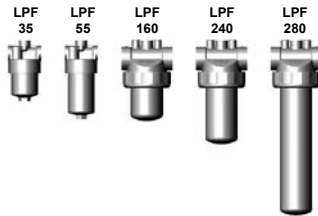


Low Pressure Filter LPF up to 280 l/min, up to 50 bar



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-in filter bowl (LPF 35 and 55) or the filter bowl is fixed to the filter head with a retaining nut (LPF 160, 240, 280).

Standard equipment:

- without 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 Betamicron® (BN4HC)

LPF	3 µm	5 µm	10 µm	20 µm
35	7.2	8.1	8.6	8.8
55	14.0	15.8	16.6	17.2
160	19.8	22.2	23.5	24.3
240	32.3	36.3	38.4	39.6
280	70.6	79.3	83.9	86.6

Filter elements are available with the following pressure stability values:

Betamicron® (BN4HC):	20 bar
Betamicron® (BH4HC):	210 bar
Wire mesh (W/HC)*:	20 bar

*only for LPF 160, 240, 280

IMPORTANT:

Only filter elements in ...HC material can be used in LPF filters!

1.3 FILTER SPECIFICATIONS

Nominal pressure	LPF 35, 55: 40 bar LPF 160, 240, 280: 25 or 50 bar
Fatigue strength	at nominal pressure 10 ⁶ load cycles from 0 to nominal pressure LPF 35 and 55: 10 ⁷ load cycles at 40 bar
Temperature range	-30 °C to +100 °C
Material of filter head	aluminium
Material of filter bowl	LPF 35, 55: aluminium LPF 160, 240, 280: steel
Material of retaining nut (LPF 160, 240, 280)	aluminium (25 bar) steel (50 bar)
Type of clogging indicator	VM (differential pressure indicator up to 210 bar operating pressure)
Pressure setting of clogging indicator	5 bar (others on request)
Cracking pressure of bypass valve (optional)	on request

1.4 SEALS

NBR (= Perbunan)

1.5 MOUNTING

As inline filter

1.6 SPECIAL MODELS AND ACCESSORIES

- Seals in FPM, EPDM
- With bypass valve (1, 3, 6, or 7 bar)
- Without port for clogging indicator (LPF 160, 240, 280)

1.7 SPARE PARTS

See Original Spare Parts List

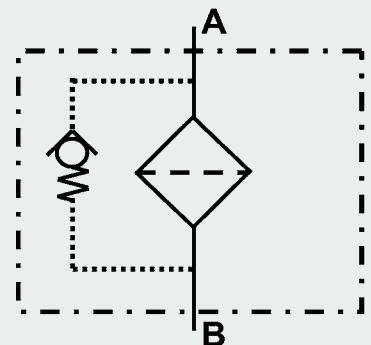
1.8 CERTIFICATES AND APPROVALS

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
- Operating fluids with high water content (>50% water content) on request

Symbol for hydraulic systems



Note:

One-piece bowl version for sizes 160, 240 and 280 on request!

2. MODEL CODE (also order example)

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

2.1 COMPLETE FILTER

Filter type

LPF

Filter material of element

BN/HC Betamicron® (BN4HC)

BH/HC Betamicron® (BH4HC)

W/HC Stainless steel wire mesh (only LPF160, 240, 280)

Size of filter or element

LPF: 35, 55, 160, 240, 280

Operating pressure

D = 25 bar (LPF 160, 240, 280: retaining nut in aluminium)

E = 40 bar (LPF 35, 55)

G = 50 bar (LPF 160, 240, 280: retaining nut in steel)

Type and size of port

Type	Port	Filter size				
		35	55	160	240	280
A	M18 x 1.5	●	●			
B	G ½	●	●			
E	G 1¼			●	●	●

Filtration rating in µm

BN/HC, BH/HC: 3, 5, 10, 20

W/HC: 25, 50, 100, 200 (only LPF 160, 240, 280)

Type of clogging indicator

W without port for clogging indicator

Y plastic blanking plug in indicator port

A with steel blanking plug in indicator port

B visual indicator

C electrical indicator

D visual and electrical indicator

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

Type code

1

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

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

LED 2 light emitting diodes up to 24 Volt

V FPM seals

W suitable for HFA and HFC emulsions

only for clogging
indicators type D

2.2 REPLACEMENT ELEMENT

0160 D 010 BN4HC /-V

Size

0035, 0055, 0160, 0240, 0280

Type

D

Filtration rating in µm

BN4HC, BH4HC: 003, 005, 010, 020

W/HC: 025, 050, 100, 200 (only LPF 160, 240, 280)

Filter material

BN4HC, BH4HC, W/HC

Supplementary details

V, W (for descriptions, see point 2.1)

2.3 REPLACEMENT CLOGGING INDICATOR

VM 5 D . X /-L24

Type

VM differential pressure indicator up to 210 bar operating pressure

Pressure setting

5 standard 5 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, 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 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)

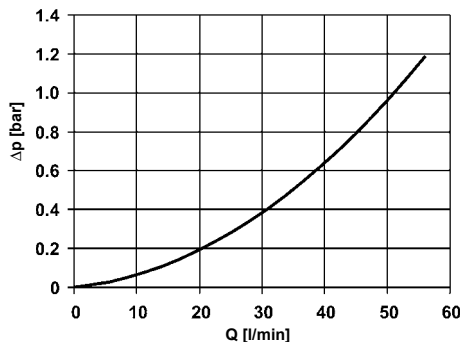
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

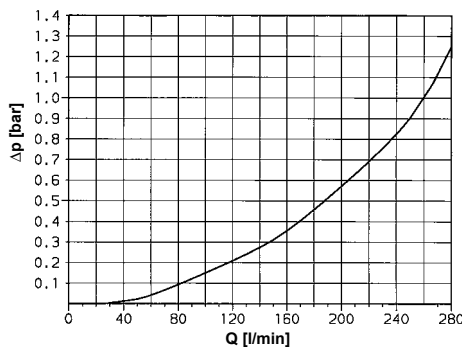
3.1 ΔP -Q HOUSING GRAPHS BASED ON ISO 3968

The housing graphs 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.

LPF 35, 55



LPF 160, 240, 280

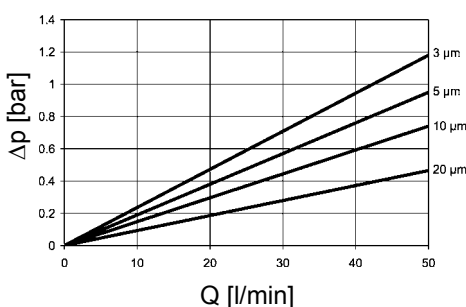


3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

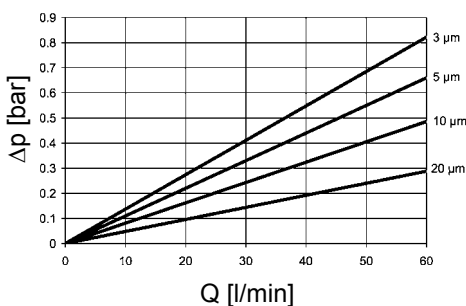
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

LPF	BH4HC				W/HC
	3 μm	5 μm	10 μm	20 μm	
35	-	-	-	-	-
55	-	-	-	-	-
160	16.8	10.4	5.9	4.4	0.316
240	10.6	6.8	3.9	2.9	0.211
280	5.7	3.4	1.8	1.6	0.181

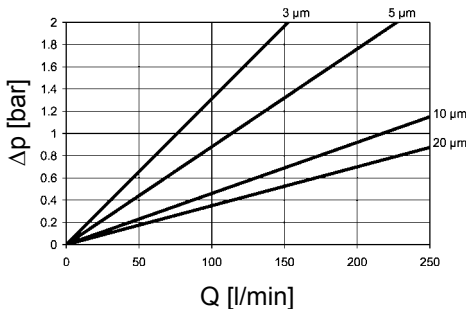
BN4HC: LPF 35



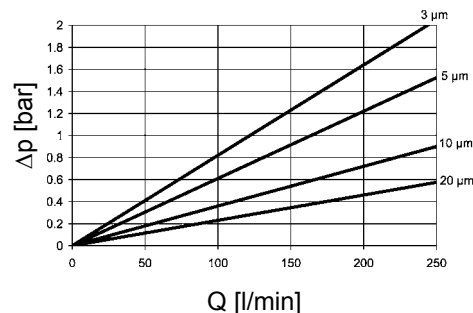
BN4HC: LPF 55



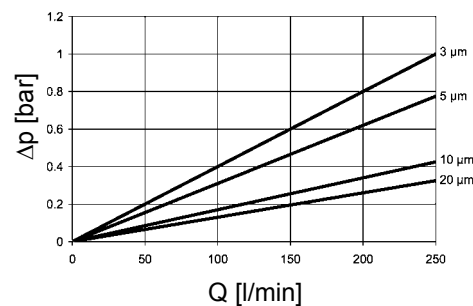
BN4HC: LPF 160



BN4HC: LPF 240

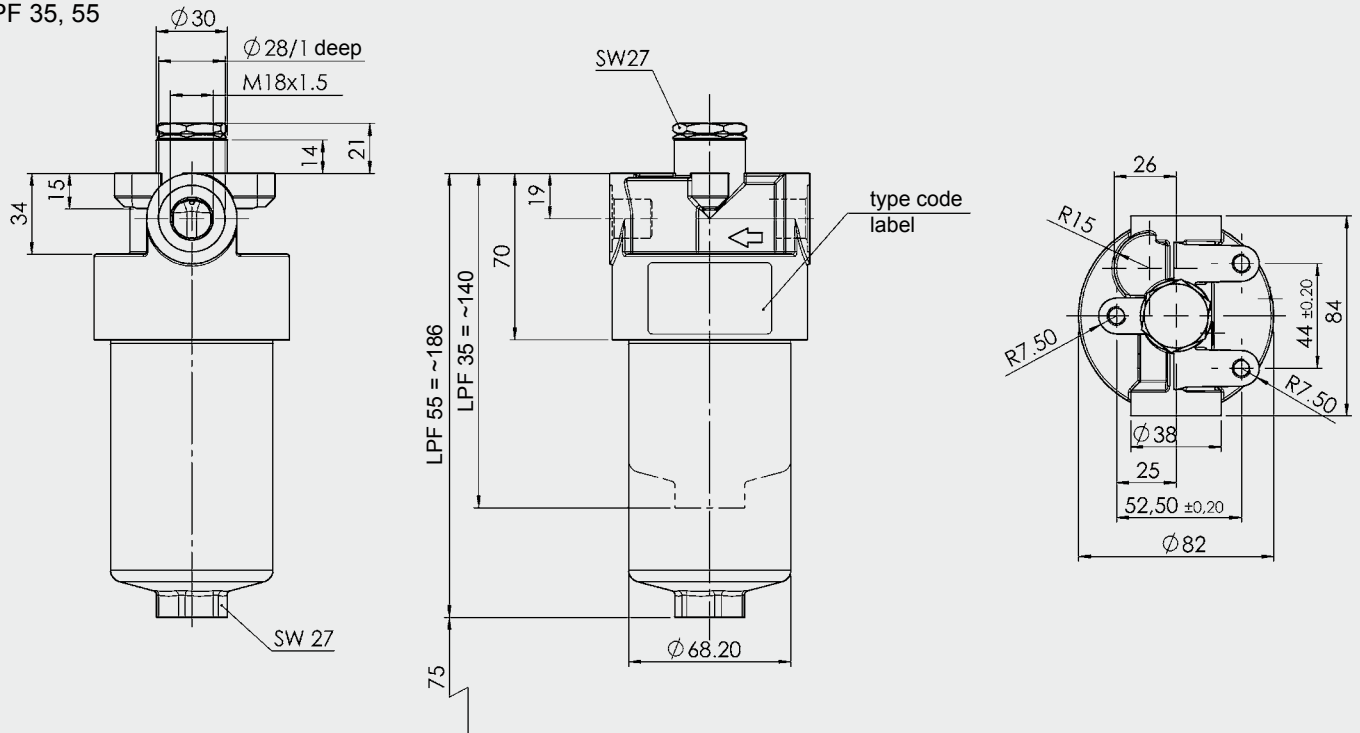


BN4HC: LPF 280

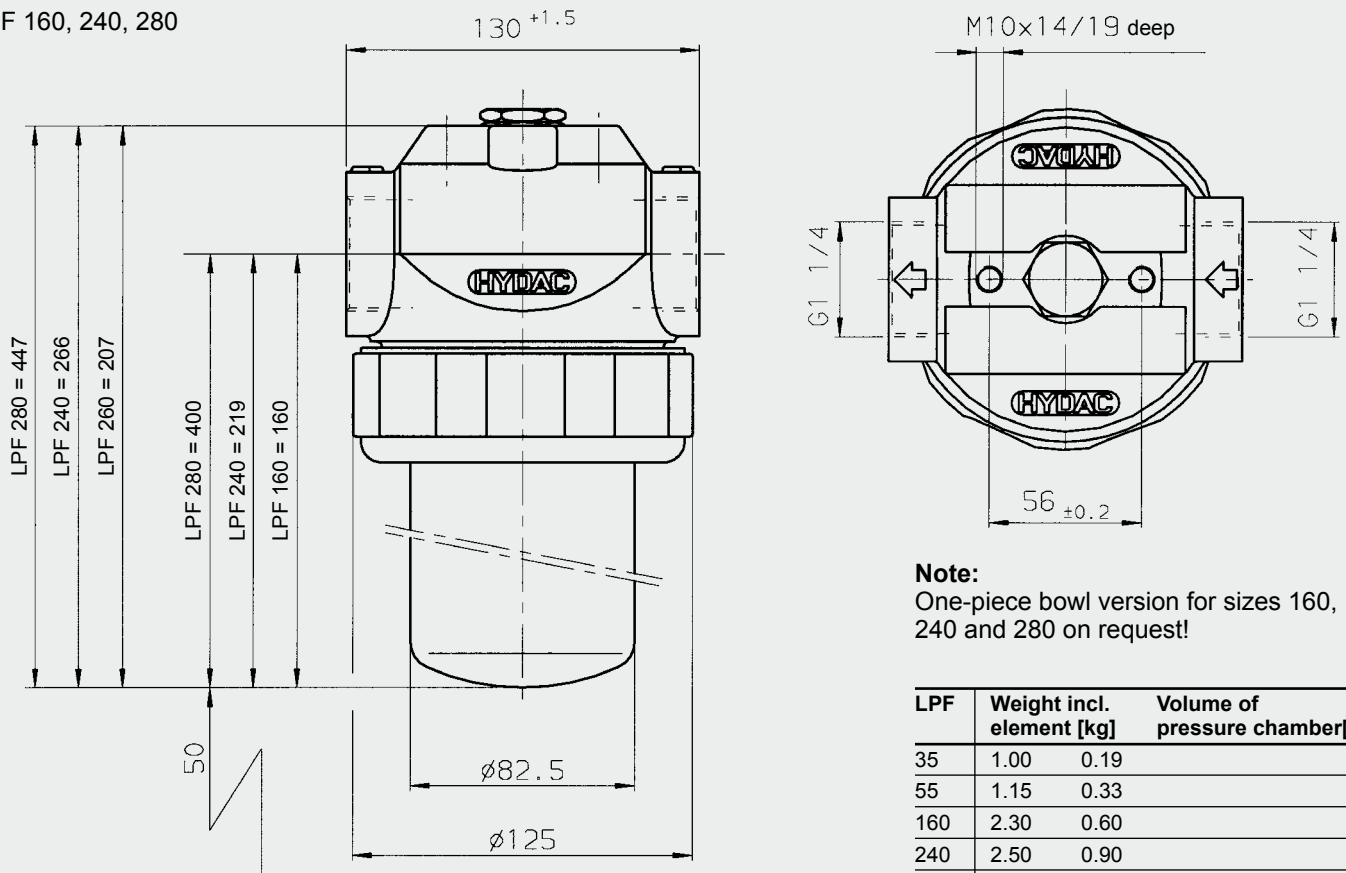


4. DIMENSIONS

LPF 35, 55



LPF 160, 240, 280



Note:
One-piece bowl version for sizes 160, 240 and 280 on request!

LPF	Weight incl. element [kg]	Volume of pressure chamber[l]
35	1.00	0.19
55	1.15	0.33
160	2.30	0.60
240	2.50	0.90
280	3.40	1.70

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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