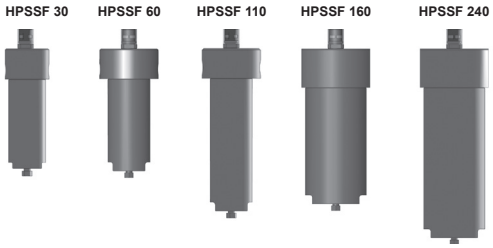
Inline Filter HPSSF

up to 130 l/min, up to 700 bar



1. TECHNICAL SPECIFICATIONS

1.1 FILTER HOUSING

Construction

The filter housings are designed in accordance with international regulations. They consist of a filter head and a screw-on filter bowl.

Standard equipment:

- bypass valve
- connection for a clogging indicator
- oil drain plug in filter bowl

1.2 FILTER ELEMENTS

HYDAC filter elements are validated and their quality is constantly monitored according to the following standards:

- ISO 2941
- ISO 2942
- ISO 2943
- ISO 3724
- ISO 3968
- ISO 11170
- ISO 16889

Filter elements are available with the following pressure stability values:

Optimicron® (ON):	20 bar
Betamicron® (BN4HC) /-SS-SO361:	20 bar
Betamicron® (BH4HC):	210 bar
Betamicron® (BH4HC) /-SS-SO361:	210 bar
Stainless steel wire mesh (D):	210 bar
Wire mesh (W/HC):	20 bar
Chemicron® (M):	210 bar

1.3 FILTER SPECIFICATIONS

Nominal pressure	600 bar (with BSP thread) 700 bar (with NPT(F) thread or Autoclave)
Test pressure	990 (design pressure: 660 bar) 1137.5 bar (design pressure: 770 bar)
Temperature range	-20 °C to +100 °C
Material of filter head	316S11 EN 1.4404 stainless steel
Material of filter bowl	UNS S31803 DUPLEX EN 1.4462
Type of clogging indicator	VDHP (Diff. pressure indicator up to 700 bar opererating pressure)
Pressure setting of clogging indicator	5 bar (others on request)
Bypass cracking pressure	6 bar (others on request)

1.4 SEALS

FPM (Viton)

1.5 INSTALLATION

Inline filter

1.6 SPECIAL MODELS AND ACCESSORIES

- Seals in NBR, NLT, EPDM, HNBR, Kalrez®
- Without bypass valve
- Without port (no clogging indicator)
- With visual/electrical clogging indicator
- With gauge ports (for external piping of pressure sensors)
- Reverse flow check
- Twin indicator version
- Ex or IS differential pressure indicators
- Flanged versions available (SAE, RF, RTJ, Destec®)

1.7 SPARE PARTS

See Original Spare Parts List

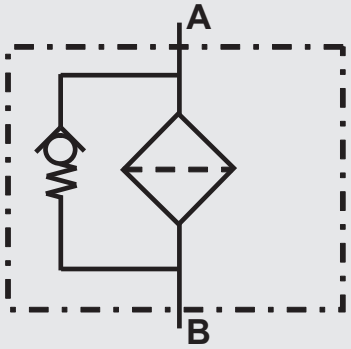
1.8 CERTIFICATES AND APPROVALS

On request

1.9 COMPATIBILITY WITH HYDRAULIC FLUIDS ISO 2943

- Hydraulic oils H to HLPD DIN 51524
- Lubrication oils DIN 51517, API, ACEA, DIN 51515, ISO 6743
- Compressor oils DIN 51506
- Biodegradable operating fluids VDMA 24568 HETG, HEES, HEPG
- Fire-resistant fluids HFA, HFB, HFC and HFD
- Operating fluids with high water content (>50% water content) on request

Symbol for hydraulic systems



2. MODEL CODE (also order example)

2.1 COMPLETE FILTER

HPSSF600 BH/HC 60 N2 005 B X / -V

Filter type

HPSSF600	600 bar (BSP thread)
HPSSF700	700 bar (NPT/autoclave thread)

Filter material

ON	Optimicron®
BN/HC	Betamicron® (BN4HC) only to be used for water-glycol applications with "SO361"!
BH/HC	Betamicron® (BH4HC)
BH/HC	Betamicron® (BH4HC) only to be used for water-glycol applications with "SO361"!
M	Chemicron
W/HC	wire mesh
D	stainless steel wire mesh

Size of filter

30, 60, 110, 160, 240

Type and size of connection for HPSSF600

Type	Port thread	Filter size 30	60	110	160	240
B0	¼" BSPP	●				
B2	½" BSPP	●	●	●	●	●
B3	¾" BSPP		●	●	●	●
B4	1" BSPP				●	●

Type and size of connection for HPSSF700

Type	Port thread	Filter size 30	60	110	160	240
N0	¼" NPT	●	●			
N2	½" NPT	●	●	●	●	●
N3	¾" NPT		●	●	●	●
N4	1" NPT				●	●
AA	7/16"-20 SF 250 CX20 - 1/4" TUBE O.D.	●				
A0	9/16"-18 SF 375 CX20 - 3/8" TUBE O.D.	●	●	●		
A1	13/16"-16 SF 562 CX20 - 9/16" TUBE O.D.		●	●	●	●
A2	3/4"-14z SF 750 CX20 - 3/4" TUBE O.D.				●	●
A3	1-3/8"-12 SF 1000 CX20 - 1" TUBE O.D.				●	●

Filtration rating in µm

ON	: 001, 003, 005, 010, 015, 020
BH/HC	: 003, 005, 010, 020
BN/HC, BH/HC (/-SS-SO361)	: 003, 010
M	: 001, 003, 005, 010, 020
W/HC	: 025, 050, 100, 200
D	: 025, 040, 060, 100, 150, 200, 250

Type of clogging indicator

W	without port (no clogging indicator)
A	stainless steel blanking plug in indicator port
B	visual
BM	visual with manual reset
C	electrical
D	visual and electrical
BM+C	visual with manual reset + electrical (= 2 indicators) – not for size 30
E	¼"-NPT gauge ports for external connection of pressure sensors – not for size 30

For other clogging indicators see brochure no. 7.050../..

Modification number

X	the latest version is always supplied

Supplementary details

B.	cracking pressure of bypass valve (e.g. B6 = 6 bar); no details = without bypass valve
EX	electrical clogging indicator EX version (Eexd IIC T6; cable length 0.25 m standard)
EX/ENC	electrical clogging indicator EX version (Eexd IIC T6; with IP66 junction box, M20x1.5 cable entry)
IS	intrinsically safe electrical clogging indicator with cable length 0.25 m (standard)
IS/ENC	intrinsically safe electrical clogging indicator with IP66 junction box (M20x1.5 cable entry)
L...	lamp with appropriate voltage (24, 48, 110, 220 volts)
LED	2 light-emitting diodes up to 24 volts
RC	with reverse flow check (not for size 30)
TB6	with triple bypass for reversible flow (not for size 30)
N	NBR seals
V	FPM seals
NLT	nitrile low temperature seals
HNBR	hydrogenated nitrile (high temperature) seals
EPDM	EPDM seals
K	Kalrez® seals
SS-SO361	stainl. steel elements, polyamide support fibre, optimised for water-glycol (only for BN/HC and BH/HC material)

only for clogging indicators type "D"

2.2 REPLACEMENT ELEMENT

0060 D 003 BN4HC /-V-SS-SO361

Size
0030, 0060, 0110, 0160, 0240

Type
D

Filtration rating in µm
ON : 001, 003, 005, 010, 015, 020
BH4HC : 003, 005, 010, 020
BN4HC, BH4HC (/-SS-SO361) : 003, 010
W/HC : 025, 050, 100, 200

Filter material
ON, BN4HC, BH4HC, W/HC

Supplementary details
SS-SO361 stainl. steel elements, polyamide support fibre
N, V, NLT, HNBR, EPDM, K (for descriptions, see Point 2.1)

2.3 REPLACEMENT ELEMENT - PROCESS TECHNOLOGY

060-DH-100-D-V

Size
030, 060, 110, 160, 240

Type
DH

Filtration rating in µm
Chemicron® (M) : 001, 003, 005, 010, 020
Wire mesh (D) : 025, 040, 060, 100, 150, 200, 250

Filter material
M, D

Supplementary details
N, V, NLT, HNBR, EPDM, K (for descriptions, see Point 2.1)

2.4 REPLACEMENT CLOGGING INDICATOR

VDHP 5 D . X /-V-L24

Type
VDHP differential pressure measurement up to 700 bar operating pressure

Pressure setting
5 standard 5 bar, others on request

Type of clogging indicator
(see Point 2.1)

Modification number
X the latest version is always supplied

Supplementary details
L..., LED, V, W (for descriptions, see Point 2.1)

3. FILTER CALCULATION / SIZING

The total pressure drop of a filter at a certain flow rate Q is the sum of the housing Δp and the element Δp and is calculated as follows:

$\Delta p_{total} = \Delta p_{housing} + \Delta p_{element}$

$\Delta p_{housing}$ = (see Point 3.1)

$$\Delta p_{element} = Q \cdot \frac{SK^*}{1000} \cdot \frac{viscosity}{30}$$

(*see Point 3.2)

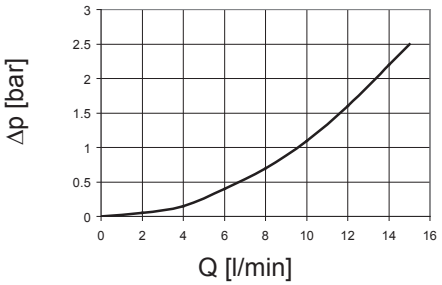
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

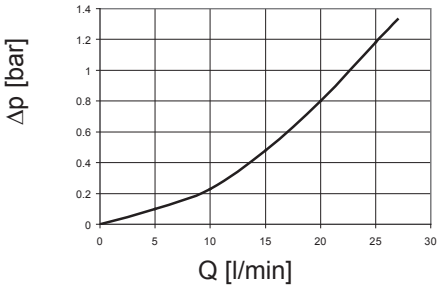
3.1 Δp-Q HOUSING CURVES BASED ON ISO 3968

The housing curves apply to mineral oil with a density of 0.86 kg/dm³ and a kinematic viscosity of 30 mm²/s. In this case, the differential pressure changes proportionally to the density.

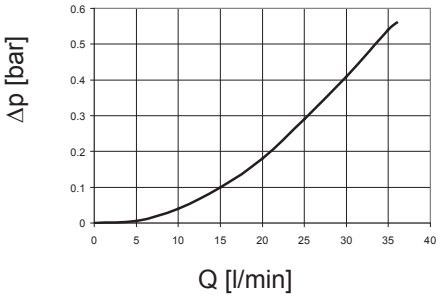
Size 30: ¼" BSPP/NPT



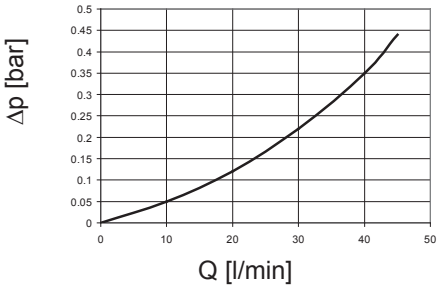
Size 30: ½" BSPP/NPT



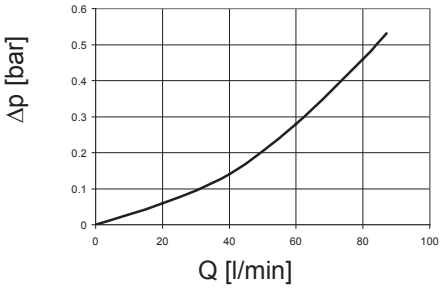
Size 60-110: ½" BSPP/NPT



Size 60-110: ¾" BSPP/NPT



Size 60-240: 1" BSPP/NPT



3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

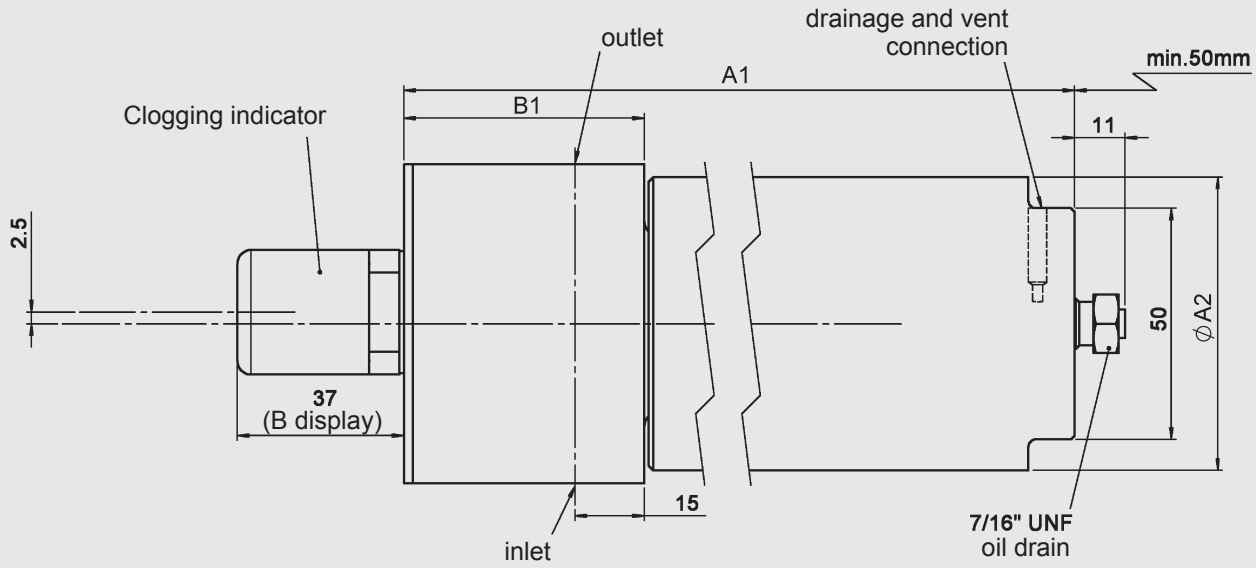
HPSSF	ON						W/HC
	1 µm	3 µm	5 µm	10 µm	15 µm	20 µm	–
30	77.8	63.9	43.3	22.8	14.0	11.3	–
60	53.5	26.0	18.3	12.1	9.78	6.32	0.757
110	25.8	13.4	9.61	6.06	4.63	2.99	0.413
160	18.5	11.0	7.7	4.1	3.71	3.18	0.283
240	11.5	6.9	5.34	3.19	2.44	2.1	0.189

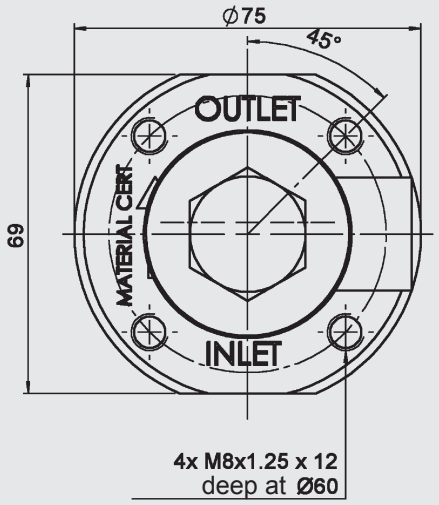
HPSSF	BN4HC		BH4HC			
	3 µm	10 µm	3 µm	5 µm	10 µm	20 µm
30	63.9	22.8	91.2	50.7	36.3	19.0
60	28.9	13.2	58.6	32.6	18.1	12.2
110	14.9	6.6	25.4	14.9	8.9	5.6
160	13.1	4.6	16.8	10.4	5.9	4.4
240	8.2	3.6	10.6	6.8	3.9	2.9

4. DIMENSIONS

Inline Filter HPSSF

size 30

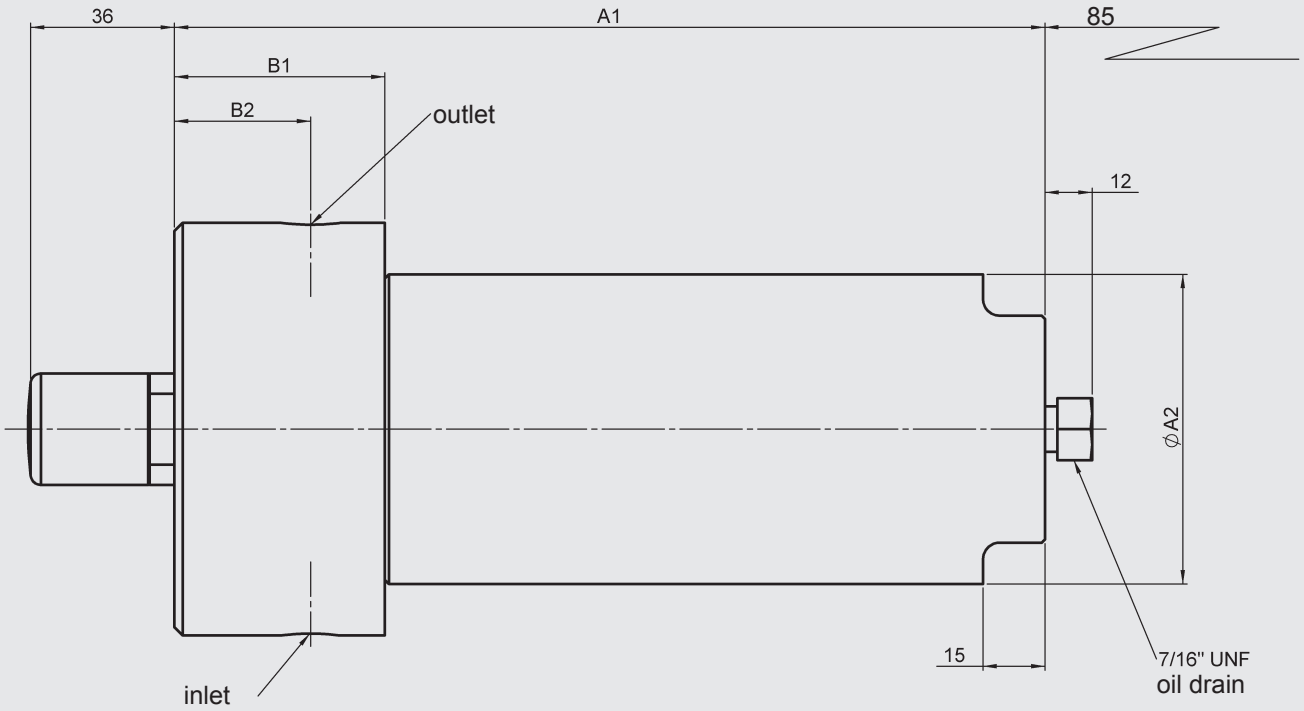


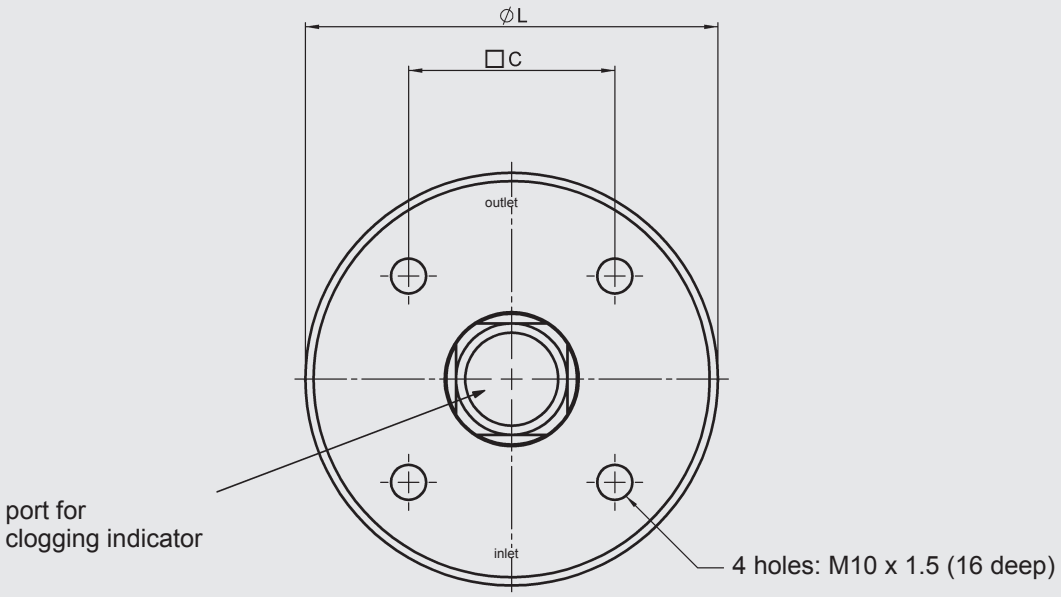


HPSSF	A1	A2	B1
30	205	63.5	52

Inline Filter HPSSF

Size 60 - 240





HPSSF	A1	A2	B1	B2 ±5mm	C	L	W
60	210	72	51	35	50	100	93
110	280	72	51	35	50	100	93
160	265	104	66	36	60	127	116
240	325	104	66	36	60	127	116

NOTE

The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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