

## TECHNICAL CHARACTERISTICS

HF 690 filter series are connected to the pressure line of the circuit and protect the system's components against contaminant particles.

The standard filters are supplied with by-pass valve set at 87 psi (6 bar).

- Maximum working pressure 1595 psi (110 bar)
- Flow up to 23.8 US gpm (90 l/min)
- Aluminum head and bowl

MATERIALS	
Head	Anodized aluminum
Bowl	Anodized aluminum
Seals	Buna - Viton
End cap	Zinc plated steel
Inner tube	Zinc plated steel
Filter media	Inorganic micro-fibre glas Reinforced cellulose

FLUID COMPATIBILITY	
Conforming to ISO 2943 (Norm ISO 6743/4)	
Oil mineral (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.	23.8 US gpm (90 l/min)

PRESSURE	
Working pressure	1595 psi (110 bar)
Testing pressure	2321 psi (160 bar)
Burst pressure	4351 psi (300 bar)
Element collapse pressure rating (conforming to ISO 2941)	290 psi (20 bar)

BY-PASS VALVE	
By-pass setting	87 psi (6 bar)

OPERATING TEMPERATURE	
With Buna seals	-30 ÷ 90 °C
With Viton seals	-20 ÷ 110 °C

ENDURANCE STRENGTH	
> 800.000 cycles	
0 ÷ 1595 psi (0 ÷ 110 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 $\mu\text{m}$	$\beta_{5(c)} \geq 200$	99,5 %
FG006	7 $\mu\text{m}$	$\beta_{7(c)} \geq 200$	99,5 %
FG010	10 $\mu\text{m}$	$\beta_{10(c)} \geq 200$	99,5 %
FG025	21 $\mu\text{m}$	$\beta_{21(c)} \geq 200$	99,5 %

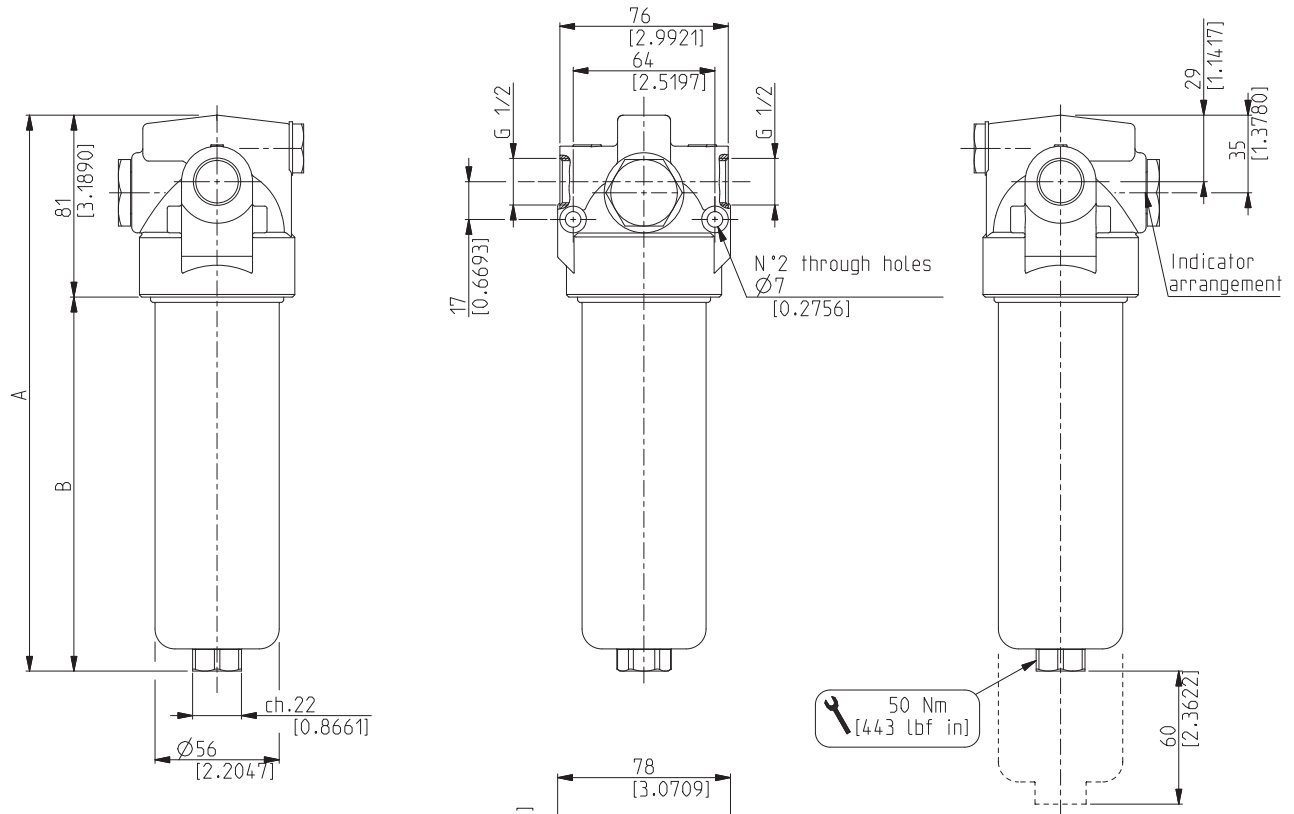
Multi-pass test conforming to ISO 4572 (previous regulation) Contaminant ACFTD			
Code	Degree of filtration	Ratio $\beta_x$	Percentage of efficiency
FG003	3 $\mu\text{m}$	$\beta_3 \geq 200$	99,5 %
FG006	6 $\mu\text{m}$	$\beta_6 \geq 200$	99,5 %
FG010	10 $\mu\text{m}$	$\beta_{10} \geq 200$	99,5 %
FG025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

Nominal Filtration	
Code	Degree of filtration
RP010	10 $\mu\text{m}$
RP025	25 $\mu\text{m}$

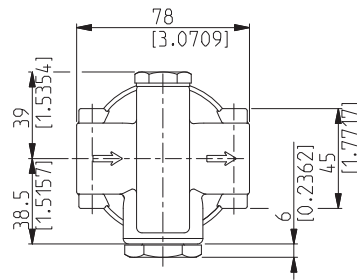
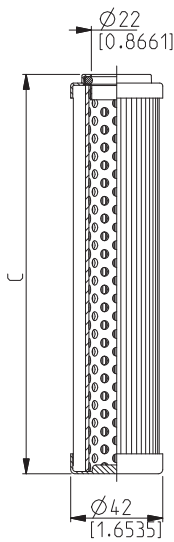
INDICATORS	
Visual differential indicator	
Visual electrical differential indicator	

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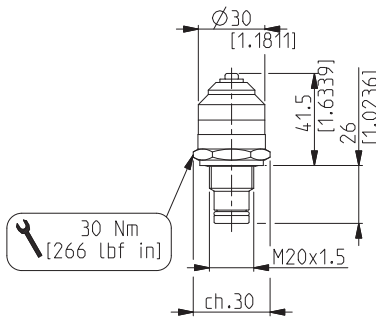
**HF 690 DIMENSIONS**



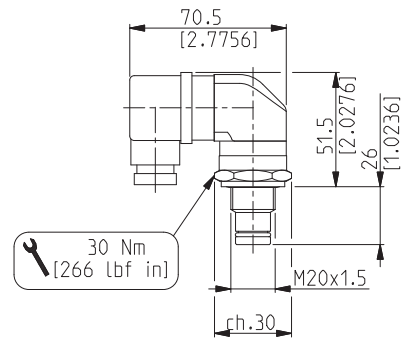
**Elements HE K85**



**With indicator "J"**



**With indicator "T"**

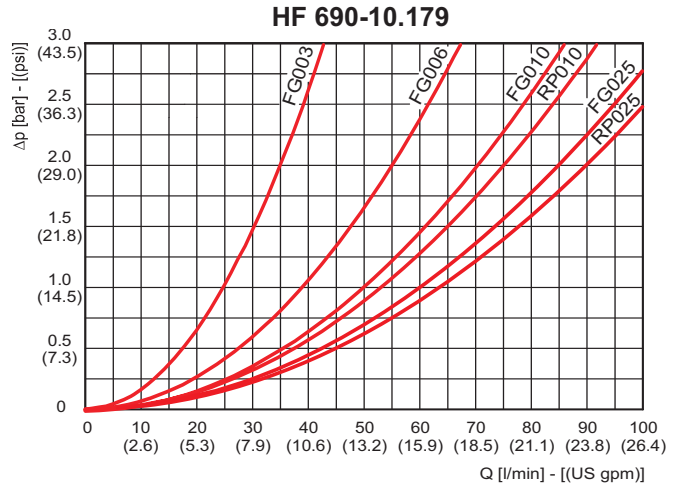
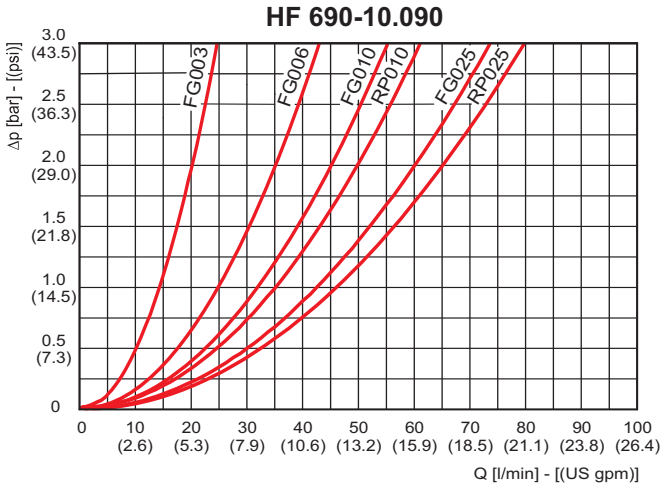


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Filter type	Weight	A		B	
	kg (lbs)	mm (in)		mm (in)	
<b>HF 690-10.090</b>	1,0 (2.20)	158 (6.2204)		77 (3.0315)	
<b>HF 690-10.179</b>	1,3 (2.87)	247 (9.7244)		166 (6.5354)	

Element type	C	Filtering surface	Dirt holding capacity (ISO MTD) Δp = 72.5 psi (5 bar)			
			FG003	FG006	FG010	FG025
	mm (in)	cm <sup>2</sup> (in <sup>2</sup> )	gr (lbs)	gr (lbs)	gr (lbs)	gr (lbs)
<b>HE K85-10.090</b>	90 (3.5433)	405 (66.7751)	2,2 (0.0049)	2,9 (0.0064)	3,2 (0.0071)	4,7 (0.0104)
<b>HE K85-10.179</b>	179 (7.0472)	845 (130.9753)	4,7 (0.0104)	6,1 (0.0134)	6,8 (0.0150)	9,8 (0.0216)

## COMPLETE FILTER'S PRESSURE DROP



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>).

### FLOW

Filter type	Degree of filtration					
	FG003	FG006	FG010	FG025	RP010	RP025
	Flow $\Delta p = 29$ psi (2 bar)					
	US gpm (l/min)					
<b>HF 690-10.090</b>	5.3 (20)	9.2 (35)	11.9 (45)	15.9 (60)	13.2 (50)	17.2 (65)
<b>HF 690-10.179</b>	9.2 (35)	14.5 (55)	18.5 (70)	22.5 (85)	19.8 (75)	23.8 (90)

### HOW TO ORDER A COMPLETE FILTER

- 1 2 3 4 5 6 7 8 9

**HF 690 - 10.179 - AS - FG010 - LC - B60 - GD - B - XA - G**

<b>1</b>	<b>Filter type</b>	<b>CODE</b>
	See table pag. 2	<b>HF 690-</b>
<b>2</b>	<b>Filtering surface</b>	<b>CODE</b>
	Standard	<b>AS</b>
<b>3</b>	<b>Degree of filtration</b>	<b>CODE</b>
	3 [μm] Micro-fibre glass	<b>FG003</b>
	6 [μm] Micro-fibre glass	<b>FG006</b>
	10 [μm] Micro-fibre glass	<b>FG010</b>
	25 [μm] Micro-fibre glass	<b>FG025</b>
	10 [μm] Reinforced cellulose	<b>RP010</b>
	25 [μm] Reinforced cellulose	<b>RP025</b>

<b>4</b>	<b><math>\Delta p</math> collapse pressure</b>	<b>CODE</b>
	290 [psi] (20 [bar])	<b>LC</b>
<b>5</b>	<b>By-pass valve</b>	<b>CODE</b>
	With By-pass setting valve 87 [psi] (6 [bar])	<b>B60</b>
	Without	<b>B00</b>
<b>6</b>	<b>Ports IN/OUT</b>	<b>CODE</b>
	Threads GAS (BSPP)	
	G 1/2	<b>GD</b>

On request metric threads, NPT or SAE J514b are available.

<b>7</b>	<b>Seals</b>	<b>CODE</b>
	Buna	<b>B</b>
	Viton	<b>V</b>
<b>8</b>	<b>Indicator arrangement</b>	<b>CODE</b>
	Arranged	<b>XA</b>
<b>9</b>	<b>Indicators</b>	<b>CODE</b>
	Without indicator, with plug	<b>G</b>
	Visual differential indicator	<b>J</b>
	Visual electrical differential indicator	<b>T</b>

Standard  On request

### HOW TO ORDER A REPLACEMENT ELEMENT

- 1 2 3 4 5

**HE K85 - 10.179 - AS - FG010 - LC - B**

<b>1</b>	<b>Filter type</b>	<b>CODE</b>
	See table pag. 2	<b>HE K85-</b>
<b>2</b>	<b>Filtering surface</b>	<b>CODE</b>
	Standard	<b>AS</b>

<b>3</b>	<b>Degree of filtration</b>	<b>CODE</b>
	3 [μm] Micro-fibre glass	<b>FG003</b>
	6 [μm] Micro-fibre glass	<b>FG006</b>
	10 [μm] Micro-fibre glass	<b>FG010</b>
	25 [μm] Micro-fibre glass	<b>FG025</b>
	10 [μm] Reinforced cellulose	<b>RP010</b>
	25 [μm] Reinforced cellulose	<b>RP025</b>

<b>4</b>	<b><math>\Delta p</math> collapse pressure</b>	<b>CODE</b>
	290 [psi] (20 [bar])	<b>LC</b>
<b>5</b>	<b>Seals</b>	<b>CODE</b>
	Buna	<b>B</b>
	Viton	<b>V</b>

Standard  On request

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