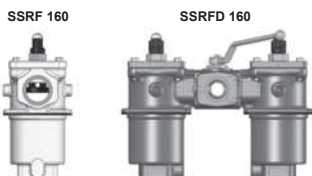


Return Line Filter SSRF and Change-Over Return Line Filter SSRFD

up to 150 l/min, up to 25 bar



1. TECHNICAL SPECIFICATIONS

1.1 FILTER HOUSING

Construction

The filter housings are designed in accordance with international regulations. They consist of a filter housing with cover plate.

Standard equipment:

- with bypass valve
- connection for a clogging indicator

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

Contamination retention capacities in g

Betamicon® (BN4HC)					
SSRF	Elements	3 µm	5 µm	10 µm	20 µm
160	1x0160 R	18.6	20.7	24.9	28.1

Betamicon® (BN4HC)					
SSRF	Elements	3 µm	5 µm	10 µm	20 µm
160	2x0160 R	18.6	20.7	24.9	28.1

Filter elements are available with the following pressure stability values:

Betamicon® (BN4HC):	20 bar
ECOMicon® (ECON2):	10 bar
Wire mesh (W/HC):	30 bar
Stainless steel fibre (V):	210 bar
Betamicon®/Aquamicron® (BN4AM):	10 bar
Aquamicron® (AM):	10 bar

1.3 FILTER SPECIFICATIONS

Nominal pressure	25 bar
Temperature range	-10 °C to +100 °C
Material of filter housing and cover plate	Stainless steel BS 3146-ANC4BFC
Type of clogging indicator	VR Connection thread G ½ (return line indicator up to 25 bar operating pressure)
Pressure setting of the clogging indicator	2 bar (others on request)
Bypass cracking pressure	3 bar (others on request)

1.4 SEALS

NBR (=Perbunan)

1.5 INSTALLATION

Tank-top filter

1.6 SPECIAL MODELS AND ACCESSORIES

On request

1.7 SPARE PARTS

See Original Spare Parts List

1.8 CERTIFICATES AND APPROVALS

On request

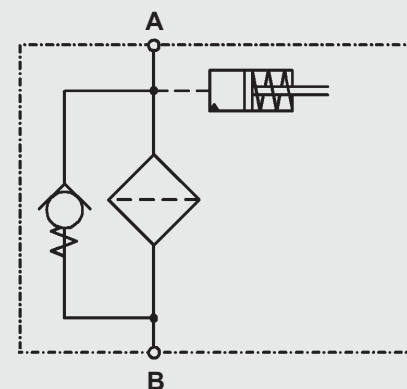
1.9 COMPATIBILITY WITH HYDRAULIC FLUIDS ISO 2943

- 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

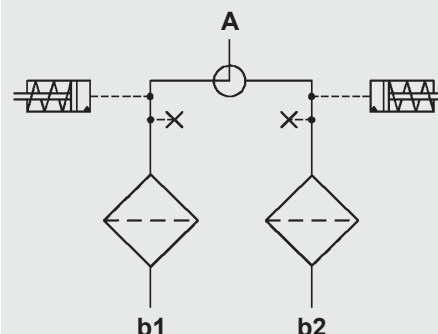
1.10 IMPORTANT INFORMATION

- Filter housings must be earthed.
- When using electrical clogging indicators, the electrical power supply to the system must be switched off before removing the clogging indicator connector.

Symbol for hydraulic systems



SSRFD



2. MODEL CODE (also order example)

SSRF BN/HC 160 D E 10 D 1 . X /-L24

2.1 COMPLETE FILTER

Filter type

SSRF Single filter

SSRFD Change-over filter

Filter material of element

BN/HC Betamicon® (BN4HC)

ECO ECOmicon® (ECON2)

V Stainless steel fibre

W/HC Wire mesh

AM Aquamicon®

BN/AM Betamicon®/Aquamicon® (BN4AM)

Size of filter or element

SSRF/SSRFD: 160

Operating pressure

D = 25 bar

Type and size of connection

Type	Port (thread)	Filter size
		160
D	G 1	●
E	G 1 1/4	●
N	NPT 1"	●
I	SAE DN 25 (1")	●

Filtration rating in µm

BN/HC, ECO, V: 3, 5, 10, 20

P/HC: 10, 20

AM: 40

W/HC: 25, 50, 100, 200

BN/AM: 3, 10

Type of clogging indicator

Y plastic blanking plug in indicator port

A stainless steel blanking plug in indicator port

B visual

C electrical

D visual and electrical

for other clogging indicators,
see brochure no. 7.050../..

Type code

1 Standard indicator port in cover

2 Standard indicator port in cover + 2 secondary take-off ports (¼ NPTF) in housing

Modification number

X the latest version is always supplied

Supplementary details

B cracking pressure of bypass (e.g. B6 = 6 bar);

KB without bypass valve

L... light with appropriate voltage (24, 48, 110, 220 Volt)

LED 2 light emitting diodes up to 24 Volt

EX/ENC electrical clogging indicator EX version (Eexd IIC T6; with IP66 junction box M20x1.5)

EX/FL electrical clogging indicator EX version (Eexd IIC T6; with flying lead – 2m or 10m)

IS/ENC intrinsically safe electrical clogging indicator with IP66 junction box (M20x1.5 cable entry)

IS/FL intrinsically safe electrical clogging indicator (with flying leads – 2m or 10m)

SS elements with stainless steel support tube

V FPM seals

2.2 REPLACEMENT ELEMENT

0160 R 010 BN4HC /-V

Size

0160

Type

R

Filtration rating in µm

BN4HC, ECON2, V: 003, 005, 010, 020

P/HC: 010, 020

AM: 040

W/HC: 025, 050, 100, 200

BN4AM: 003, 010

Filter material

BN4HC, ECON2, V, W/HC, P/HC, BN4AM, AM

Supplementary details

SS-SO361 stainl. steel core and end caps, polyamide support fibre

V (for descriptions, see Point 2.1)

2.3 REPLACEMENT CLOGGING INDICATOR

VR 2 D . X /-L24

Type

VR return line indicator up to 25 bar operating pressure

Pressure setting

2 standard 2 bar, others on request

Type of clogging indicator

D (see Point 2.1)

Modification number

X the latest version is always supplied

Supplementary details

L..., LED, V (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:

$$\Delta p_{total} = \Delta p_{housing} + \Delta p_{element}$$
$$\Delta p_{housing} = \text{(see Point 3.1)}$$
$$\Delta p_{element} = Q \cdot \frac{SK^*}{1000} \cdot \frac{viscosity}{30}$$

(*see point 3.2)

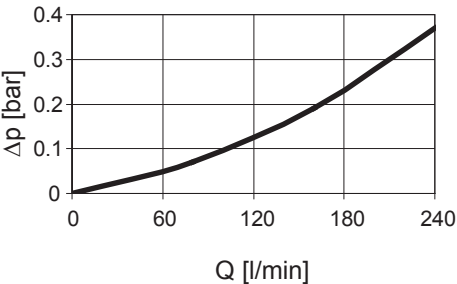
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

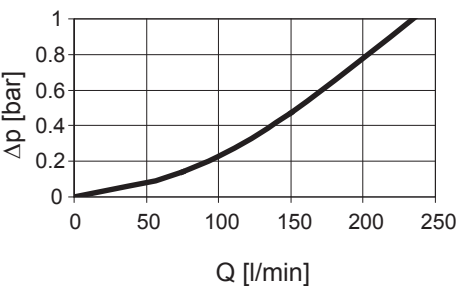
3.1 Δp-Q HOUSING CURVES BASED ON ISO 3968

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

SSRF 160



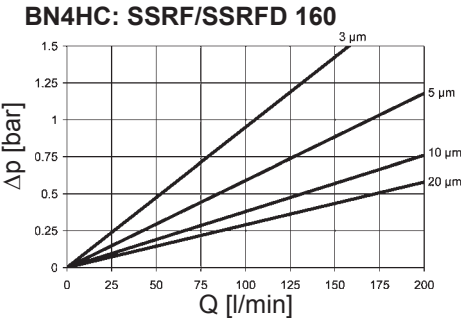
SSRFD 160



3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

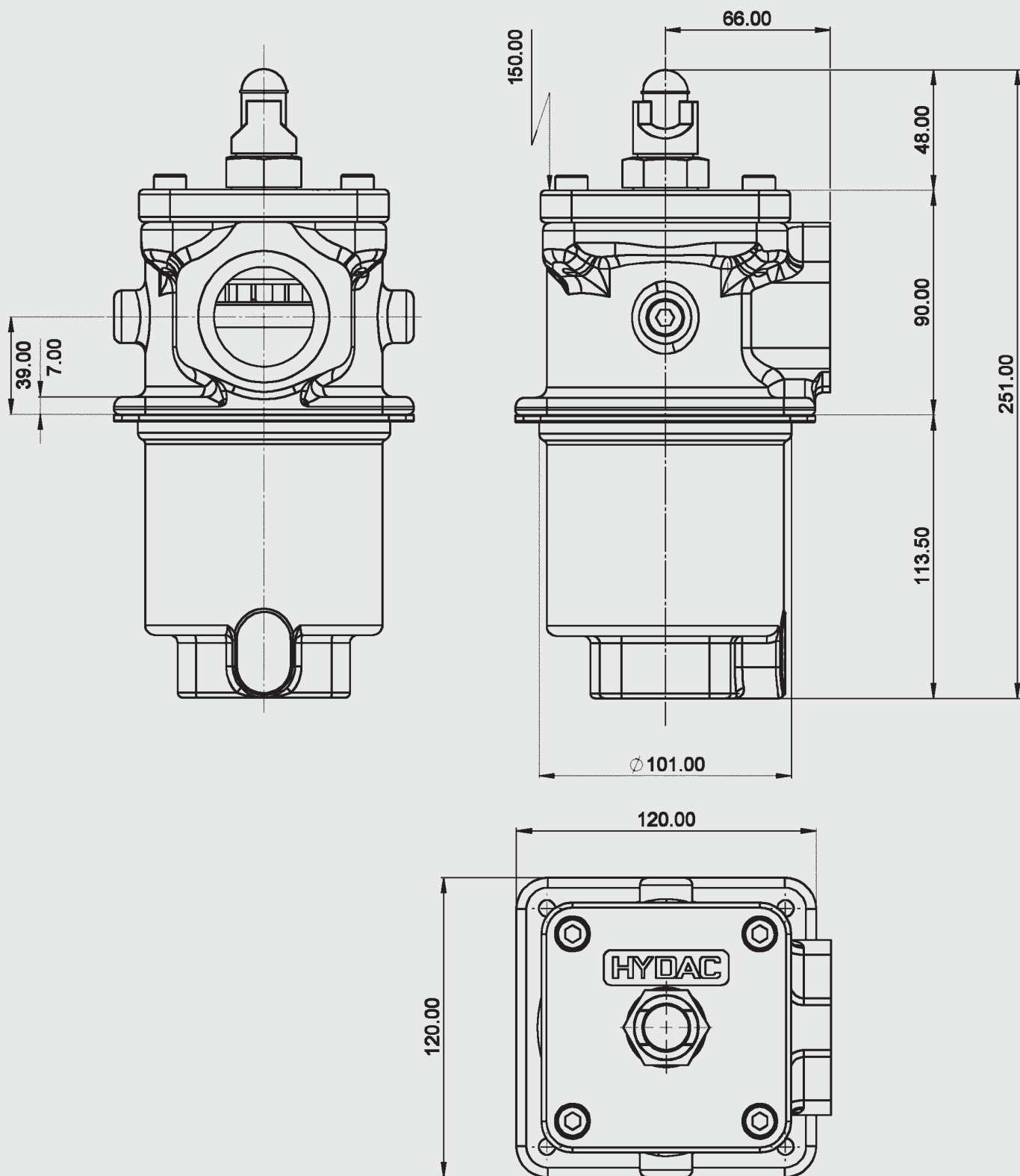
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

SSRF/ SSRFD	V				W/HC	ECON2			
	3 μm	5 μm	10 μm	20 μm		3 μm	5 μm	10 μm	20 μm
160	4.9	3.5	2.4	1.5	0.348	9.5	5.9	3.8	2.9



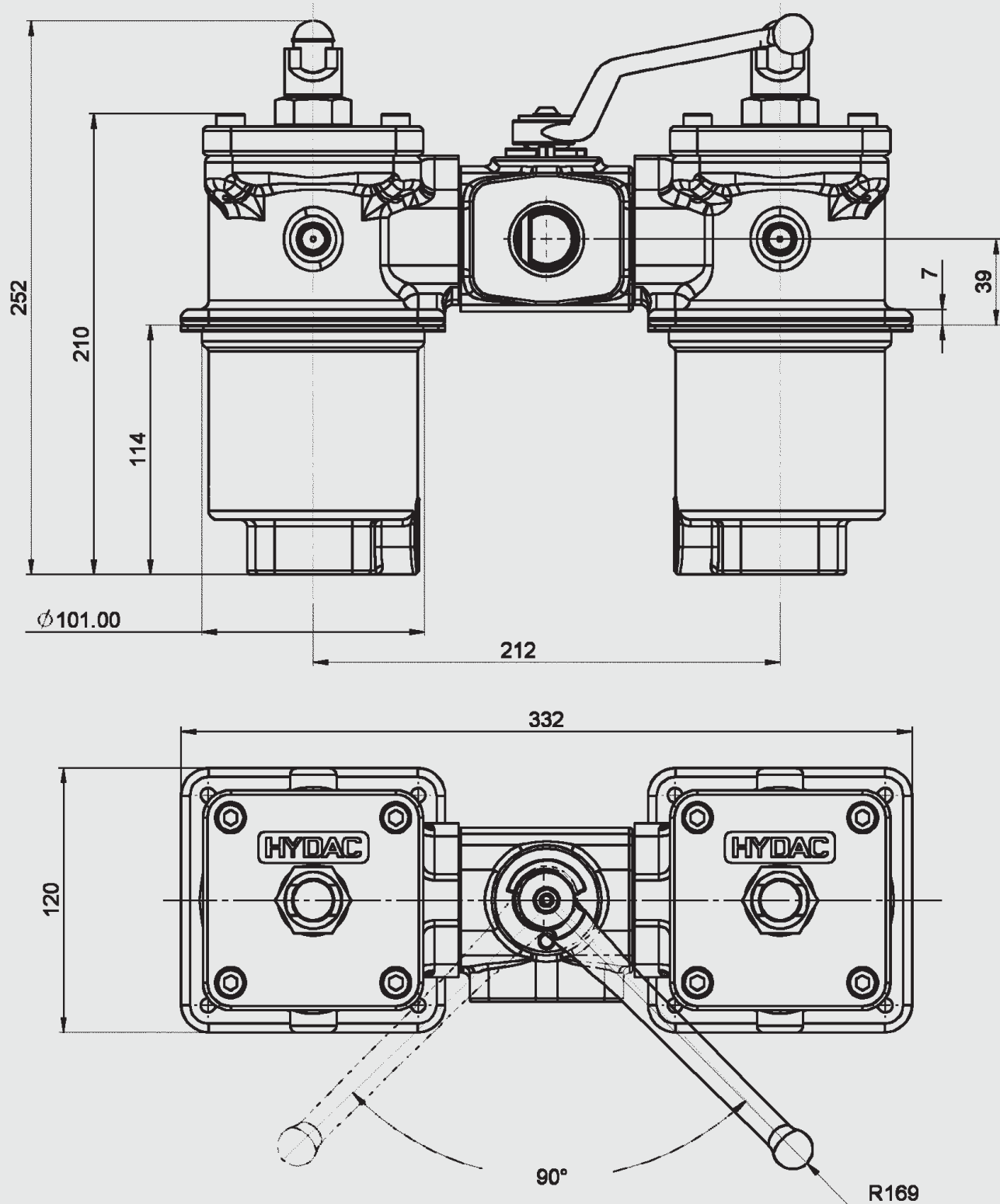
4. DIMENSIONS

SSRF 160



SSRF	Weight incl. element [kg]	Volume of pressure chamber [l]
160	1.5	0.90

SSRFD 160



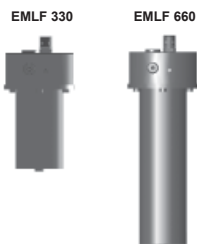
SSRFD	Weight incl. element [kg]	Volume of pressure chamber [l]
160	4.1	2.0

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.

HYDAC FILTERTECHNIK GMBH
Industriegebiet
D-66280 Sulzbach/Saar
Tel.: 0 68 97 / 509-01
Fax: 0 68 97 / 509-300
Internet: www.hydac.com
E-Mail: filter@hydac.com



Return Inline / Recirculation Filter EMLF up to 150 l/min, up to 40 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 bolt-on filter bowl.

Standard equipment:

- with 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:

Betamicon® (BN4HC):	20 bar
Betamicon®/Aquamicron®(BN/AM):	10 bar
Wire mesh (W/H):	20 bar
ECOMICRON (ECON2):	10 bar

1.3 FILTER SPECIFICATIONS

Nominal pressure	40 bar
Test pressure	60 bar
Temperature range	-20 °C to +100 °C
Material of filter head	316 S11 stainless steel
Material of filter bowl	316 S11 stainless steel
Type of clogging indicator	VD (differential pressure indicator)
Pressure setting of clogging indicator	2 bar (others on request)
Bypass cracking pressure	3 bar (others on request)

1.4 SEALS

FPM (Viton)

1.5 INSTALLATION

As inline filter

1.6 SPECIAL MODELS AND ACCESSORIES

- Seals in NBR, NLT, EPDM, HNBR, Kalrez®
- Without bypass valve
- Without port for clogging indicator
- With gauge ports (for external piping of pressure sensors)
- Reverse flow check
- Twin indicator version
- Ex or IS differential indicators available
- Flanged versions available (SAE, RF, RTJ, Destec®)

1.7 SPARE PARTS

See Original Spare Parts List

1.8 CERTIFICATES AND APPROVALS

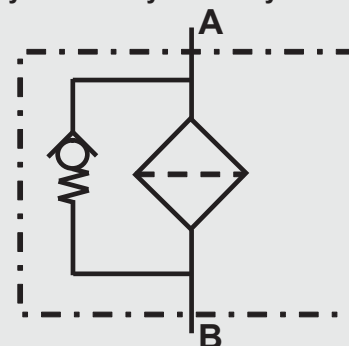
On request

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

	EMLF40	BN/HC	660	N4	005	B	X	/-V
Filter type _____								
EMLF40 40 bar								
Filter material _____								
BN/HC Betamicron® (BN4HC)								
BN/AM Betamicron®/Aquamicron® (BN4AM)								
ECO ECOMicron (ECON2)								
W/HC Wire mesh								
Size of filter _____								
330, 660								
Type and size of connection _____								
Type	Port (thread)	Filter size 330	660					
B4	1"-BSPP	●	●					
B5	1¼"-BSPP	●	●					
N4	1"-NPT	●	●					
N5	1¼"-NPT	●	●					
F32	SAE 32	●	●					
Filtration rating in µm _____								
BN/HC, ECO : 003, 005, 010, 020								
BN/AM : 003, 010								
W/HC : 025, 050, 100, 200								
Type of clogging indicator _____								
W without port (no clogging indicator)								
A stainless steel blanking plug in indicator port								
B visual								
C electrical								
D visual and electrical								
UE vacuum gauge								
BM+C visual with manual reset + electrical (= 2 indicators)								
E 1/4"-NPT gauge ports for external connection of pressure sensors								
Modification number _____								
X the latest version is always supplied								
Supplementary details _____								
B cracking pressure of bypass (e.g. B6 = 6 bar); no details = without bypass valve								
EX electrical clogging indicator EX version (Eexd IIC T6; cable length 3 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 3 m (standard)								
IS/ENC intrinsically safe electrical clogging indicator with IP66 junction box (M20x1.5 cable entry)								
IS2GBC intrinsically safe electrical clogging indicator with gold contacts (e. g. suitable for PLC)								
L... light with appropriate voltage (24, 48, 110, 220 Volt)								
LED 2 light emitting diodes up to 24 Volt								
N NBR seals								
V FPM seals								
NLT nitrile low temperature seals								
HNBR hydrogenated nitrile (high temperature) seals								
EPDM EPDM seals								
K Kalrez® seals								

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

2.2 REPLACEMENT ELEMENT

	0660	D	005	BN4HC	/-V
Size _____					
0330, 0660					
Type _____					
D					
Filtration rating in µm _____					
BN4HC, ECON2 : 003, 005, 010, 020					
BN/AM : 003, 010					
W/HC : 025, 050, 100, 200					
Filter material _____					
BN4HC, ECON2, BN/AM, W/HC					
Supplementary details _____					
V, N, NLT, HNBR, EPDM, K (for descriptions, see point 2.1)					

2.3 REPLACEMENT CLOGGING INDICATOR

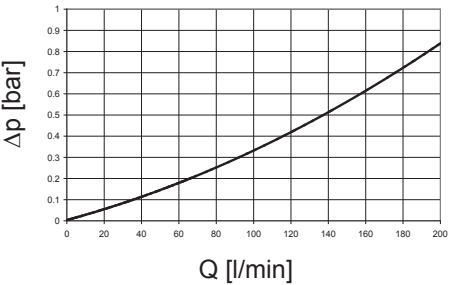
	VD	2	D	X	/-V-L24
Type _____					
VD differential pressure indicator					
Pressure setting _____					
2 standard 2 bar, others on request					
Type _____					
(see Point 2.1)					
Modification number _____					
X the latest version is always supplied					
Supplementary details _____					
L..., LED, V, W (for descriptions, see point 2.1)					

3. FILTER CALCULATION / SIZING

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 30mm²/s. In this case, the differential pressure changes proportionally to the density.

EMLF

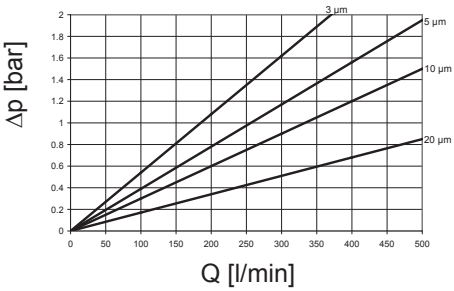


3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

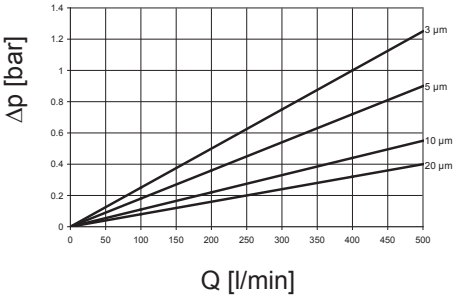
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

	ECON2		W/HC —
	3 μm	10 μm	
330	4.2	1.7	0.138
660	1.9	0.8	0.069

BN4HC: 330

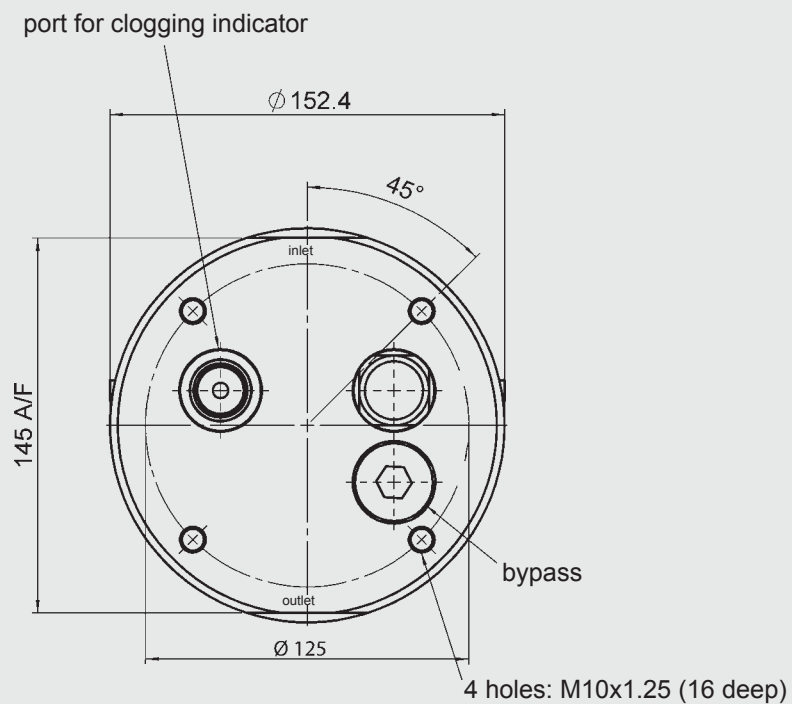
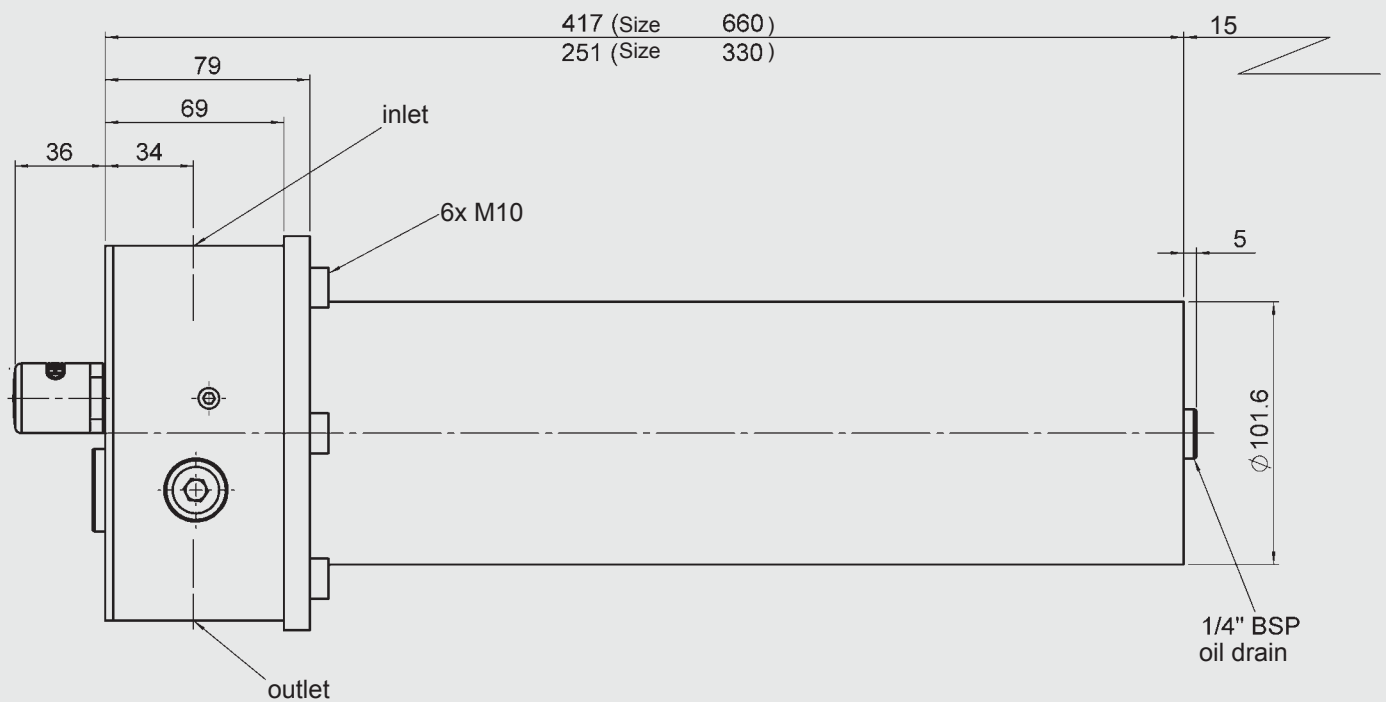


BN4HC: 660



4. DIMENSIONS

EMLF 330/660



NOTE

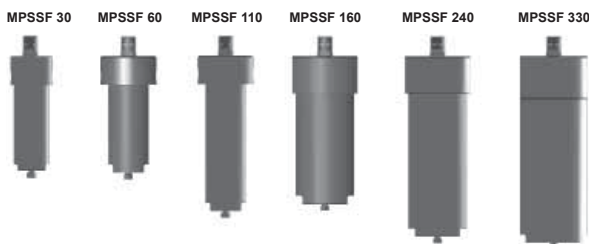
The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

HYDAC FILTERTECHNIK GMBH
Industriegebiet
66280 Sulzbach/Saar, Germany
Tel.: 0 68 97 / 509-01
Fax: 0 68 97 / 509-300
Internet: www.hydac.com
E-mail: filter@hydac.com



Inline Filter MPSSF

up to 130 l/min, up to 450 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:

- without 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:

Betamicon® (BN4HC):	20 bar
Betamicon® (BN4HC) /-SS-SO361:	20 bar
Betamicon® (BH4HC):	210 bar
Betamicon® (BH4HC) /-SS-SO361:	210 bar
Stainless steel wire mesh (D):	210 bar
Wire mesh (W/H):	20 bar
Chemicon® (M):	210 bar

1.3 FILTER SPECIFICATIONS

Nominal pressure	450 bar
Test pressure	675 bar
Temperature range	-20 °C to +100 °C
Material of filter head	316 S11 stainless steel
Material of filter bowl	UNS 318.03 DUPLEX
Type of clogging indicator	VD (Diff. pressure indicator up to 450 bar oper. pressure)
Pressure setting of clogging indicator	5 bar (others on request)
Bypass cracking pressure (optional)	6 bar (others on request)

1.4 SEALS

FPM (Viton)

1.5 INSTALLATION

As inline filter or as manifold mounted filter

1.6 SPECIAL MODELS AND ACCESSORIES

- Seals in NBR, NLT, EPDM, HNBR, Kalrez®
- With bypass valve
- Without port for clogging indicator
- With gauge ports (for external piping of pressure sensors)
- Reverse flow check
- Twin indicator version
- Ex or IS differential indicators
- Flanged versions available (SAE, RF, RTJ, Destec®)

1.7 SPARE PARTS

See Original Spare Parts List

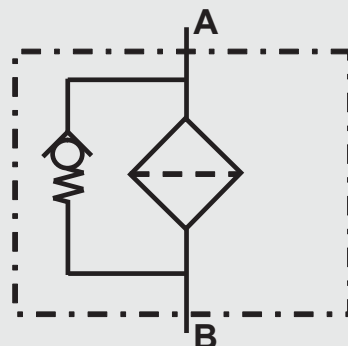
1.8 CERTIFICATES AND APPROVALS

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

MPSSF450 BH/HC 60 N2 005 B X /-V

Filter type

MPSSF450 450 bar

Filter material of element

BN/HC Betamicon® (BN4HC)
BN/HC (/SS-SO361) Betamicon® (BN4HC) – stainl. steel core and end caps, polyamide support fibre
BH/HC Betamicon® (BH4HC)
BH/HC (/SS-SO361) Betamicon® (BH4HC) – stainl. steel core and end caps, polyamide support fibre
M Chemicron®
W/HC Wire mesh
D Stainless steel wire mesh

Size of filter

30, 60, 110, 160, 240, 330

Type and size of connection

Type	Port thread	Filter size					
		30	60	110	160	240	330
BO	1/4" BSPP	●					
NO	1/4" NPT	●					
B2	1/2" BSPP	●	●	●	●	●	
N2	1/2" NPT	●	●	●	●	●	
B3	3/4" BSPP		●	●	●	●	●
N3	3/4" NPT		●	●	●	●	●
B4	1" BSPP				●	●	●
N4	1" NPT				●	●	●
B5	1 1/4" BSPP						●
N5	1 1/4" NPT						●
B6	1 1/2" BSPP						●
N6	1 1/2" NPT						●

Filtration rating in µm

BN/HC, 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
C electrical
D visual and electrical
E 1/4"-NPT gauge ports for external connection of pressure sensors – not for size 30
BM+C visual with manual reset + electrical (= 2 indicators) – 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. B3 = 3 bar, B6 = 6 bar); no details = without bypass valve
EX electrical clogging indicator EX version (Eexd IIC T6; cable length 3 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 3 m (standard)
IS/ENC intrinsically safe electrical clogging indicator with IP66 junction box (M20x1.5 cable entry)
IS/2GBC intrinsically safe electrical clogging indicator with gold contacts (e. g. suitable for PLC)
L... light with appropriate voltage (24, 48, 110, 220 Volt) only for clogging indicators
LED 2 light emitting diodes up to 24 Volt Type "D"
RC with reverse flow check (not for size 30)
RCRFB reverse flow check and reverse flow bypass
TB6 with triple bypass for reversible flow (= 1 check valve, 2 bypass valves - 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
W suitable for HFA and HFC emulsions, optimized for water glycols

Example for MPSSF450 in manifold version (plate mount):

MPSSF450 BH/HC 60 P N2 005 B X /-V

Sizes

60P, 160P, 240P

2.2 REPLACEMENT ELEMENT

0060 D 003 BN4HC /-V-SS-SO361

Size
0030, 0060, 0110, 0160, 0240, 0330

Type
D

Filtration rating in µm
BN4HC, BH4HC : 003, 005, 010, 020
(Note: For /-SS-SO361
only 003 and 010 µm)
W/HC : 025, 050, 100, 200

Filter material
BN4HC, BH4HC, W/HC

Supplementary details
SS-SO361 stainl. steel core and end caps, 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, 330

Type
DH

Filtration rating in µm
Chemicon® (M) : 001, 003, 005, 010, 020
St. st. 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

VD 5 D . X /-V-L24

Type
VD differential pressure indicator

Pressure setting
5 standard 5 bar, others on request

Type
(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:

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

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

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

(*see Point 3.2)

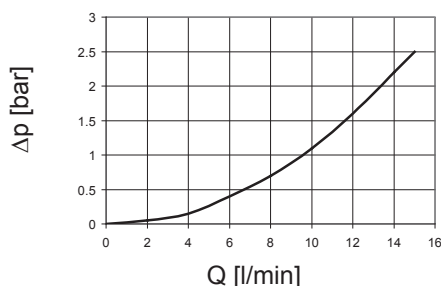
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

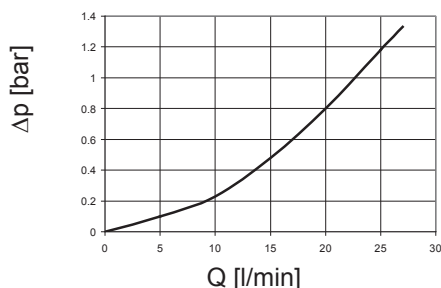
3.1 Δp -Q HOUSING CURVES BASED ON ISO 3968

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.

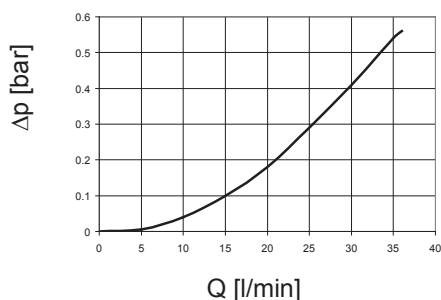
Size 30: 1/4" BSPP/NPT



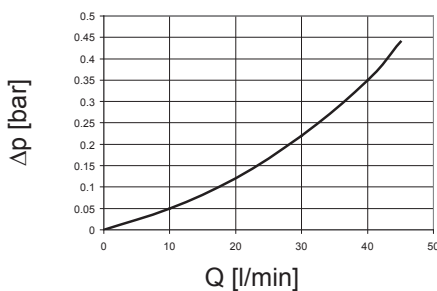
Size 30: 1/2" BSPP/NPT



Size 60-110: 1/2" BSPP/NPT

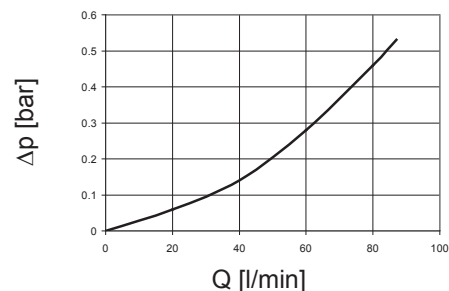


Size 60-110: 3/4" BSPP/NPT



Other curves on request

Size 60-240: 1" BSPP/NPT

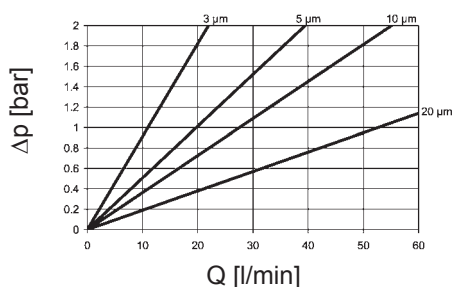


3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

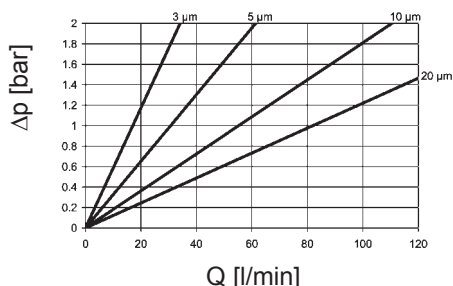
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

	BH4HC		W/HC
	3 μm	10 μm	—
30	91.2	36.3	—
60	58.6	18.1	0.757
110	25.4	8.9	0.413
160	16.8	5.9	0.283
240	10.6	3.9	0.189
330	7.7	2.8	0.138

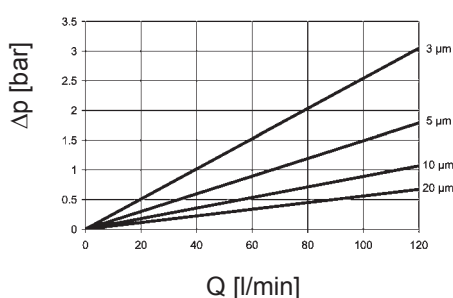
BN4HC: 30



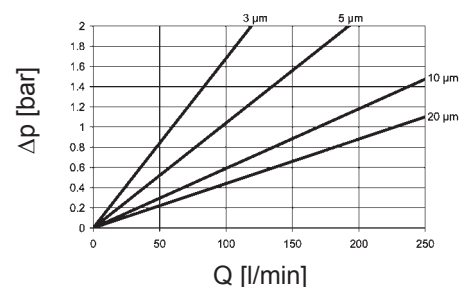
BN4HC: 60



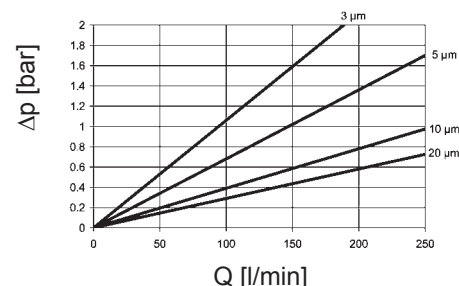
BN4HC: 110



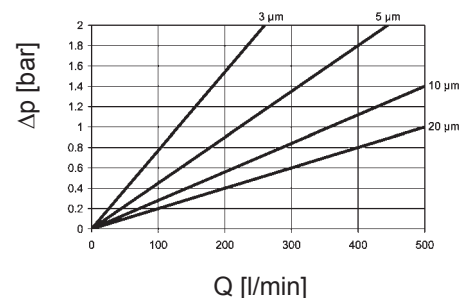
BN4HC: 160



BN4HC: 240



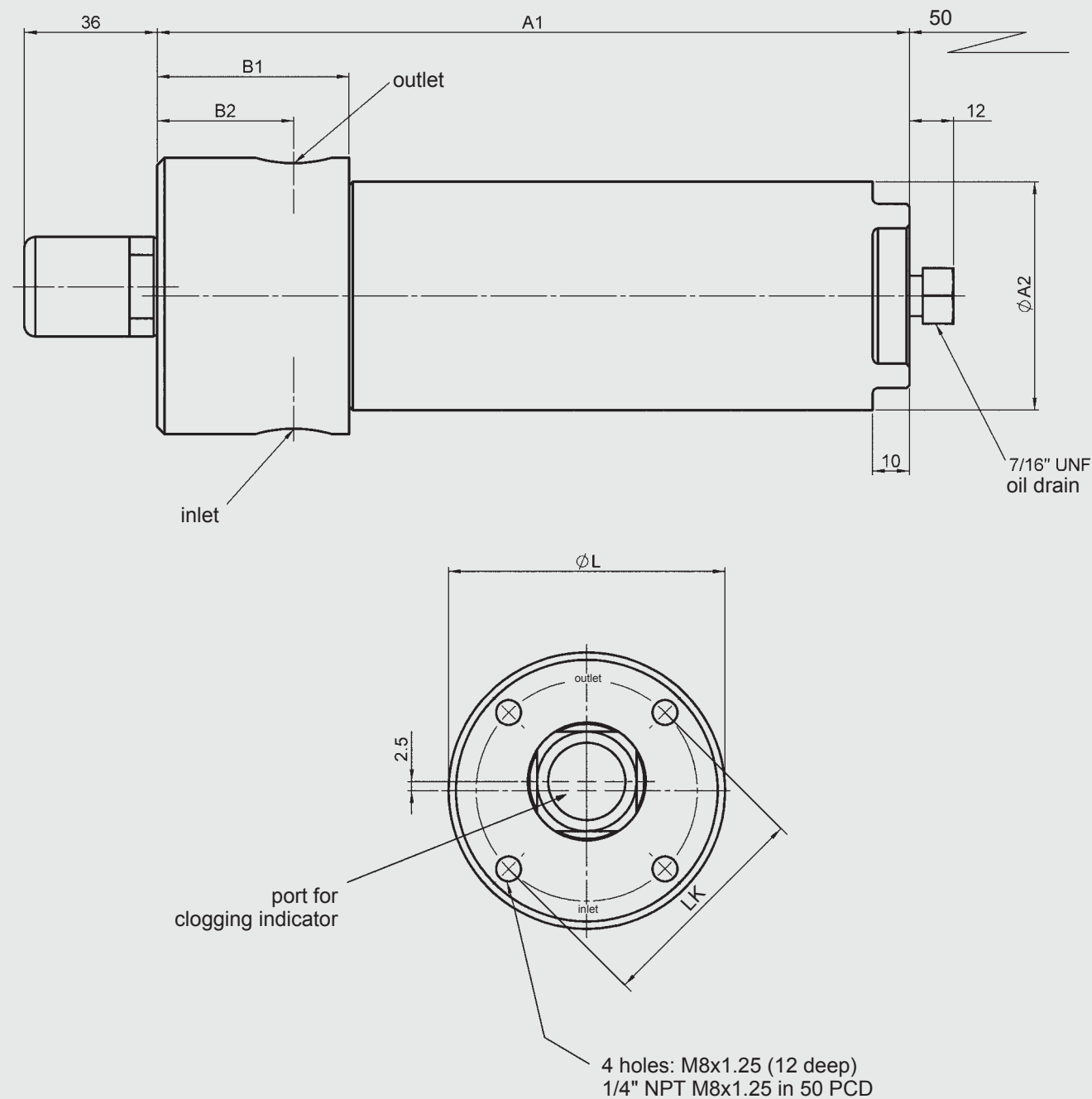
BN4HC: 330



4. DIMENSIONS

Inline Filter MPSSF450

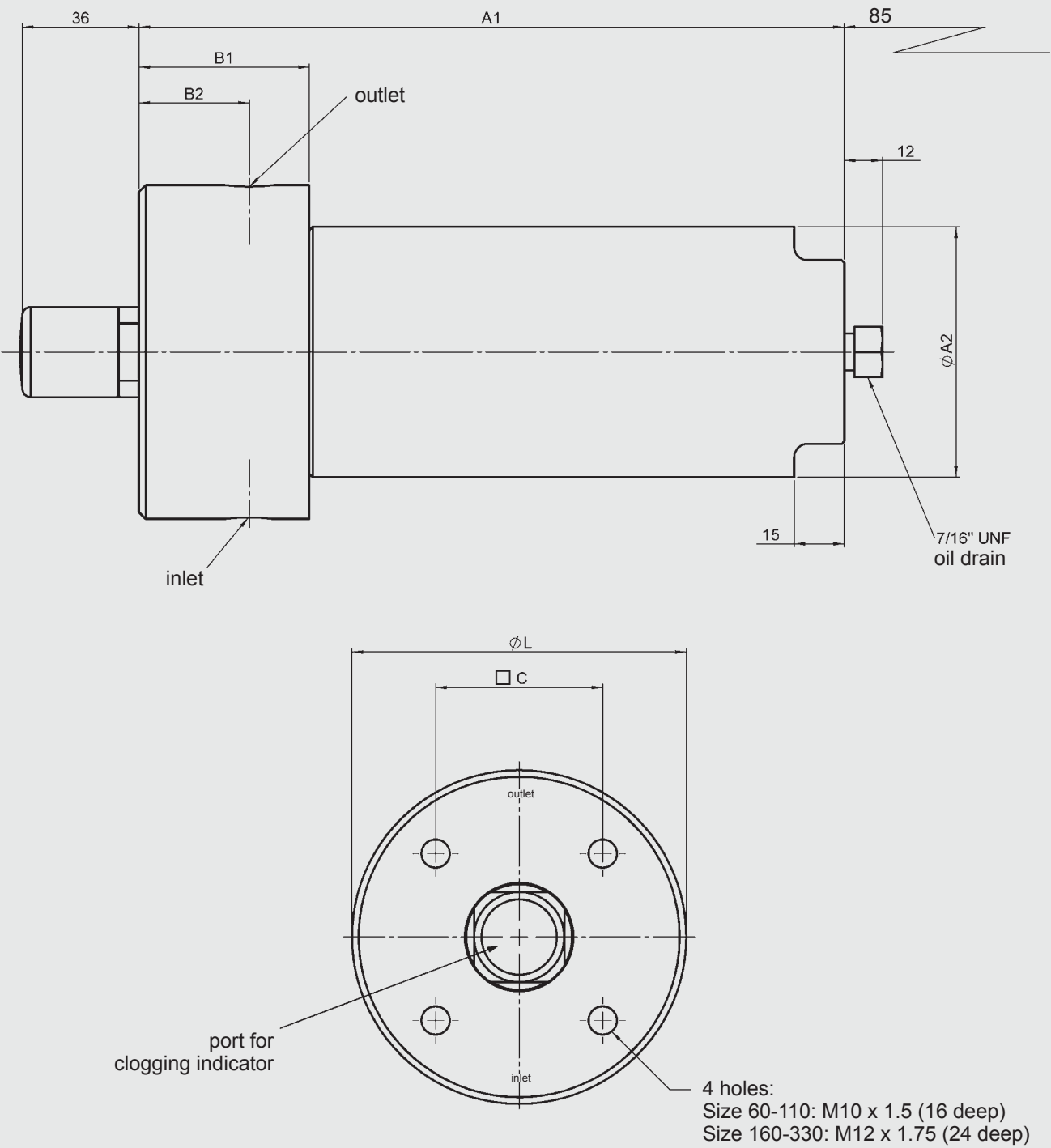
Size 30



MPSSF	A1	A2	b1	B2 ±5mm	L	LK
30	204	63.5	52	37	75	60
30 (1/4" NPT)	196	63.5	44	34	66	50

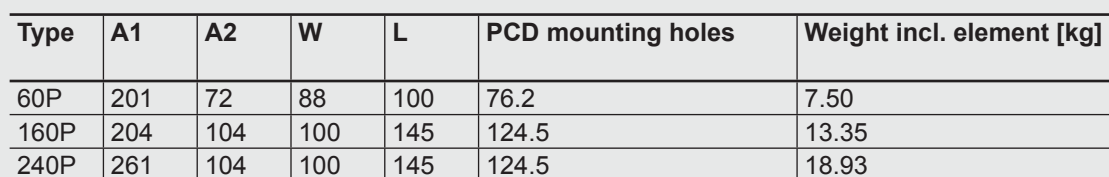
Inline Filter MPSSF450

Size 60 - 330



MPSSF	A1	A2	b1	B2 ±5mm	C	L	W
60	208	72	51	35	50	100	93
110	277	72	51	35	50	100	93
160	264	104	66	38	65	127	116
240	322	104	66	36	60	127	116
330	333	120	75	45	65	127	120

Size 60P, 160P, 240P



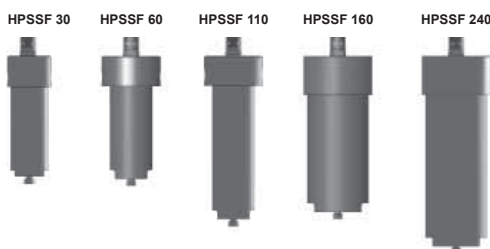
The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

HYDAC FILTERTECHNIK GMBH
Industriegebiet
D-66280 Sulzbach/Saar
Tel.: 0 68 97 / 509-01
Fax: 0 68 97 / 509-300
Internet: www.hydac.com
E-Mail: filter@hydac.com



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:

- with 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:

Betamicon® (BN4HC):	20 bar
Betamicon® (BN4HC) /-SS-SO361:	20 bar
Betamicon® (BH4HC):	210 bar
Betamicon® (BH4HC) /-SS-SO361:	210 bar
Stainless steel wire mesh (D):	210 bar
Wire mesh (W/H):	20 bar
Chemicon® (M):	210 bar

1.3 FILTER SPECIFICATIONS

Nominal pressure	600 bar (with BSP thread) 700 bar (with NPT thread or Autoclave)
Test pressure	900 or 1050 bar
Temperature range	-20 °C to +100 °C
Material of filter head	316 S11 stainless steel
Material of filter bowl	UNS 318.03 DUPLEX
Type of clogging indicator	VDHP (Diff. pressure indicator up to 700 bar oper. 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

As 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 indicators
- Flanged versions available (SAE, RF, RTJ, Destec®)

1.7 SPARE PARTS

See Original Spare Parts List

1.8 CERTIFICATES AND APPROVALS

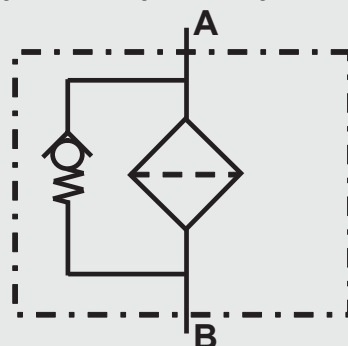
On request

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 of element

BN/HC Betamicon® (BN4HC)
BN/HC (/SS-SO361) Betamicon® (BN4HC) – stainl. steel core and end caps, polyamide support fibre
BH/HC Betamicon® (BH4HC)
BH/HC (/SS-SO361) Betamicon® (BH4HC) – stainl. steel core and end caps, polyamide support fibre
M Chemicon®
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	1/4" BSPP	●				
B2	1/2" BSPP	●	●	●	●	●
B3	3/4" BSPP		●	●	●	●
B4	1" BSPP				●	●

Type and size of connection for HPSSF700

Type	Port thread	Filter size				
		30	60	110	160	240
N0	1/4" NPT	●	●			
N2	1/2" NPT	●	●	●	●	●
N3	3/4" NPT		●	●	●	●
N4	1" NPT				●	●
AA	7/16"-20	●				
A0	9/16"-18	●	●	●		
A1	13/16"-16		●	●	●	●
A2	3/4"-14z				●	●
A3	1-3/8"-12				●	●

Filtration rating in µm

BN/HC, 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
C electrical
D visual and electrical
E 1/4"-NPT gauge ports for external connection of pressure sensors – not for size 30
BM+C visual with manual reset + electrical (= 2 indicators) – 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 3 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 3 m (standard)
IS/ENC intrinsically safe electrical clogging indicator with IP66 junction box (M20x1.5 cable entry)
L... light with appropriate voltage (24, 48, 110, 220 Volt)
LED 2 light emitting diodes up to 24 Volt
RC with reverse flow check (not for size 30)
TB6 with triple bypass for reversible flow (= 1 check valve, 2 bypass valves - 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
W suitable for HFA and HFC emulsions, optimized for water glycols

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
BN4HC, BH4HC : 003, 005, 010, 020
(Note: for /-SS-SO361 type
only 003 and 010 µm)

W/HC : 025, 050, 100, 200

Filter material
BN4HC, BH4HC, W/HC

Supplementary details
SS-SO361 stainl. steel core and end caps, 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
Chemicon® (M) : 001, 003, 005, 010, 020
St. st. 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 Diff. pressure indicator up to 700 bar oper. pressure

Pressure setting
5 standard 5 bar, others on request

Type
(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:

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

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

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

(*see Point 3.2)

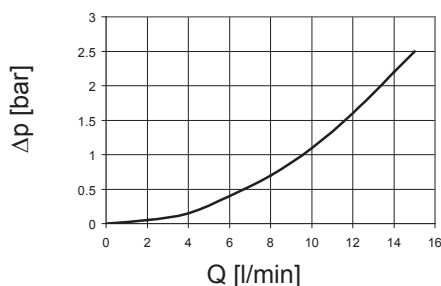
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

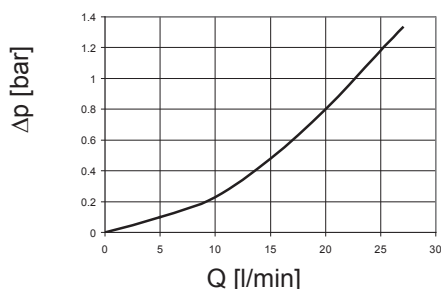
3.1 Δp -Q HOUSING CURVES BASED ON ISO 3968

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

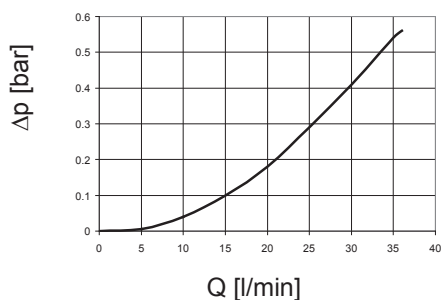
Size 30: 1/4" BSPP/NPT



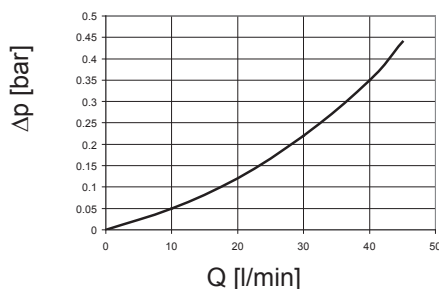
Size 30: 1/2" BSPP/NPT



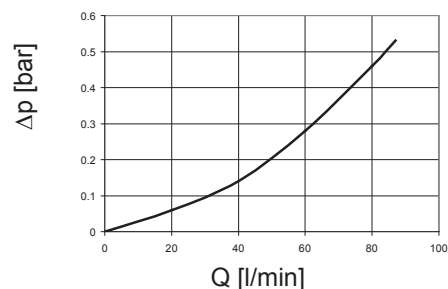
Size 60-110: 1/2" BSPP/NPT



Size 60-110: 3/4" BSPP/NPT



Size 60-240: 1" BSPP/NPT

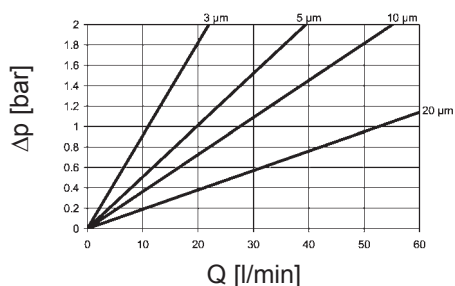


3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

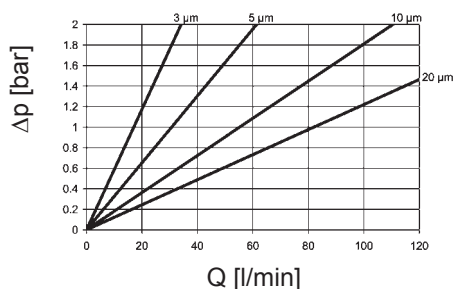
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

	BH4HC		W/HC
	3 μm	10 μm	—
30	91.2	36.3	—
60	58.6	18.1	0.757
110	25.4	8.9	0.413
160	16.8	5.9	0.283
240	10.6	3.9	0.189

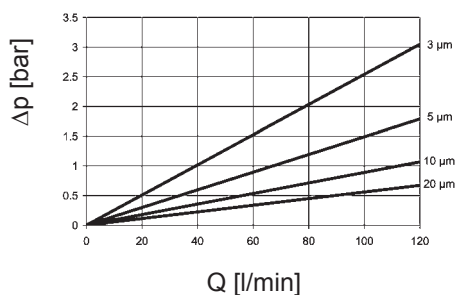
BN4HC: 30



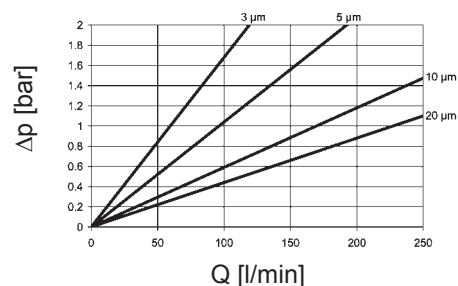
BN4HC: 60



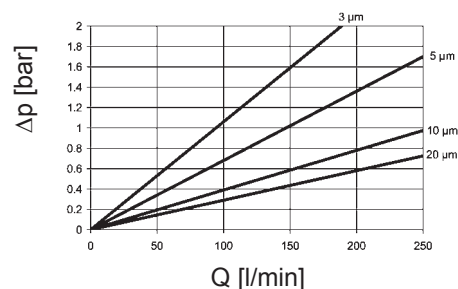
BN4HC: 110



BN4HC: 160



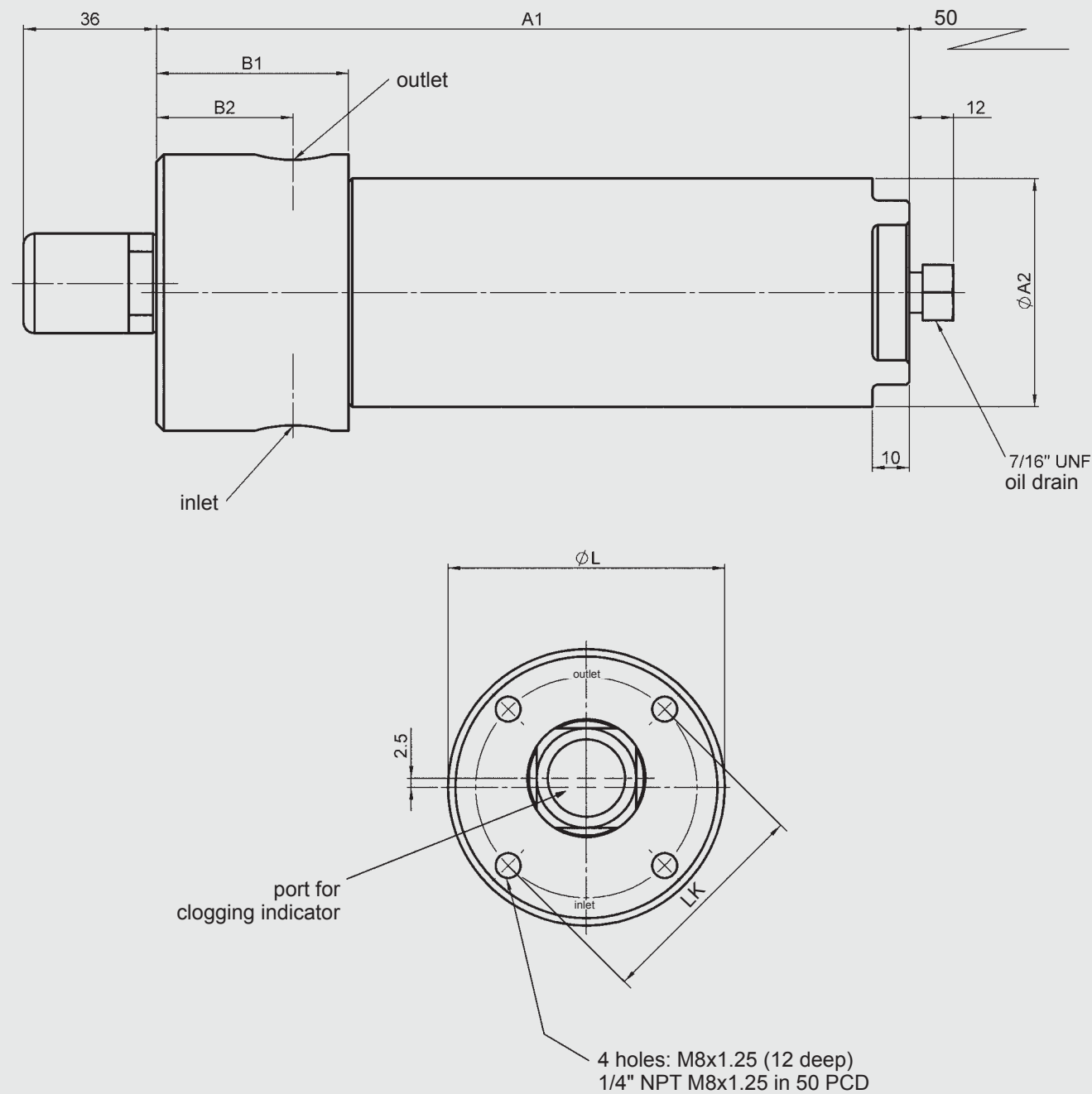
BN4HC: 240



4. DIMENSIONS

Inline Filter HPSSF

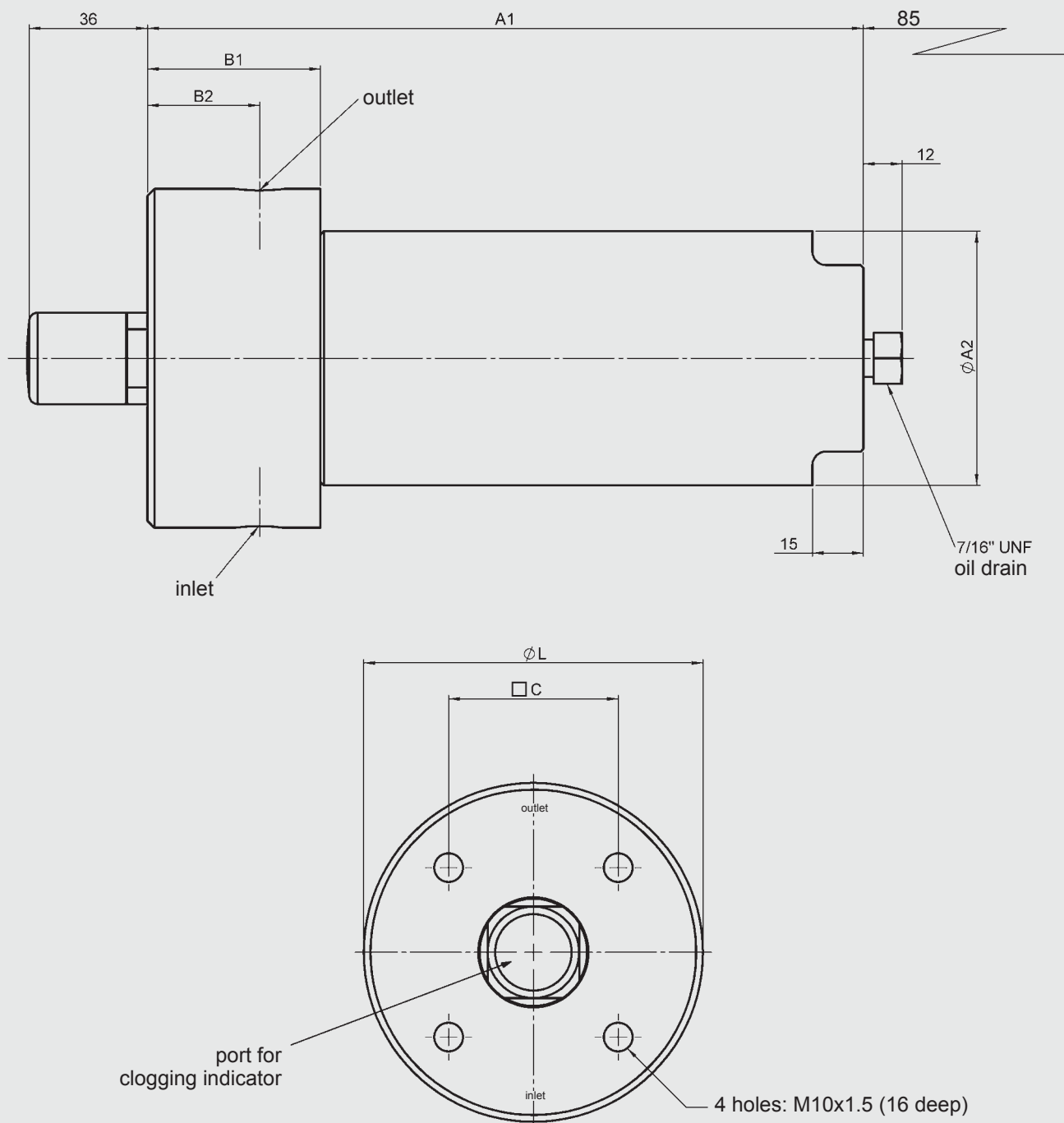
Size 30



MPSSF	A1	A2	b1	B2 ±5mm	L	LK
30	204	63.5	52	37	75	60
30 (1/4" NPT)	196	63.5	44	34	66	50

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.

HYDAC FILTERTECHNIK GMBH
Industriegebiet
D-66280 Sulzbach/Saar, Germany
Tel.: 0 68 97 / 509-01
Fax: 0 68 97 / 509-300
Internet: www.hydac.com
E-mail: filter@hydac.com



Inline Filter ACSSF

up to 100 l/min, up to 1035 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:

- without 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:

Betamicon® (BN4HC):	20 bar
Betamicon® (BN4HC) /-SS-SO361:	20 bar
Betamicon® (BH4HC):	210 bar
Betamicon® (BH4HC) /-SS-SO361:	210 bar
Stainless steel wire mesh (D):	210 bar
Wire mesh (W/H):	20 bar
Chemicon® (M):	210 bar

1.3 FILTER SPECIFICATIONS

Nominal pressure	1035 bar
Test pressure	1552.5 bar
Temperature range	-20 °C to +100 °C
Material of filter head	316 S11 stainless steel
Material of filter bowl	UNS 318.03 DUPLEX
Type of clogging indicator	VDAC (Diff. pressure indicator up to 1035 bar oper. pressure)
Pressure setting of clogging indicator	5 bar (others on request)
Bypass cracking pressure (optional)	6 bar (others on request)

1.4 SEALS

FPM (Viton)

1.5 INSTALLATION

As inline filter

1.6 SPECIAL MODELS AND ACCESSORIES

- Seals in NBR, NLT, EPDM, HNBR, Kalrez®
- Without bypass valve
- Without port for clogging indicator
- With 2 clogging indicators (visual and electrical)
- With Autoclave connection for external piping of pressure sensors
- Higher pressures on request

1.7 SPARE PARTS

See Original Spare Parts List

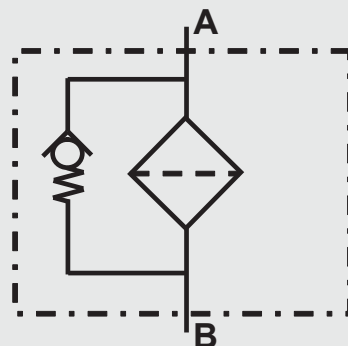
1.8 CERTIFICATES AND APPROVALS

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

Filter type _____		ACSSF1035		BH/HC	60	A0	005	B	X	/-V
ACSSF1035 1035 bar										
Filter material of element _____										
BN/HC		Betamicon® (BN4HC)								
BN/HC (/SS-SO361)		Betamicon® (BN4HC) – stainl. steel core and end caps, polyamide support fibre								
BH/HC		Betamicon® (BH4HC)								
BH/HC (/SS-SO361)		Betamicon® (BH4HC) – stainl. steel core and end caps, polyamide support fibre								
M		Chemicon®								
W/HC		Wire mesh								
D		Stainless steel wire mesh								
Size of filter _____										
30, 60, 110, 160										
Type and size of connection _____										
Type	Port thread	Filter size								
		30	60	110	160					
A0	9/16"-18	●	●	●						
A1	13/16"-16		●	●	●					
A2	3/4"-14z				●					
A3	1-3/8"-12				●					
Filtration rating in µm _____										
BN/HC, 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										
C electrical										
E 9/16"UNF Autoclave ports for external connection of pressure sensors – not for size 30										
BM+C visual with manual reset + electrical (= 2 indicators) – not for size 30										
Modification number _____										
X the latest version is always supplied										
Supplementary details _____										
B. cracking pressure of bypass (e.g.. B6 = 6 bar); no details = without bypass valve										
EX electrical clogging indicator EX version (Exd IIC T6; cable length 3 m standard)										
EX/ENC electrical clogging indicator EX protection (Exd IIC T6; with IP66 junction box, M20x1.5 cable entry)										
IS intrinsically safe electrical clogging indicator with cable length 3 m (standard)										
IS/ENC intrinsically safe electrical clogging indicator with IP66 junction box (M20x1.5 cable entry)										
RC with reverse flow check (not for size 30)										
TB6 with triple bypass valve for reversible flow (= 1 check valve, 2 bypass valves - 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										
W suitable for HFA and HFC emulsions, optimized for water glycols										

2.2 REPLACEMENT ELEMENT

Size _____		0060		D	003	BN4HC	/-V-SS-SO361
0030, 0060, 0110, 0160							
Type _____							
D							
Filtration rating in µm _____							
BN4HC, BH4HC		: 003, 005, 010, 020 (Note: for /-SS-SO361 type only 003 and 010 µm)					
W/HC		: 025, 050, 100, 200					
Filter material _____							
BN4HC, BH4HC, W/HC							
Supplementary details _____							
SS-SO361 stainl. steel core and end caps, 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

Type
DH

Filtration rating in µm
Chemicon® (M) : 001, 003, 005, 010, 020
St. st. 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

VDAC 5 B . X /-V

Typ
VDAC Diff. pressure indicator up to 1035 bar oper. pressure

Pressure setting
5 standard 5 bar, others on request

Type
(see Point 2.1)

Modification number
X the latest version is always supplied

Supplementary details
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:

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

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

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

(*see Point 3.2)

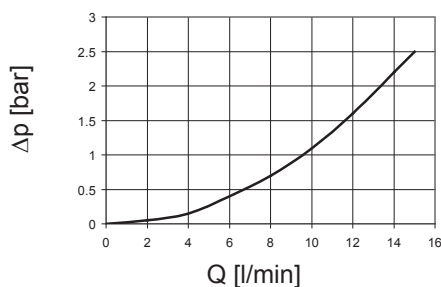
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

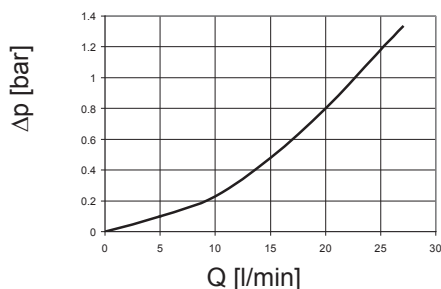
3.1 Δp -Q HOUSING CURVES BASED ON ISO 3968

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

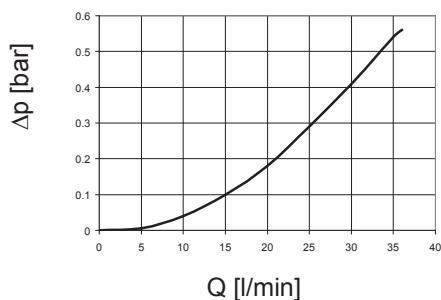
Size 30: 1/4"



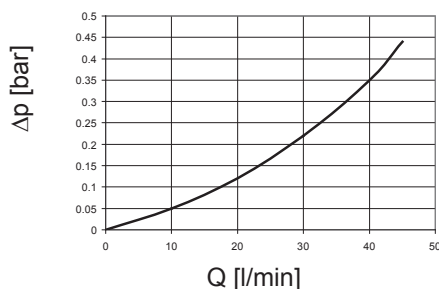
Size 30: 1/2"



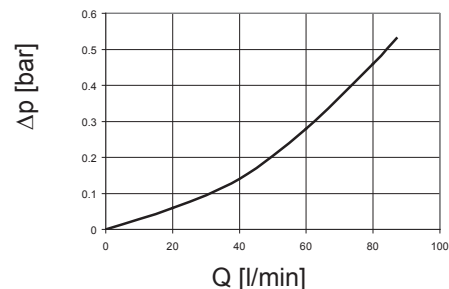
Size 60-110: 1/2"



Size 60-110: 3/4"



Size 160: 1"

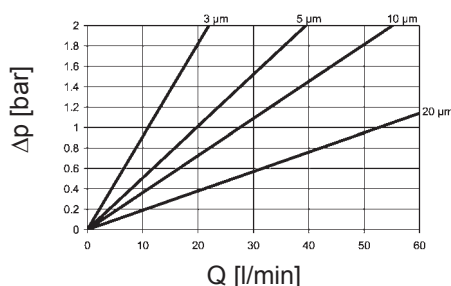


3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

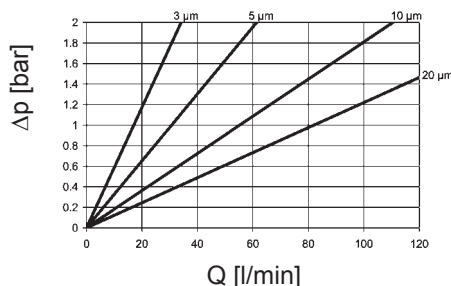
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

	BH4HC		W/HC
	3 μm	10 μm	—
30	91.2	36.3	—
60	58.6	18.1	0.757
110	25.4	8.9	0.413
160	16.8	5.9	0.283

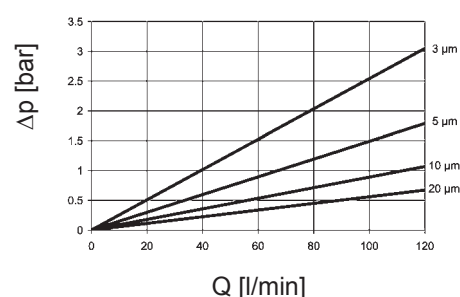
BN4HC: 30



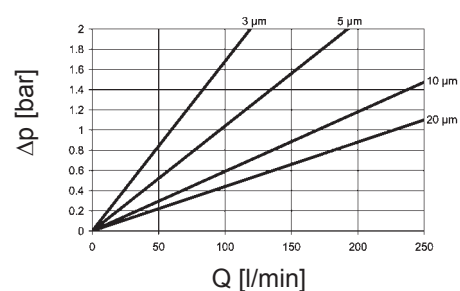
BN4HC: 60



BN4HC: 110



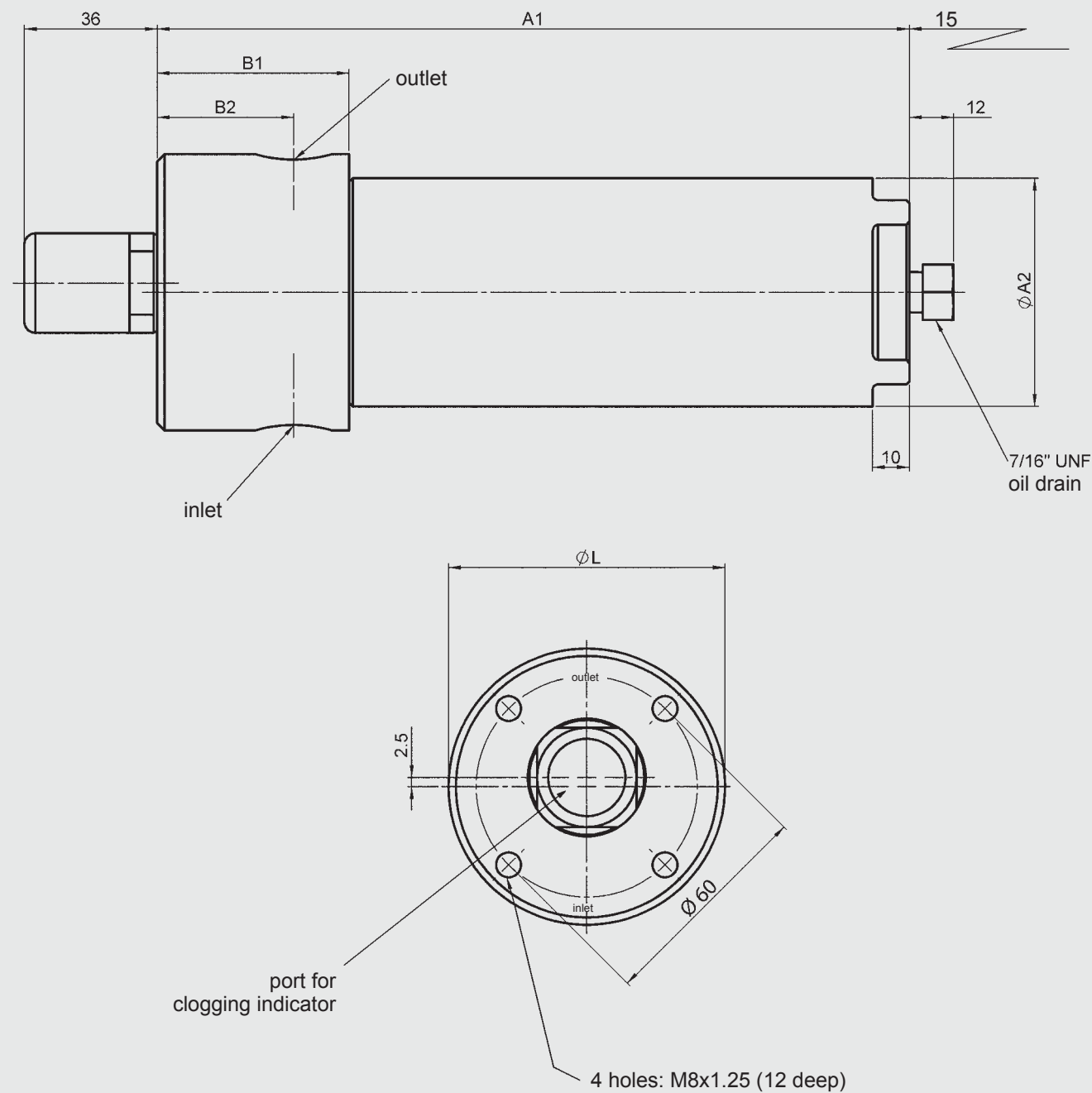
BN4HC: 160



4. DIMENSIONS

Inline Filter ACSSF

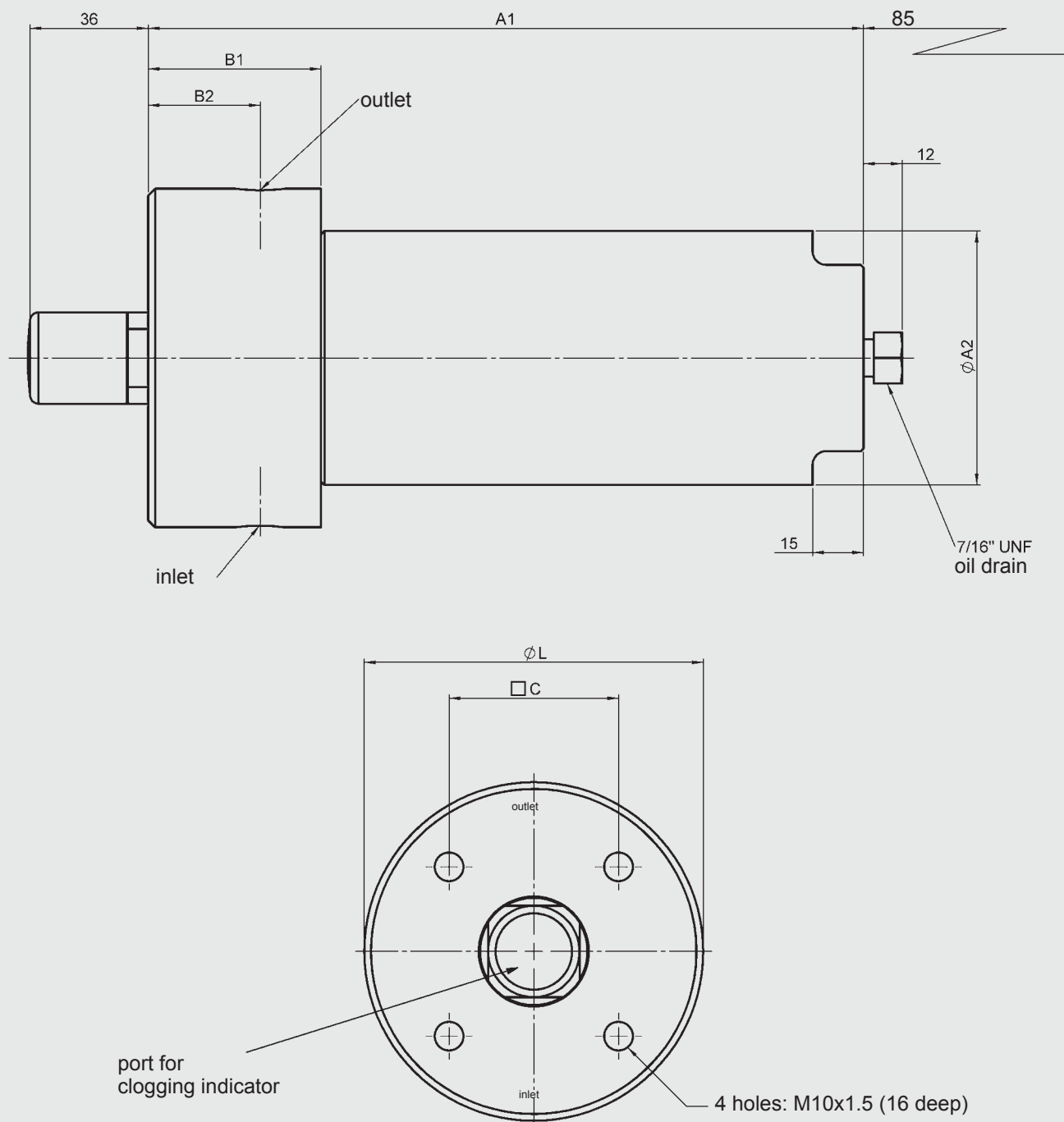
Size 30



ACSSF	A1	A2	b1	B2 ±5mm	L
30	204	63.5	52	37	75

Inline Filter ACSSF

Size 60 - 160



ACSSF	A1	A2	B1	B2 ±5mm	C	L
60	213	85	51	33	50	100
110	281	85	51	33	50	100
160	275	127	65	35	60	127

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.

HYDAC FILTERTECHNIK GMBH
Industriegebiet
D-66280 Sulzbach/Saar, Germany
Tel.: 0 68 97 / 509-01
Fax: 0 68 97 / 509-300
Internet: www.hydac.com
E-mail: filter@hydac.com