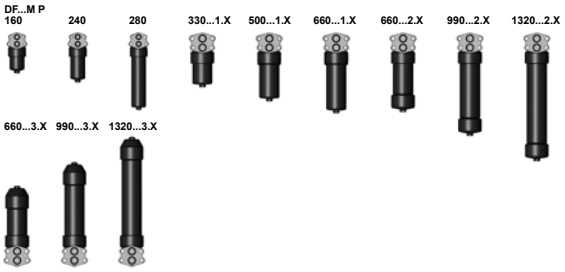
Filter DF...M P side-flanged

up to 550 l/min, up to 260 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.

Standard equipment:

- mounting holes in the filter head
- bypass valve built into the head
- two-piece bowl for size DF...990 and above (optional for size DF...660 and above)
- connection for a clogging indicator
- drain screw with pressure relief (standard for size DF...330 and above)

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® (BH4HC):	210 bar
Wire mesh (W/HC):	20 bar
Stainless steel fibre (V):	210 bar

1.3 FILTER SPECIFICATIONS

Nominal pressure	260 bar
Fatigue strength	At nominal pressure 10^6 cycles from 0 to nominal pressure
Temperature range	-10 °C to +100 °C (-30 °C to -10 °C: p_{max} = 0.5 x nom. press.)
Material of filter head	EN-GJS-400-15
Material of filter bowl	Steel
Type of clogging indicator	VD (differential pressure measurement up to 420 bar operating pressure)
Pressure setting of the clogging indicator	5 bar (others on request)
Bypass cracking pressure	6 bar (others on request)

1.4 SEALS

NBR (=Perbunan)

1.5 INSTALLATION

Pressure filter for flange mounting

1.6 SPECIAL MODELS AND ACCESSORIES

- Seals in FPM, EPDM
- Without clogging indicator connection
- Filter in top-removable version (version 3.x; only for size 660 to 1320 with two-piece bowl)
- Test and approval certificates

1.7 SPARE PARTS

See Original Spare Parts List

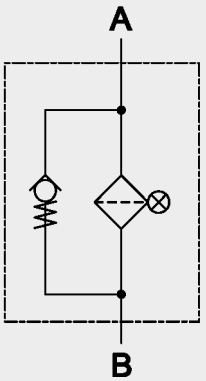
1.8 CERTIFICATES AND APPROVALS

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)

DF ON 240 M P 10 D 1 . X /-B6-L24

2.1. COMPLETE FILTER

Filter type
DF... flange mounted

Filter material
ON Optimicron®
BH/HC Betamicron® (BH4HC)
W/HC Stainl. st. wire mesh
V Stainless steel fibre

Size of filter or element
DF…M P: 160, 240, 280, 330, 500, 660, 990, 1320

Operating pressure
M = 260 bar

Type and size of connection
P = 4 mounting holes

Filtration rating in µm
ON: 1, 3, 5, 10, 15, 20
BH/HC, V: 3, 5, 10, 20
W/HC: 25, 50, 100, 200

Type of clogging indicator
Y plastic blanking plug in indicator port
A 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 model with one-piece filter bowl (up to size 660)
2 model with two-piece filter bowl (size 660 and above)
3 top-removable model (size 660 and above; only with two-piece bowl)

Modification number
X the latest version is always supplied

Supplementary details
B. standard: bypass cracking pressure (e.g. B6 = 6 bar); without details = without bypass valve
L... light with appropriate voltage (24, 48, 110, 220 Volt)
LED 2 light-emitting diodes up to 24 Volt
] only for clogging indicator type "D"
V FPM seals
W suitable for HFA and HFC emulsions

2.2 REPLACEMENT ELEMENT

0240 D 010 ON /-V

Size
0160, 0240, 0280, 0330, 0500, 0660, 0990, 1320

Type
D

Filtration rating in µm
ON: 001, 003, 005, 010, 015, 020
BH4HC, V: 003, 005, 010, 020
W/HC: 025, 050, 100, 200

Filter material
ON, BH4HC, V, W/HC

Supplementary details
V, W (for descriptions, see point 2.1)

2.3 REPLACEMENT CLOGGING INDICATOR

VD 5 D . X /-L24

Type
VD differential pressure indicator up to 420 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 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)

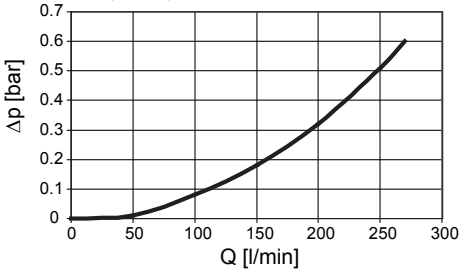
For ease of calculation, our Filter Sizing Program is available on request free of charge.

NEW: Sizing online at www.hydac.com

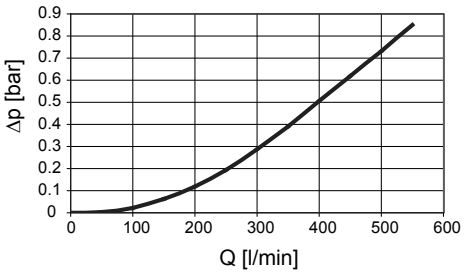
3.1 Δp-Q HOUSING CURVES BASED ON ISO 3968

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.

DF 160, 240, 280 M P



DF 330, 500, 660, 990, 1320 M P



3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

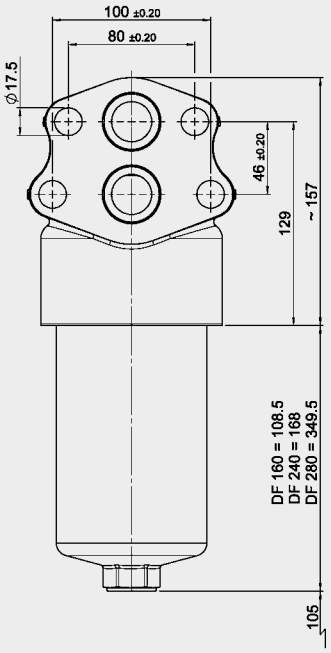
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm²/s. The pressure drop changes proportionally to the change in viscosity.

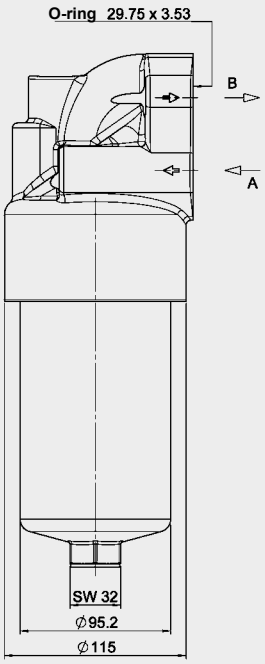
DF...	ON					
	1 µm	3 µm	5 µm	10 µm	15 µm	20 µm
160	18.5	11.0	7.70	4.10	3.71	3.18
240	11.5	6.90	5.34	3.19	2.44	2.10
280	5.54	3.37	2.74	1.49	1.36	1.17
330	8.23	4.19	3.37	2.46	1.55	1.22
500	5.05	2.57	2.07	1.23	0.95	0.75
660	3.78	1.93	1.56	0.93	0.71	0.56
990	2.51	1.28	1.03	0.61	0.47	0.37
1320	1.85	0.97	0.76	0.45	0.35	0.27

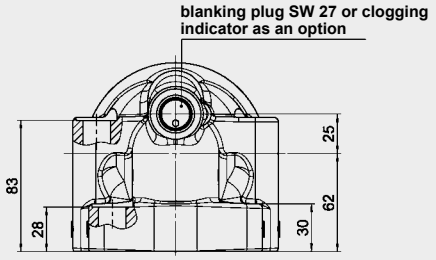
DF...	V				W/HC	BH4HC			
	3 µm	5 µm	10 µm	20 µm	–	3 µm	5 µm	10 µm	20 µm
160	4.6	3.2	2.3	1.4	0.284	16.8	10.4	5.9	4.4
240	3.1	2.5	1.7	1.1	0.189	10.6	6.8	3.9	2.9
280	2.3	1.7	1.2	0.8	0.162	5.7	3.4	1.8	1.6
330	2.2	1.8	1.2	0.8	0.138	7.7	4.5	2.8	2.0
500	1.5	1.2	0.8	0.5	0.091	4.2	2.6	1.5	1.2
660	1.1	0.9	0.6	0.4	0.069	3.3	1.9	1.0	0.9
990	0.8	0.6	0.4	0.3	0.046	2.2	1.3	0.8	0.6
1320	0.6	0.5	0.3	0.2	0.035	1.6	1.0	0.6	0.4

4. DIMENSIONS

DF 160, 240, 280 M P...

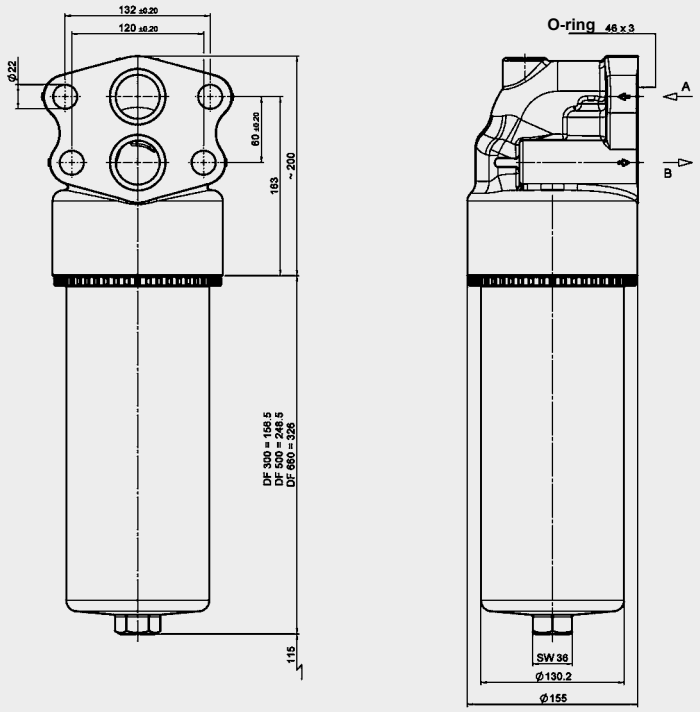


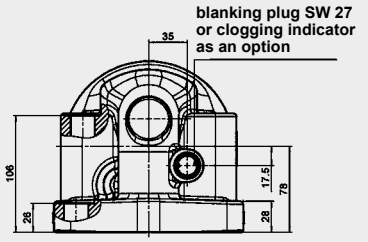




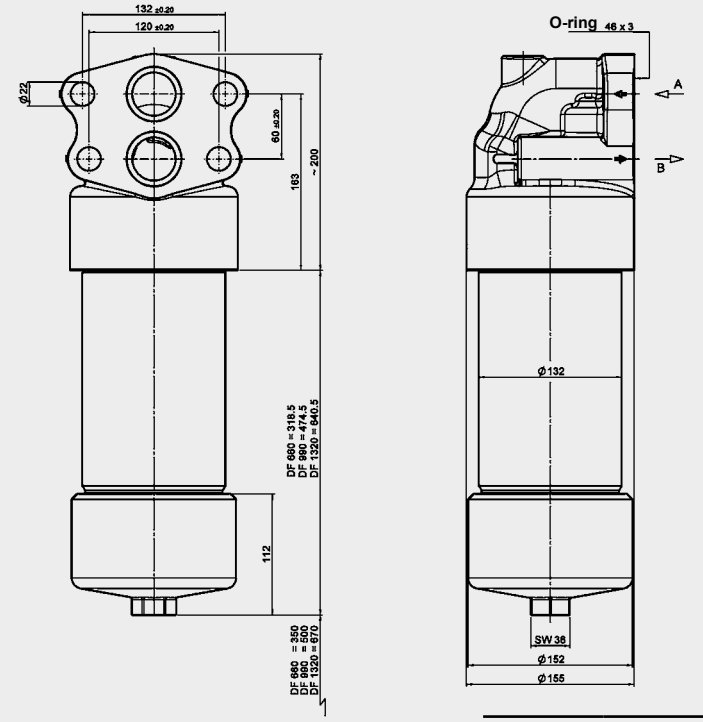
DF...M P	Weight incl. element [kg]	Volume of pressure chamber [l]
160	9.3	0.6
240	10.6	0.8
280	14.6	1.6

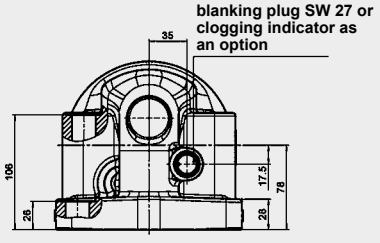
DF 330 - 660 M P...1.X





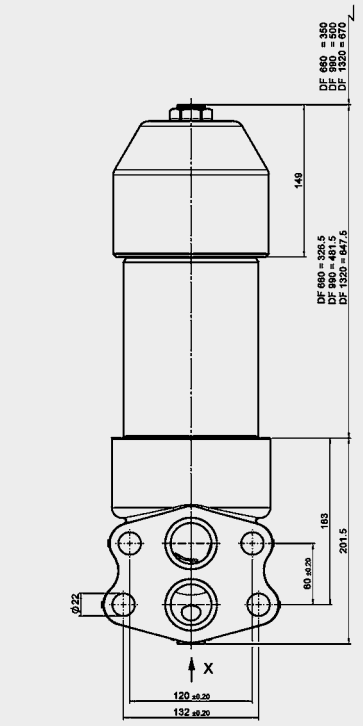
DF 660 - 1320 M P...2.X

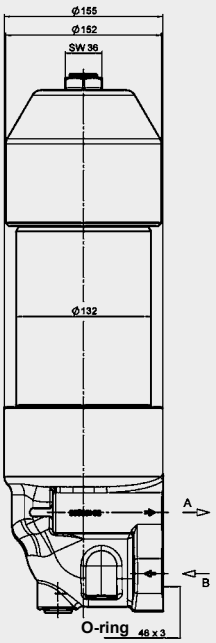


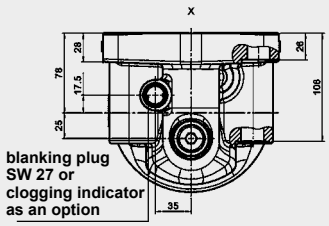


DF...M P	Weight incl. element [kg]	Volume of pressure chamber [l]
330	21.1	1.5
500	24.9	2.3
660...1.x	28.0	3.0
660...2.x	31.1	3.0
990	37.9	4.2
1320	45.2	5.6

DF 660 - 1320 M P...3.X







DF...M P	Weight incl. element [kg]	Volume of pressure chamber [l]
660	31.5	3.0
990	36.3	4.2
1320	45.6	5.6

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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