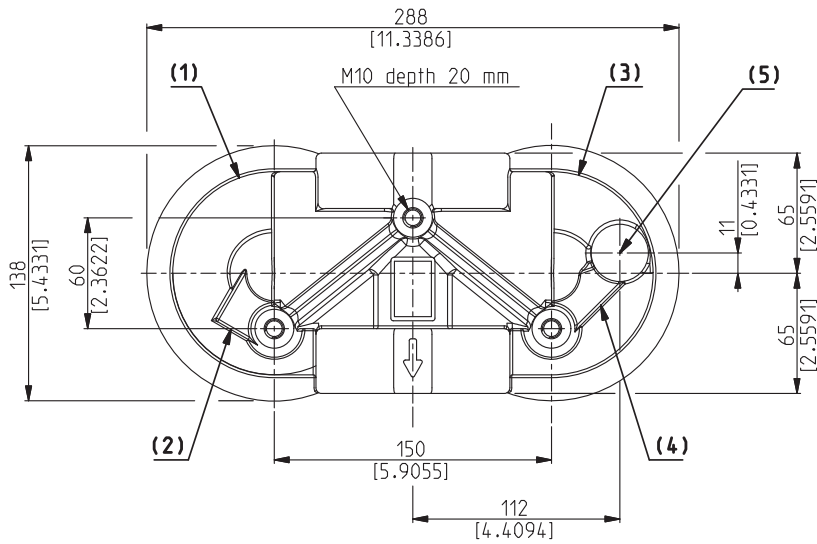
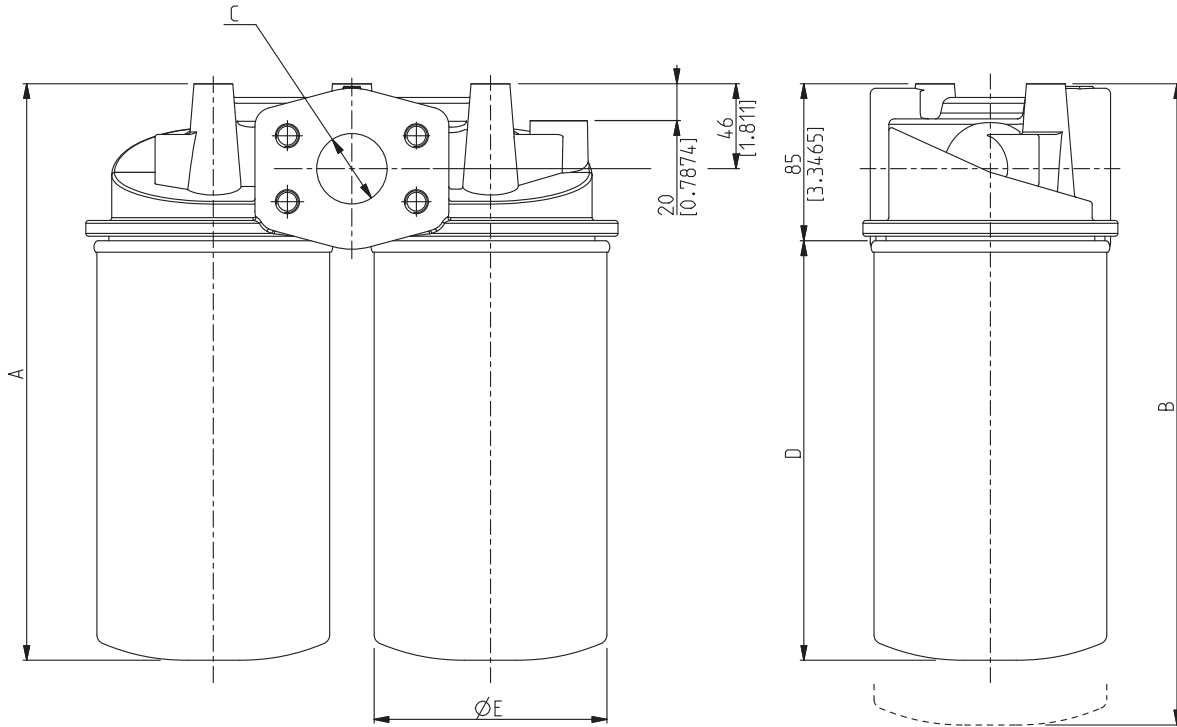
01/03.2011

Filter type	Weight kg(lbs)	A mm(in)	B mm(in)	C mm(in)	D mm(in)	E mm(in)	(1)(GAS-BSPP)	(2)(GAS-BSPP)	(5)(GAS-BSPP)
							Suction indicators	Return indicators	Differential indicators
<b>HF 620-40.155</b>	3,31 (7.29)	214 (8.4251)	249 (9.8031)		181 (7.1259)	126 (4.9606)			
<b>HF 620-40.210</b>	3,89 (8.57)	262 (10.3149)	297 (11.6928)	G 1 1/2	229 (9.0157)		G 1/8	G 1/8	G 1/2
<b>HF 620-40.305</b>	5,85 (12.89)	344 (13.5432)	379 (14.9212)		311 (12.2440)	138 (5.4330)			

NPT, metric and SAE UN-UNF threads are available (consult our technical department).



**HF 620-50 DIMENSIONS**



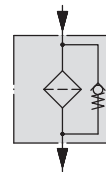
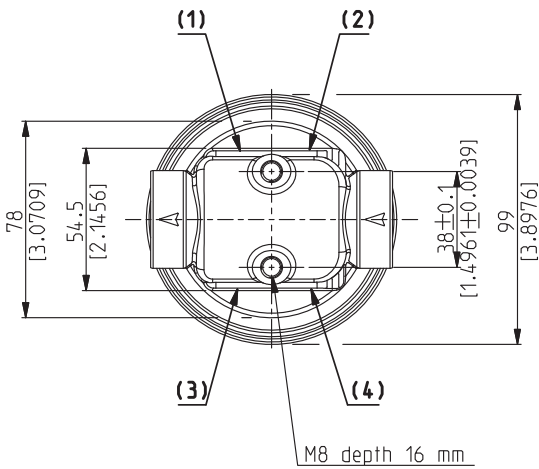
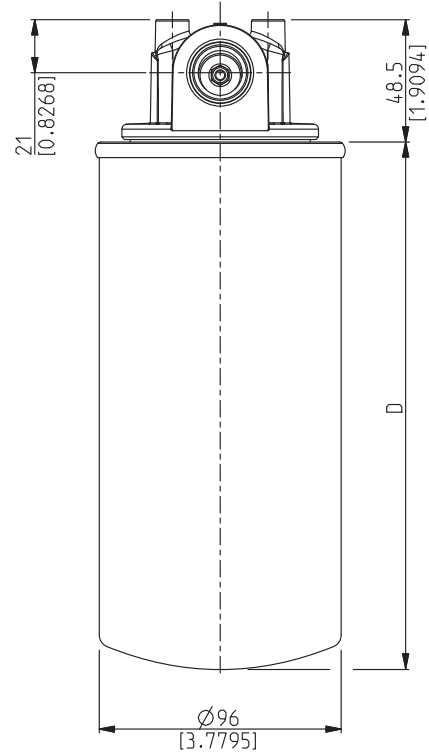
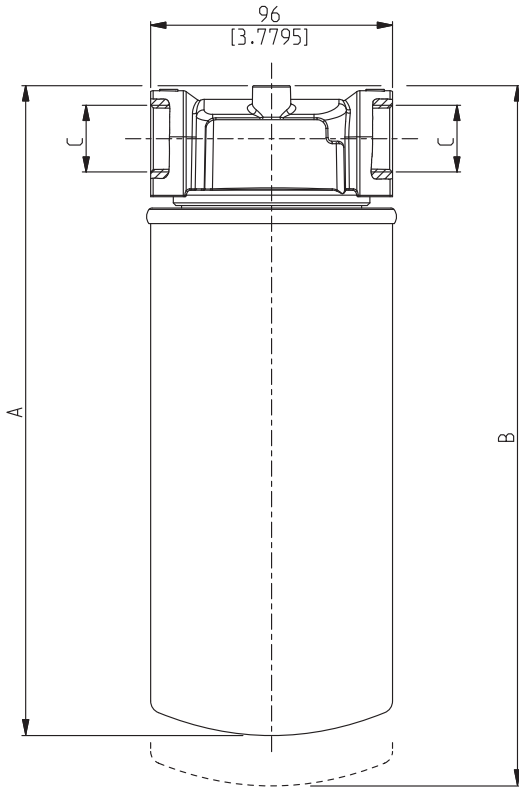
01/03.2011

ICAT\_008\_005\_HF620

Filter type	Weight kg(lbs)	A mm(in)	B mm(in)	C mm(in)	D mm(in)	E mm(in)	(1)(GAS-BSPP)	(2)(GAS-BSPP)	(5)(GAS-BSPP)
							Suction indicators	Return indicators	Differential indicators
<b>HF 620-50.155</b>	5,25 (11.57)	264 (10.3936)	299 (11.7716)		179 (7.0472)	126 (4.9606)			
<b>HF 620-50.210</b>	5,84 (12.87)	312 (12.2834)	347 (13.6613)	G 1 1/2	227 (8.9369)		G 1/8	G 1/8	G 1/2
<b>HF 620-50.305</b>	7,79 (17.17)	394 (15.5117)	429 (16.8897)		309 (12.1653)	138 (5.4330)			

NPT, metric, SAE UN-UNF and SAE3000 threads are available (consult our technical department).

**HF 625-20 DIMENSIONS**



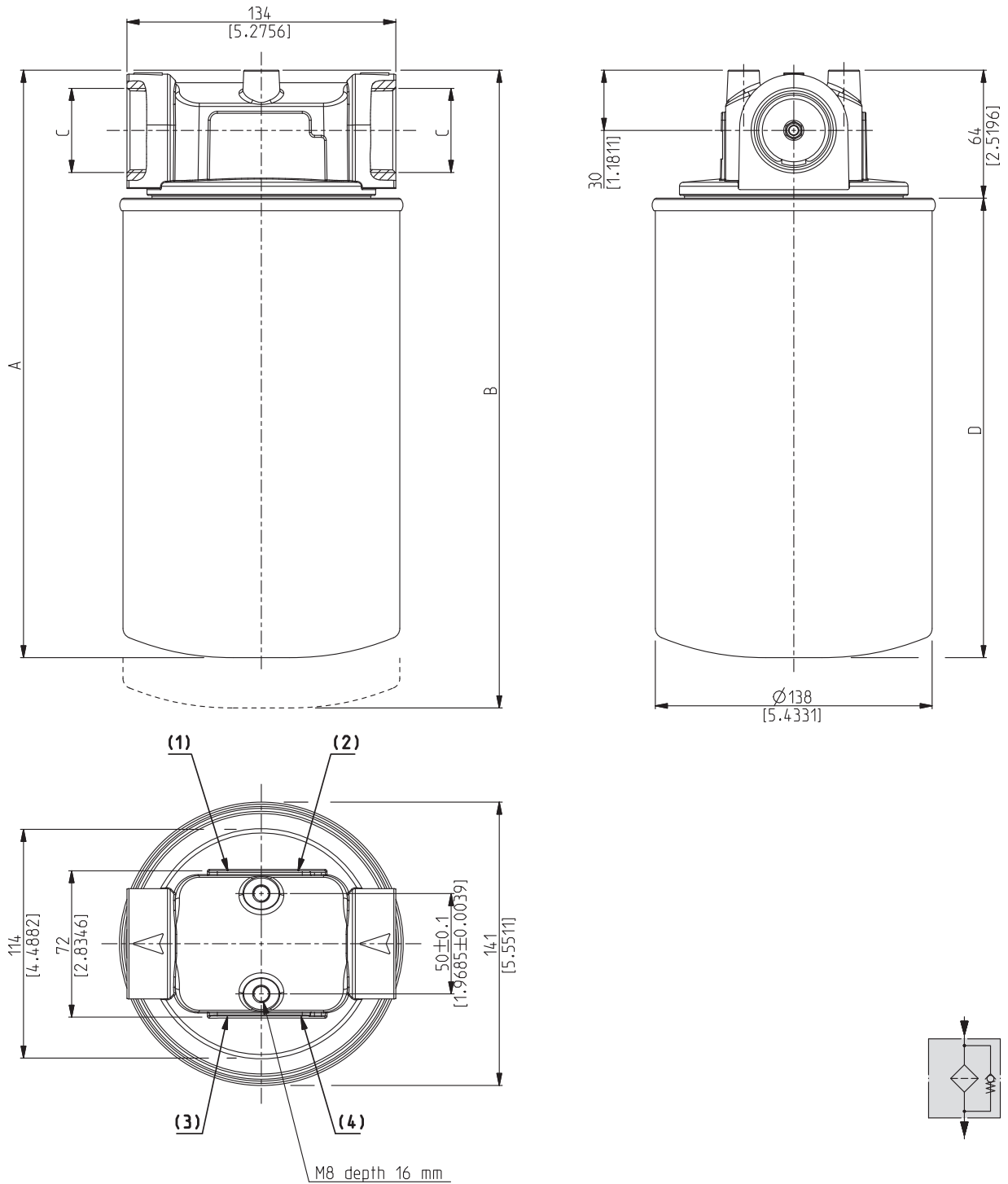
ICAT\_008\_001\_HF620

01/03.2011

Filter type	Weight	A	B	C	D
	kg(lbs)	mm(in)	mm(in)	(GAS-BSPP)	mm(in)
<b>HF 625-20.135</b>	1,24 (2.73)	195 (7.6771)	215 (8.4645)	G 3/4	147 (5.7873)
<b>HF 625-20.180</b>	1,44 (3.17)	257 (10.1180)	277 (10.9054)		209 (8.2283)

NPT, metric and SAE UN-UNF threads are available (consult our technical department).

**HF 625-30 DIMENSIONS**

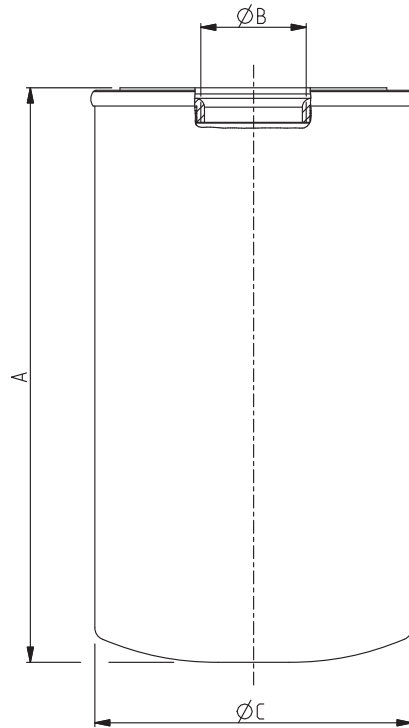


01/03.2011  
ICAT\_008\_003\_HF620

Filter type	Weight	A	B	C	D
	kg(lbs)	mm(in)	mm(in)	(GAS-BSPP)	mm(in)
<b>HF 625-30.155</b>	1,95 (4.29)	238 (9.3700)	262 (10.3149)	G 1 1/4	174 (6.8503)
<b>HF 625-30.210</b>	2,25 (4.96)	293 (11.5354)	317 (12.4802)		229 (9.0157)
<b>HF 625-30.305</b>	3,23 (7.12)	373 (14.6850)	398 (15.6692)		309 (12.1653)

NPT, metric and SAE UN-UNF threads are available (consult our technical department).

## ELEMENTS DIMENSIONS FOR HF 620

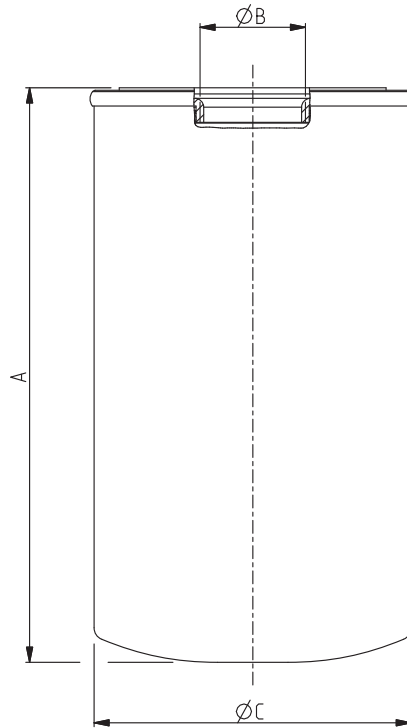


ICAT\_008\_006\_HF620

Element type	A	Ø B	ØC	Filtering surface		
				FG	MS	SP
	mm(in)	(GAS-BSSP)	mm(in)	cm <sup>2</sup> (in <sup>2</sup> )	cm <sup>2</sup> (in <sup>2</sup> )	cm <sup>2</sup> (in <sup>2</sup> )
<b>HE K45-20.135</b>	148	G 3/4	96	1700	785	2440
	(5.8267)			(263.5005)	(121.6752)	(378.2008)
<b>HE K45-20.180</b>	210	G 3/4	96	2125	1275	3960
	(8.2676)			(329.3757)	(197.6254)	(613.8012)
<b>HE K45-30.155</b>	180	G 1 1/4	126	4410	1650	4970
	(7.0865)			(683.5514)	(255.7505)	(770.3515)
<b>HE K45-30.210</b>	228	G 1 1/4	126	5980	2190	6730
	(8.9763)			(926.9019)	(339.4507)	(1043.1520)
<b>HE K45-30.305</b>	310	G 1 1/4	138	7900	4450	13580
	(12.2046)			(1224.5020)	(689.7514)	(2104.9040)

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## ELEMENTS DIMENSIONS FOR HF 625



ICAT\_008\_006\_HF620

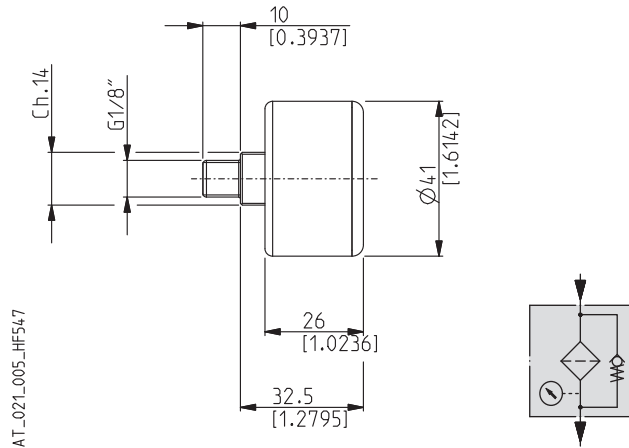
Element type	A	Ø B	Ø C	Filtering surface		
				FG	MS	SP
	mm(in)	(GAS-BSSP)	mm(in)	cm <sup>2</sup> (in <sup>2</sup> )	cm <sup>2</sup> (in <sup>2</sup> )	cm <sup>2</sup> (in <sup>2</sup> )
<b>HE K46-20.135</b>	148 (5.8267)	G 3/4	96 (3.7795)	1700 (263.5005)	785 (121.6752)	2440 (378.2008)
<b>HE K46-20.180</b>	210 (8.2676)			2125 (329.3757)	1275 (197.6254)	3960 (613.8012)
<b>HE K46-30.155</b>	175 (6.8897)	G 1 1/4	138 (5.4330)	3580 (554.9011)	2035 (315.4256)	4480 (694.4014)
<b>HE K46-30.210</b>	230 (9.0550)			6250 (968.7519)	3200 (496.0010)	6120 (948.6019)
<b>HE K46-30.305</b>	310 (12.2046)			7900 (1224.5020)	4450 (689.7514)	13580 (2104.9040)

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## INDICATORS FOR SUCTION LINE

### REAR MANOMETER

Code: **M**

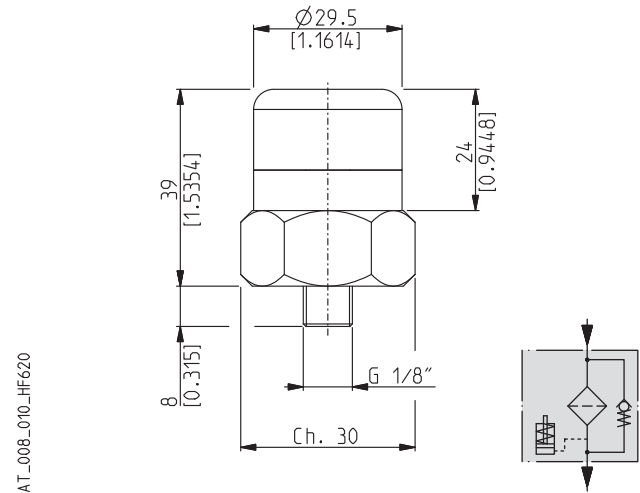


ICAT\_021\_005\_HF547

Scale -14.5 + 0 psi (-1 + 0 bar)

### VISUAL INDICATOR

Code: **V**

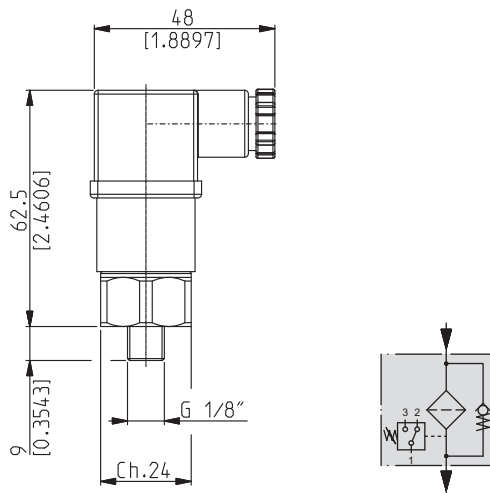


ICAT\_008\_010\_HF620

Pressure setting -2.2 psi (-0,15 bar)

### ELECTRICAL INDICATOR

Code: **E**



ICAT\_007\_006\_HF554

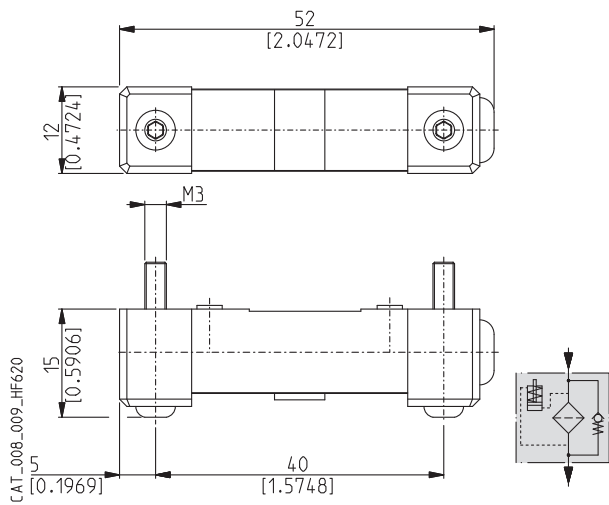
Pressure setting	-2.2 psi (-0,15 bar)
Max. working voltage	220 VCA 30 VCC
Max. working current	0,5 A (resistivity) 0,2 A (inductive)
Protection class	IP65
Contacts	N.O. and N.C.

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## INDICATORS FOR RETURN LINE

### DIFFERENTIAL VISUAL INDICATOR

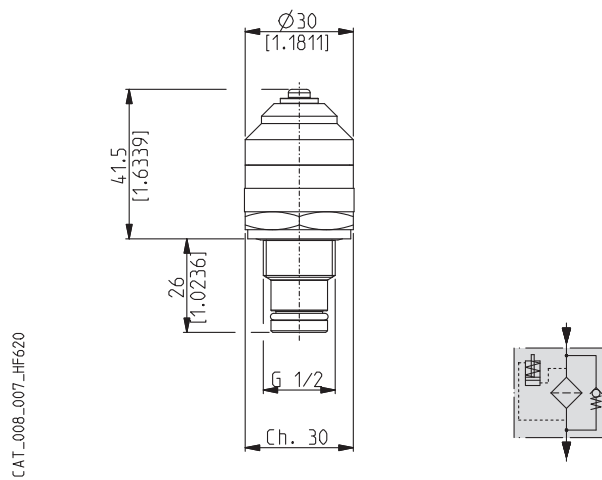
Code: **D** (only for 20 and 30 series)



Pressure setting 21.8 psi (1,5 bar)

### DIFFERENTIAL VISUAL INDICATOR

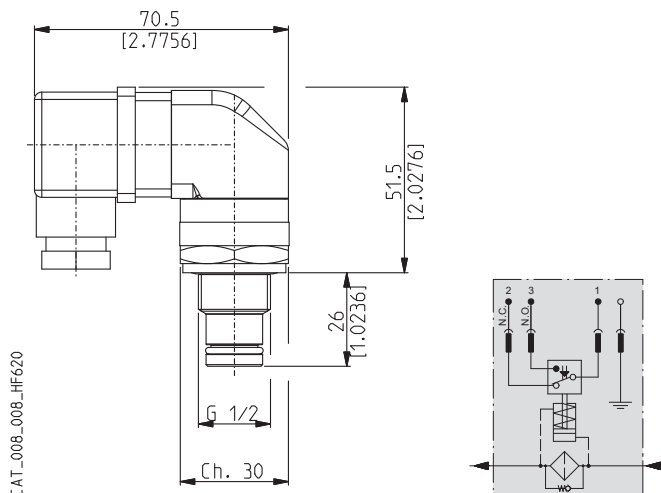
Code: **H** (only for 40 and 50 series)



Pressure setting 21.8 psi (1,5 bar)

### DIFFERENTIAL ELECTRICAL-VISUAL INDICATOR

Code: **L** (only for 40 and 50 series)



Pressure setting 21.8 psi (1,5 bar)

Max. working voltage 220 VCA  
30 VCC

Max. working current 0,5 A (resistivity)  
0,2 A (inductive)

Protection class IP65

Contacts N.O. and N.C.

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ICAT\_008\_008\_HF620

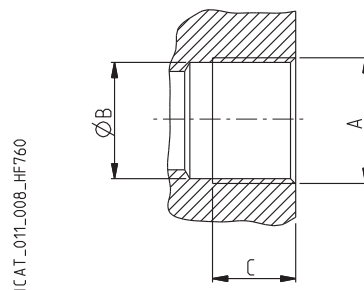
## IN / OUT PORTS


Filter type	Nominal size	PORTS TYPE		
		Gas BSPP	NPT	SAE ODT
<b>HF 620-20</b> <b>HF 625-20</b>	3/4"	GE	NE	OD
<b>HF 620-30</b> <b>HF 625-30</b>	1" 1/4	GG	NG	OG
<b>HF 620-40</b> <b>HF 620-50</b>	1" 1/2	GH	NH	OH

## GAS THREAD

## BSPP

Cylindrical GAS thread (55°) in accordance with UNI - ISO 228



CODE	Nominal size	A	Ø B		C	 Nm (lbf in)
			mm (in)	mm (in)		
<b>GE</b>	3/4"	G 3/4	24,5 (0.9645)	20 (0.7873)	30 <sup>+2,5</sup> (266 ÷ 288)	
<b>GG</b>	1" 1/4	G 1 1/4	39 (1.5354)	24 (0.9448)	60 <sup>+5</sup> (531 ÷ 575)	
<b>GH</b>	1" 1/2	G 1 1/2	45 (1.7716)	26 (1.0236)	70 <sup>+5</sup> (620 ÷ 664)	

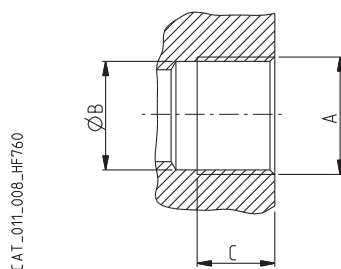
01/03.2011




**IN / OUT PORTS**

<b>NPT THREAD</b>	<b>NPT</b>
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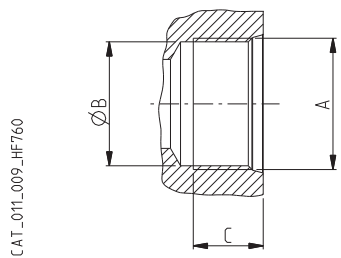
NPT thread (60°) in accordance with ANSI - ASME B1-20




CODE	Nominal size	A	Ø B	C	 Nm (lbf in)
			mm (in)	mm (in)	
<b>NE</b>	3/4"	3/4 NPT	23,5 (0.9251)	14 (0.5511)	25 <sup>+1</sup> (221 ÷ 230)
<b>NG</b>	1" 1/4	1 1/4 NPT	38,5 (1.5157)	18 (0.7086)	50 <sup>+2,5</sup> (442 ÷ 464)
<b>NH</b>	1" 1/2	1 1/2 NPT	44 (1.7322)	18,5 (0.7283)	70 <sup>+5</sup> (620 ÷ 664)

<b>SAE J514 THREAD</b>	<b>ODT</b>
------------------------	------------

American thread UNC-UNF 60° in accordance with ANSI B 1.1



CODE	Nominal size	A	Ø B	C	 Nm (lbf in)
			mm (in)	mm (in)	
<b>OD</b>	3/4"	1 1/16" - 12 UNF - 2B	24,7 (0.9724)	20 (0.7873)	40 <sup>+2,5</sup> (354 ÷ 376)
<b>OG</b>	1" 1/4	1 5/8" - 12 UNF - 2B	39,1 (1.5393)	20 (0.7873)	70 <sup>+5</sup> (620 ÷ 664)
<b>OH</b>	1" 1/2	1 7/8" - 12 UNF - 2B	45,3 (1.7834)	20 (0.7873)	100 <sup>+5</sup> (885 ÷ 929)

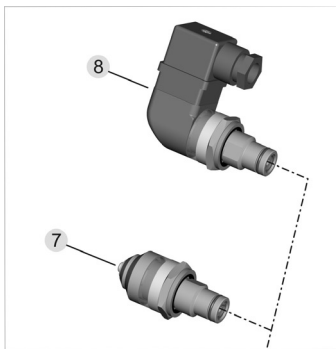
01/03.2011

## ASSEMBLY AND REPLACING ELEMENT INSTRUCTIONS

### MOUNTING

Once you have checked the integrity of the filter inside its package, proceed as follow:

- A Take off the protection cap from the in/out ports.
- B Secure the filter in the head through the holes of the upper side (pos.2) tightening them as follows:  
 HF 620-20/30 and HF 625-20/30 = 44 lbf in (5 Nm)  
 HF 620-40 and HF 620-50 = 62 lbf in (7 Nm)
- C Connect circuit's pipes to inlet and outlet ports using the tightening torque indicated on pages 22 and 23.
- D If the filter has a clogging indicator (pos.3 - 4 - 5 - 6 - 7 - 8), take the protection cap off and screw the indicator in the dedicated seat, then tighten to a tightening torque of 266 lbf in (30 Nm). If the indicator is electric, complete the required connections.
- E Start the circuit for a few minutes.
- F Make sure there are no leaks.

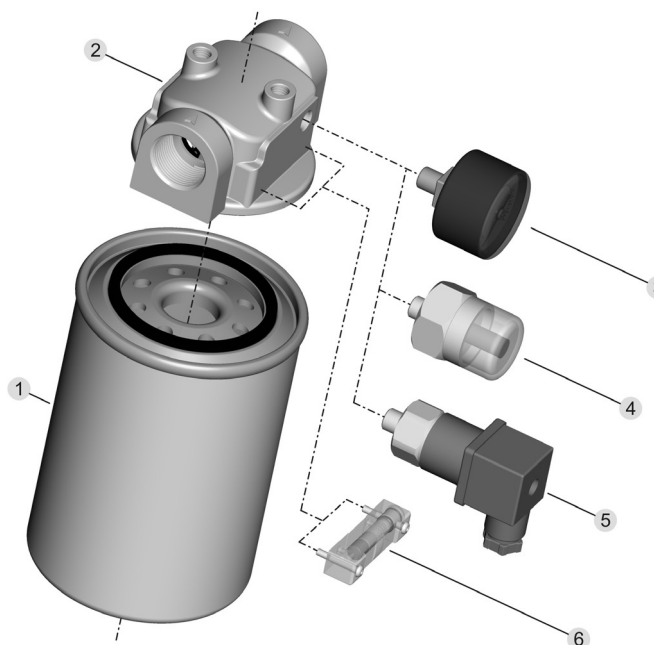


### REPLACING ELEMENT

Once the working hour limit indicated in the maintenance instructions of the system is reached or when the clogging indicators point out the limit pressure drop created inside the filter, the element must be replaced. Pay attention to the drainage of hydraulic oil, therefore prepare suitable containers to collect it.

Proceed as follows:

- A Stop the system in "machine stopped" status.
- B Secure any shut-off valves on the hydraulic circuit.
- C Remove the clogged element by hands-crewing it from the filter head (pos.2) or if needed by using a strap wrench. It is advisable not to recover the oil in the element since it is full of clogging particles.
- D Lubricate the new element's seal (pos.1).
- E Screw the new element until reaching the ledge with the filter head (pos.2).
- F After reaching the ledge, hand-screw the element for 3/4 more (for series 20) or 1/2 more (for series 30, 40 and 50).
- G Re-open the eventual valves closed before.
- H Start the machine for a few minutes.
- I Make sure there are no leaks.



#### Pos. Description

- |   |   |
|---|---|
| 1 | Filtering element   |
| 2 | Filter's head   |
| 3 | Rear Manometer  |
| 4 | Visual indicator  |
| 5 | Electrical indicator  |
| 6 | Differential visual indicator (series 20 and 30)            |
| 7 | Differential visual indicator (series 40 and 50)            |
| 8 | Differential electrical-visual indicator (series 40 and 50) |

When ordering spare parts, always specify the reference number, the filter code and quantity.

Example: Spare parts pos. 4 - HHE13051 - Q.ty 1

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## HOW TO ORDER A COMPLETE FILTER HF 620

1
2
3
4
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6
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8
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**HF 620 - 20.135 - AS - FG010 - B17 - GE - B - XA - FP - D**

1	Filter type	CODE
	See table from pag. 12 to pag. 15	<b>HF 620..</b>

2	Filtering surface	CODE
	Standard	<b>AS</b>

3	Degree of filtration	CODE
	10 [µm] Micro-fibre glass	<b>FG010</b>
	25 [µm] Micro-fibre glass	<b>FG025</b>
	60 [µm] Steel wire mesh	<b>MS060</b>
	90 [µm] Steel wire mesh	<b>MS090</b>
	10 [µm] Cellulose	<b>SP010</b>
	25 [µm] Cellulose	<b>SP025</b>

4	By-pass setting valve	CODE
	With By-pass setting valve 2.9 [psi] (0,2 [bar])	<b>B02</b>
	With By-pass setting valve 25 [psi] (1,7 [bar])	<b>B17</b>
	Without (Suction)	<b>B0A</b>
	Without (Return)	<b>B0R</b>

5	Inlet port	CODE
	<b>GAS threads (BSPP)</b>	
	G 3/4	<b>GE</b>
	G 1 1/4	<b>GG</b>
	G 1 1/2	<b>GH</b>
	<b>NPT threads</b>	
	3/4	<b>NE</b>
	1 1/4	<b>NG</b>
	1 1/2	<b>NH</b>
	<b>SAE threads ODT</b>	
	3/4	<b>OD</b>
	1 1/4	<b>OG</b>
	1 1/2	<b>OH</b>

6	Seals	CODE
	Buna	<b>B</b>
	Viton	<b>V</b>

7	Indicators arranged	CODE
	Without	<b>XN</b>
	Right on the head (1)(2)	<b>XA</b>
	Left on the head (3)(4)	<b>XB</b>
	Only for HF 620-40 (5)	<b>XC</b>
	Only for HF 620-50 (5)	<b>XD</b>

8	Indicator's ports dimensions	CODE
	<b>GAS Threads (BSPP)</b>	
	G 1/8	<b>GA</b>
	G 1/8 with plug	<b>DA</b>
	G 1/2 (only for HF 620-40 and HF 620-50)	<b>GD</b>
	Holes in the wall for differential indicator (only for HF 620-20 and HF 620-30)	<b>FP</b>

11	Indicators	CODE
	Without	<b>G</b>
	Manometer - rear connection	<b>M</b>
	Visual indicator	<b>V</b>
	Electrical indicator	<b>E</b>
	Differential visual indicator (only for HF 620-20 and HF 620-30)	<b>D</b>
	Differential visual indicator (only for HF 620-40 and HF 620-50)	<b>H</b>
	Differential electrical-visual indicator (only for HF 620-40 and HF 620-50)	<b>L</b>

Standard  
 On request

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## HOW TO ORDER A COMPLETE FILTER HF 625

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**HF 625 - 20.135 - AS - FG010 - B17 - GE - B - XA - FP - D**

1	Filter type	CODE
	See table from pag. 16 to pag. 17	<b>HF 625..</b>

2	Filtering surface	CODE
	Standard	<b>AS</b>

3	Degree of filtration	CODE
	10 [µm] Micro-fibre glass	<b>FG010</b>
	25 [µm] Micro-fibre glass	<b>FG025</b>
	60 [µm] Steel wire mesh	<b>MS060</b>
	90 [µm] Steel wire mesh	<b>MS090</b>
	10 [µm] Cellulose	<b>SP010</b>
	25 [µm] Cellulose	<b>SP025</b>

4	By-pass setting valve	CODE
	With By-pass setting valve 25 [psi] (1,7 [bar])	<b>B17</b>
	Without	<b>B00</b>

5	Inlet port	CODE
	<b>GAS threads (BSPP)</b>	
	G 3/4	<b>GE</b>
	G 1 1/4	<b>GG</b>
	G 1 1/2	<b>GH</b>
	<b>NPT threads</b>	
	3/4	<b>NE</b>
	1 1/4	<b>NG</b>
	1 1/2	<b>NH</b>
	<b>SAE threads ODT</b>	
	3/4	<b>OD</b>
	1 1/4	<b>OG</b>
	1 1/2	<b>OH</b>

6	Seals	CODE
	Buna	<b>B</b>
	Viton	<b>V</b>

7	Indicators arranged	CODE
	Without	<b>XN</b>
	Right on the head (1)(2)	<b>XA</b>
	Left on the head (3)(4)	<b>XB</b>

8	Indicator's ports dimensions	CODE
	<b>GAS Threads (BSPP)</b>	
	Holes in the wall for differential indicator	<b>FP</b>

11	Indicators	CODE
	Without	<b>G</b>
	Differential visual indicator	<b>D</b>

Standard  
 On request

01/03.2011

## HOW TO ORDER A REPLACEMENT ELEMENT

	1		2		3		4	
<b>HE K45</b>	-	<b>20.135</b>	-	<b>AS</b>	-	<b>FG010</b>	-	<b>B</b>

1	Element type	CODE
	See table pag. 18	<b>HE K45..</b>
	See table pag. 19	<b>HE K46..</b>

2	Filtering surface	CODICE
	Standard	<b>AS</b>

3	Degree of filtration	CODE
	10 [µm] Micro-fibre glass	<b>FG010</b>
	25 [µm] Micro-fibre glass	<b>FG025</b>
	60 [µm] Steel wire mesh	<b>MS060</b>
	90 [µm] Steel wire mesh	<b>MS090</b>
	10 [µm] Cellulose	<b>SP010</b>
	25 [µm] Cellulose	<b>SP025</b>

4	Seals	CODE
	Buna	<b>B</b>
	Viton	<b>V</b>

Standard  
 On request



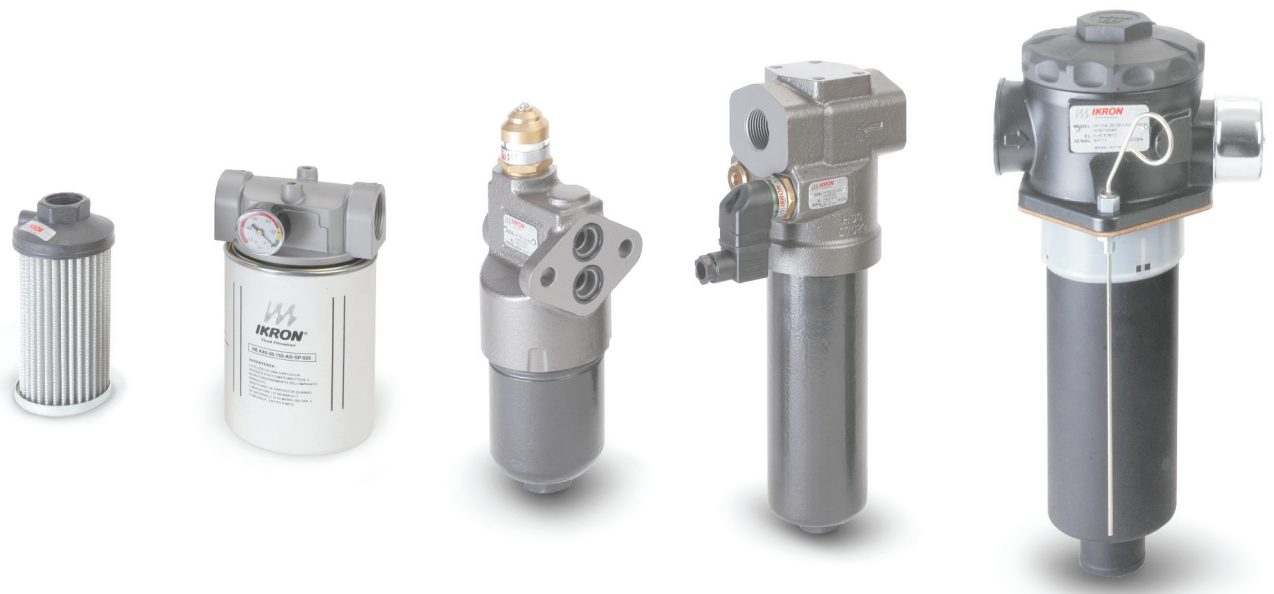
Building & construction

Agriculture

Truck Market

Material Handling

Industrial



Full range of filters  
for all hydraulic circuits

## Suction filters

HF 410  
HF 412  
HF 431  
HF 434  
HF 437

## Tank mounted return line filters

HF 502  
HF 508  
HF 547  
HF 554  
HF 570  
HF 575  
HF 578

## In line filters Spin-On

HF 620  
HF 625  
HF 650

## In line medium and high pressure filters

HF 690  
HF 705  
HF 710  
HF 725  
HF 735  
HF 745  
HF 760  
HF 761

## Accessories

Filler breathers  
Air filters  
Level and temperature gauges  
Pressure gauges  
Pressure/vacuum gauges  
Clogging indicators



IKRON S.r.l.

Via Prampolini, 2 - 43044 Lemignano di Collecchio - Parma - Italy

Tel.: + 39 0521 304911 - Fax: + 39 0521 304900

Videoconferencing IP

[www.ikron.it](http://www.ikron.it)

E-mail: [info@ikron.it](mailto:info@ikron.it)



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