Strainer and filter elements type HFC, HF and HFE

to be screwed into tapped holes
versions with or without housing

Flow Q_{max} = 150 lpm
Flow direction = Any

1. General

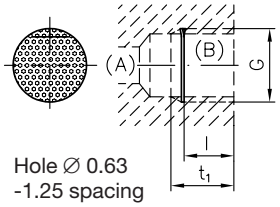
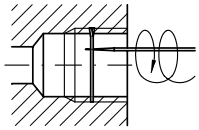
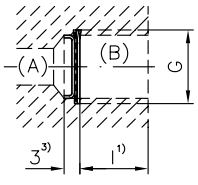
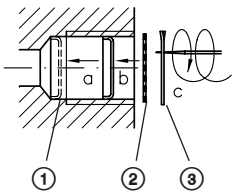
The strainer and filter elements serve to protect hydraulic units, preferably directional seated valves, from coarse, so-called vagabond, impurities which sometimes occur. These can be cinder particles from pipes which, despite carefull cleaning before pipe installation, do not become detached until the load changes during operation; rubber or fiber particles from new hoses or fabric sleeves, metal chips; impurities which have been carried in during initial filling or refilling with hydraulic oil etc. Such dirt particles can lead to sudden malfunctions if, for example, they are carried into directional seated valves and prevent the opening from closing without a leakage of oil. Normally the strainer and filter elements are fitted directly in or at the pressurized oil connection (inlet, outlet) of the hydraulic unit to be protected.
Two version are available:
- strainer elements with hole ∅ 0.63 or
- filter elements with a 100 µm screen.

The latter are preferably used in miniature pressurized circuits without significant flow rates where the oil colum on the consumer side is largely only moved backwards and forwards, e.g. pilot control circuits, tensioning and clamping circuits etc. If more vagabond dirt particles can be expected due to the system, it may be advantageous to occasionally check the strainer and filter elements. Experience has shown that the strainer and filter elements are generally sufficient to provide protection against malfunctions. However, they are no substitute for the usual pressure and return filters for constantly separating out impurities.
Strainers and filter discs are installed as standard, for example, in the tapped ports of the connecting plates of directional seated valves, size 0 and 1 (acc. to D 7300 and 7302) and BWN(H)1 (acc. to D 7470 B/1) or BVZP1 (acc. to D 7785 B), observe sect. 2, footnote 4) for retrofitting (replacement).

2. Available versions, main data

2.1 Screwed-in strainer and filter discs

Housing design see sect. 2.2 !

Version	Coding		Thread ISO 228/1 (BSPP) or ISO-Fine thread DIN 13 T6 G	l	t_1	Flow Q_{max} (lpm)	Assembly remarks
Strainer disc  Hole ∅ 0.63 -1.25 spacing l = Min. depth of the completely cut thread	HFC	1/8	G 1/8	12	thread hole depth acc. to t_1, t_2 at ISO 228/1 or DIN 3852	8	 Insert strainer disc in threaded hole and screw in using marking tool or other suitable tool until end of thread is reached
		1/4	G 1/4	12		20	
		12	M 12x1.5	12			
		14	M 14x1.5	12			
		3/8	G 3/8	12		30	
		16	M 16x1.5	12			
		18	M 18x1.5	13 2)			
		1/2	G 1/2	15 2)		50	
		20	M 20x1.5	15 2)			
		22	M 22x1.5	15 2)			
		3/4	G 3/4	17 2)		100	
		27	M 27x2	17 2)			
Filter element 	HFC	1/4 F 4)	G 1/4	12	12 + 3 3)	15	
		14 F	M 14x1.5	12	12 + 3 3)	15	
		3/8 F	G 3/8	12	12 + 3 3)	25	

Assembly remarks

a) Internal suppor (filter pot) ① insert, push until bore-hole end
b) 100 µm screen ② push in carefully
c) External support (strainer) ③ screw in with suitable tool

1) Min. thread lenght
2) Thread 1 mm longer compared with ISO 228/1 (BSPP)
3) The dimensions of the thread, must be observed absolutely in order to ensure correct assembly. It may be shorter, but not shorter run-out.
4) More flat filter pot ① required for installation of the HFC 1/4F in the consumer ports A and B of directional control valve banks VB 01A.., F.., C.. (acc. to D 7302) and BWN(H)1 (acc. to D 7470 B/1) or BVZP1 (acc. to D 7785 B). Bear this installation case in mind when ordering. For orders add “with filter pot 6406 017” in uncoded text.

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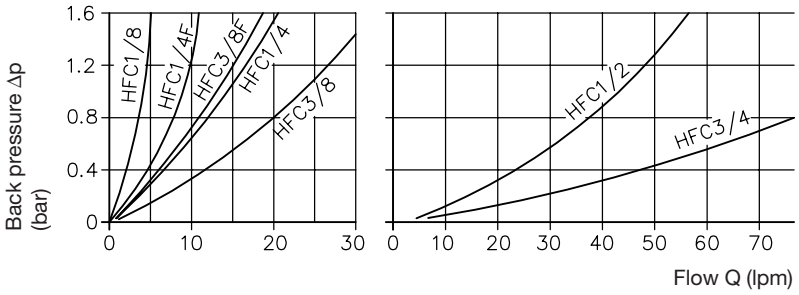
Δp-Q-curves
(valid for new strainer)

Max. permissible pressure difference
Δp ≈ 1.4 ... 1.6 bar

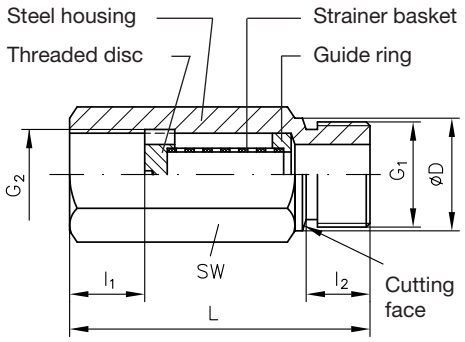
Oil viscosity during measurement
approx. 60 mm²/sec



2.2 Strainer and filter elements with housing

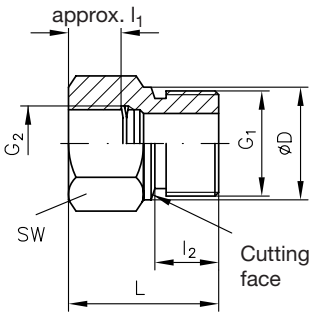
Permissible pressure on housing 500 bar. Any flow direction, in the case of HF 1F and HF 2F preferably from the threaded hole $G_2 \rightarrow$ the threaded stem. G_1. The housing surface is zinc galvanized plated.

Type HF 1(F) and HF 2(F)

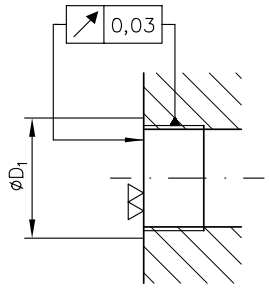


SW = a/f

Type HFE



Mounting hole

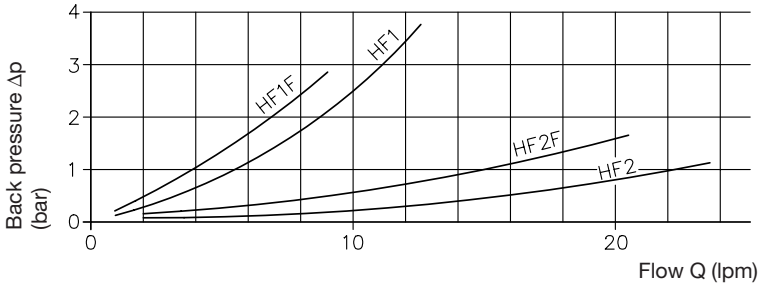


Counter sinking
D_1 = D + 0.5 ... 1 mm

Version	Filter element	Coding	Flow Q_{max} (lpm)	Threaded ISO 228/1 (BSPP) G_1 - G_2	L	D	l_1	l_2	SW	Mass (weight) approx. (g)
Housing with equal sized threads on both sides	Strainer trap, hole - ∅ 0.5x1.25 pitch	**HF 1**	12	G 1/4 A - G 1/4	50	19	16	12	19	100
		HF 2	25	G 3/8 A - G 3/8	58	22	15	12	22	150
	100 µm screen	**HF 1 F**	10	G 1/4 A - G 1/4	50	19	16	12	19	100
		HF 2 F	20	G 3/8 A - G 3/8	58	22	15	12	22	150
	with screw-in filter element	**HFE 1/4 F**	12	G 1/4 A - G 1/4	35	19	12	12	19	70
		HFE 3/8 F	18	G 3/8 A - G 3/8	35	22	12	12	22	70
	with screw-in strainer element	**1/4**	20	G 1/4 A - G 1/4	35	19	12	12	19	70
		3/8	30	G 3/8 A - G 3/8	35	22	12	12	22	70
		1/2	50	G 1/2 A - G 1/2	40	27	14	14	27	100
		HFE 3/4	100	G 3/4 A - G 3/4	45	32	16	16	32	150
Reducer housing		**3/8 - 1/4**	20	G 3/8 A - G 1/4	38	22	12	12	22	70
		1/2 - 3/8	30	G 1/2 A - G 3/8	36	27	12	14	27	100
		3/4 - 1/2	50	G 3/4 A - G 1/2	41	32	14	16	32	150

Δp-Q-curves (valid for new strainer)

Max. permissible pressure Δp
HF 1 ≈ 3 bar
HF 2 ≈ 1.5 bar
HF 1F ≈ 3 bar ($G_2 \rightarrow G_1$)
HF 2F ≈ 1.5 bar ($G_2 \rightarrow G_1$)
HF 1F ≈ 2 bar ($G_1 \rightarrow G_2$)
HF 2F ≈ 1 bar ($G_1 \rightarrow G_2$)



Oil viscosity during measurement approx. 60 mm²/sec

Note: The curves for versions with housing type HFE.. are like the one for strainers without housing, see sect. 2.1