

TECHNICAL CHARACTERISTICS

HF 650 series can be used on hydraulic circuits with working pressure up to 35 bar and are particularly specified for hydrostatic charge pumps, cooling circuits along with the traditional fluid filtration on the tank return line. The standard filters are supplied with by-pass valve set at 25 psi (1,7 bar) or at 51 psi (3,5 bar).

- Max working pressure 508 psi (35 bar)
- Flow up to 52.8 US gpm (200 l/min)
- Secondary outlets

MATERIALS	
Head	Aluminum
Bowl	Steel - Aluminum
Seals	Buna - Viton
End cap	Zinc plated steel
Inner tube	Zinc plated steel
Fiber media	Inorganic micro-fibre glass Reinforced cellulose

FLUID COMPATIBILITY	
Conforming to ISO 2943 (Norm ISO 6743/4)	
Mineral oil (1)	HH - HL - HM - HR - HV - HG
Water emulsion (1)	HFAE - HFAS
Synthetic fluid (2)	HS - HFDR - HFDU - HFDS
(1) With buna seals	
(2) With viton seals	

FLOW	
Flow max.	52.8 US gpm (200 l/min)

PRESSURE	
Working pressure	508 psi (35 bar)
Testing pressure	870 psi (60 bar)
Burst pressure	1378 psi (95 bar)
Element collapse pressure rating (secondo ISO 2941)	290 psi (20 bar)

BY-PASS VALVE	
By-pass setting	25 psi (1.7 bar) 51 psi (3.5 bar)

OPERATING TEMPERATURE	
With buna seals	-22 ÷ 195 °F (-30 ÷ 90 °C)
With viton seals	-4 ÷ 230 °F (-20 ÷ 110 °C)

ENDURANCE STRENGTH
> 1.000.000 cycle 0 ÷ 508 psi (0 ÷ 35 bar)

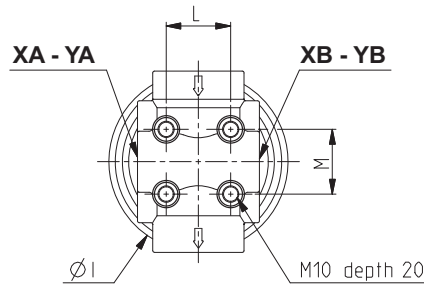
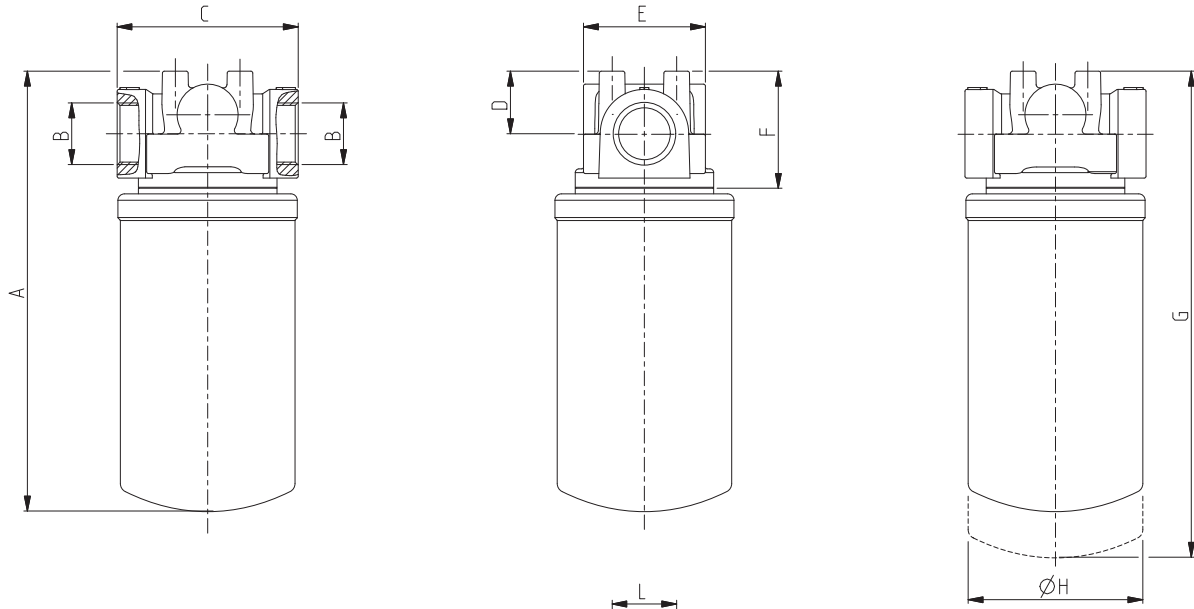
DEGREE OF FILTRATION			
Absolute Filtration			
Multi-pass test conforming to ISO 16889 (regulation in force) Contaminant ISO MTD			
Code	Degree of filtration	Ratio $\beta_{x(c)}$	Percentage of efficiency
FG003	5 μm	$\beta_{5(c)} \geq 200$	99,5 %
FG006	7 μm	$\beta_{7(c)} \geq 200$	99,5 %
FG010	10 μm	$\beta_{10(c)} \geq 200$	99,5 %
FG016	14 μm	$\beta_{14(c)} \geq 200$	99,5 %
FG025	21 μm	$\beta_{21(c)} \geq 200$	99,5 %

Multi-pass test conforming to ISO 4572 (previous regulation) Contaminant ACFTD			
Code	Degree of filtration	Ratio β_x	Percentage of efficiency
FG003	3 μm	$\beta_3 \geq 200$	99,5 %
FG006	6 μm	$\beta_6 \geq 200$	99,5 %
FG010	10 μm	$\beta_{10} \geq 200$	99,5 %
FG016	16 μm	$\beta_{16} \geq 200$	99,5 %
FG025	25 μm	$\beta_{25} \geq 200$	99,5 %

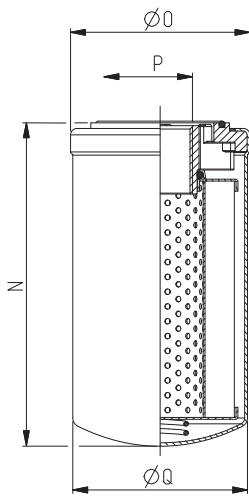
Nominal Filtration	
Code	Degree of filtration
RP010	10 μm
RP025	25 μm

INDICATORS	
Visual differential indicator	
Visual electrical differential indicator	

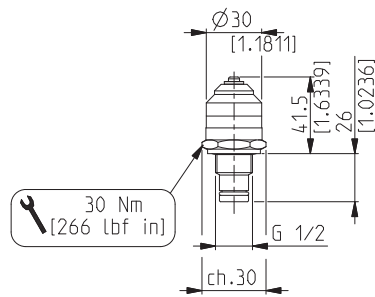
HF 650 DIMENSIONS



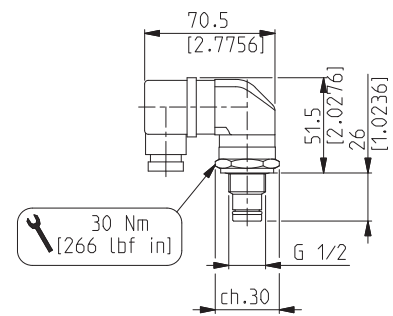
Elements HE K50



With indicator "F"



With indicator "Q"



ICAT_019_002_HF650

01/03.2011

Filter type	A	B (GAS-BSPP)		C	D	E	F	G	Ø H	Ø I	L	M
	mm (in)	Standard		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
HF 650-20.100	163 (6.4173)	G 3/4	G 1	98 (3.8583)	34 (1.3386)	72 (2.8346)	63 (2.4803)	188 (7.4016)	95 (3.7401)	97 (3.8189)	35 (1.3779)	35 (1.3779)
HF 650-20.150	213 (8.3858)							238 (9.3700)				
HF 650-20.180	243 (9.5669)	G 1	G 3/4	121 (4.7638)	39 (1.5354)	90 (3.5433)	70 (2.7559)	268 (10.5511)	117 (4.6063)	120 (4.7244)	48 (1.8898)	48 (1.8898)
HF 650-20.230	293 (11.5354)							318 (12.5196)				
HF 650-30.295	365 (14.3700)	G 1 1/4										

Element type	N	Ø O	P	Ø Q	Filtering surface	
	mm (in)	mm (in)	mm (in)	mm (in)	FG cm ² (in ²)	RP cm ² (in ²)
HE K50-20.100	100 (3.9370)				905 (140.2753)	1040 (161.2003)
HE K50-20.150	150 (5.9055)				1910 (296.0506)	2185 (338.6757)
HE K50-20.180	180 (7.0866)	97 (3.8189)	1 3/8-12 UNF-2B	95 (3.7401)	2380 (368.9007)	2720 (421.6008)
HE K50-20.230	230 (9.0551)				3270 (506.8510)	3740 (579.7012)
HE K50-30.295	295 (11.6141)	120 (4.7244)	1 3/4-12 UNF-2B	117 (4.6063)	5035 (780.4266)	8730 (1353.1530)

FLOW

Filter type	Ports IN / OUT GAS (BSPP)	Degree of filtration						
		FG003	FG006	FG010	FG016	FG025	RP010	RP025
		Flow $\Delta p = 5.8$ psi ($\Delta p = 0.4$ bar) US gpm (l/min)						
HF 650-20.100	G 3/4	9.2 (35)	10.6 (40)	11.9 (45)	13.2 (50)	14.5 (55)	13.2 (50)	15.9 (60)
	G 1	10.6 (40)	11.9 (45)	14.5 (55)	15.9 (60)	17.2 (65)	17.2 (65)	21.1 (80)
HF 650-20.150	G 3/4	13.2 (50)	14.5 (55)	15.9 (60)	17.2 (65)	18.5 (70)	17.2 (65)	19.8 (75)
	G 1	18.5 (70)	21.1 (80)	23.8 (90)	25.1 (95)	26.4 (100)	25.1 (95)	29.1 (110)
HF 650-20.180	G 3/4	14.5 (55)	15.9 (60)	17.2 (65)	18.5 (70)	19.8 (75)	18.5 (70)	21.1 (80)
	G 1	21.1 (80)	23.8 (90)	26.4 (100)	27.7 (105)	29.1 (110)	26.4 (100)	30.4 (115)
HF 650-20.230	G 3/4	15.9 (60)	17.2 (65)	18.5 (70)	19.8 (75)	21.1 (80)	19.8 (75)	22.5 (85)
	G 1	22.5 (85)	25.1 (95)	27.7 (105)	29.1 (110)	30.4 (115)	27.7 (105)	31.7 (120)
HF 650-30.295	G 1 1/4	39.6 (150)	42.3 (160)	44.9 (170)	47.6 (180)	50.2 (190)	50.2 (190)	52.8 (200)

HOW TO ORDER A COMPLETE FILTER

1	2	3	4	5	6	7						
HF 650-...	-	AS	-	FG010	-	B17	-	GE	-	B	-	XA
8	9	10										
F	-	YB	-	GD								

1	Filter type	CODE
	See table pag.2	HF 650-
2	Filtering surface	CODE
	Standard	AS
3	Degree of filtration	CODE
	3 [µm] Micro-fibre glass	FG003
	6 [µm] Micro-fibre glass	FG006
	10 [µm] Micro-fibre glass	FG010
	16 [µm] Micro-fibre glass	FG016
	25 [µm] Micro-fibre glass	FG025
	10 [µm] Reinforced cellulose	RP010
	25 [µm] Reinforced cellulose	RP025
4	By-pass valve	CODE
	Without	B00
	By-pass valve set at 25 [psi] (1,7 [bar])	B17
	By-pass valve set at 51 [psi] (3,5 [bar])	B35

5	Ports IN / OUT	CODE
	Threads GAS (BSPP)	
	G 3/4	GE
	G 1	GF
	G 1 1/4	GG
	On request metric threads, NPT or SAE J514b are available.	
6	Seals	CODE
	Buna	B
	Viton	V
7	Indicator arrangement	CODE
	Without	XN
	Right side arranged	XA
	Left side arranged	XB

8	Indicators	CODE
	Without	G
	Visual differential indicator	F
	Visual electrical differential indicator	Q
9	Secondary outlets	CODE
	Without	YN
	Right side arranged	YA
	Left side arranged	YB
10	Sec. outlet dim.	CODE
	Threads GAS (BSPP)	
	G 1/4	GB
	G 3/8	GC
	G 1/2	GD
	On request metric threads, NPT or SAE J514b are available.	

Standard
 On request

HOW TO ORDER A REPLACEMENT ELEMENT

1	2	3	4
HE K50-...	-	AS	-
		FG010	-
			B

1	Element type	CODE
	See table pag. 2	HE K50-
2	Filtering surface	CODE
	Standard	AS

3	Degree of filtration	CODE
	3 [µm] Micro-fibre glass	FG003
	6 [µm] Micro-fibre glass	FG006
	10 [µm] Micro-fibre glass	FG010
	16 [µm] Micro-fibre glass	FG016
	25 [µm] Micro-fibre glass	FG025
	10 [µm] Reinforced cellulose	RP010
	25 [µm] Reinforced cellulose	RP025

4	Seals	CODE
	Buna	B
	Viton	V

Standard
 On request

Edition: 01/03.2011
HF 650 01 TA