Inline Filter LFM with Differential Pressure Relief Valve

up to 120 l/min, up to 63 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:

- differential pressure controlled relief 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 Filter elements are available with the following pressure stability values: Optmicron® (ON): 20 bar

LFM 60 LFM 110 LFM 140

Nominal pressure	63 bar
Fatigue strength	At nominal pressure 10_6 cycles from 0 to nominal pressure
Temperature range	-30 °C to +100 °C (LFM 140: -30 °C to -10 °C: p_{max}=31.5 bar)
Material of filter head	Aluminium
Material of filter bowl	Aluminium (steel for LFM 140)
Type of clogging indicator	VM (differential pressure measurement up to 210 bar operating pressure)
Pressure setting of the clogging indicator	2 bar (others on request)
Bypass cracking pressure	3.5 bar (others on request)

1.4 SEALS

NBR (=Perbunan)

1.5 INSTALLATION

Inline filter

1.6 SPECIAL MODELS AND ACCESSORIES

With pressure release / oil drain plug (SO184)

1.7 SPARE PARTS

See Original Spare Parts List

1.8 CERTIFICATES AND APPROVALS

On request

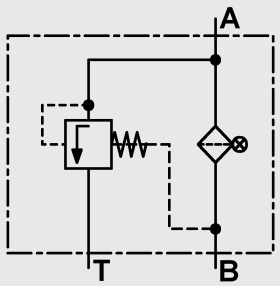
1.9 COMPATIBILITY WITH HYDRAULIC FLUIDS ISO 2943

- 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 MAINTENANCE INSTRUCTIONS

- 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



2. MODEL CODE (also order example)

LFM ON 110 F C 10 D 1 . X /-L24

2.1 COMPLETE FILTER

Filter type
LFM

Filter material
ON Optimicron®

Size of filter or element
LFM: 60, 110, 140

Operating pressure
F = 63 bar

Type and size of connection

Type	Port	Filter size 60	110	140
C	G ¾	●	●	●

Filtration rating in µm
ON: 1, 3, 5, 10, 15, 20

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

Modification number
X the latest version is always supplied

Supplementary details
DBV5.5 opening pressure of pressure relief valve 5.5 bar
L... light with appropriate voltage (24, 48, 110, 220 Volt)
LED 2 light-emitting diodes up to 24 Volt
] only for clogging indicators type "D"
SO184 pressure release/oil drain screw
V FPM seals

2.2 REPLACEMENT ELEMENT

0110 D 010 ON /-V

Size
0060, 0110, 0140

Type
D

Filtration rating in µm
ON: 001, 003, 005, 010, 015, 020

Filter material
ON

Supplementary details
V (for descriptions, see Point 2.1)

2.3 REPLACEMENT CLOGGING INDICATOR

VM 2 D . X /-L24

Type of indicator
VM differential pressure indicator up to 210 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:

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

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

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

(*see Point 3.2)

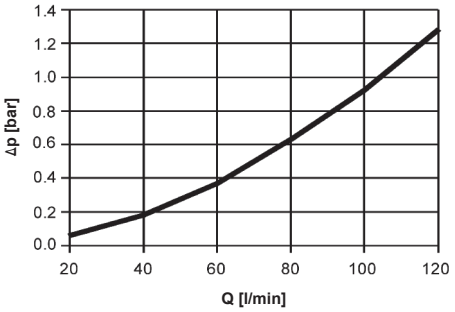
For ease of calculation, our Filter Sizing Program is available on request free of charge.

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.

LFM 60/110/140

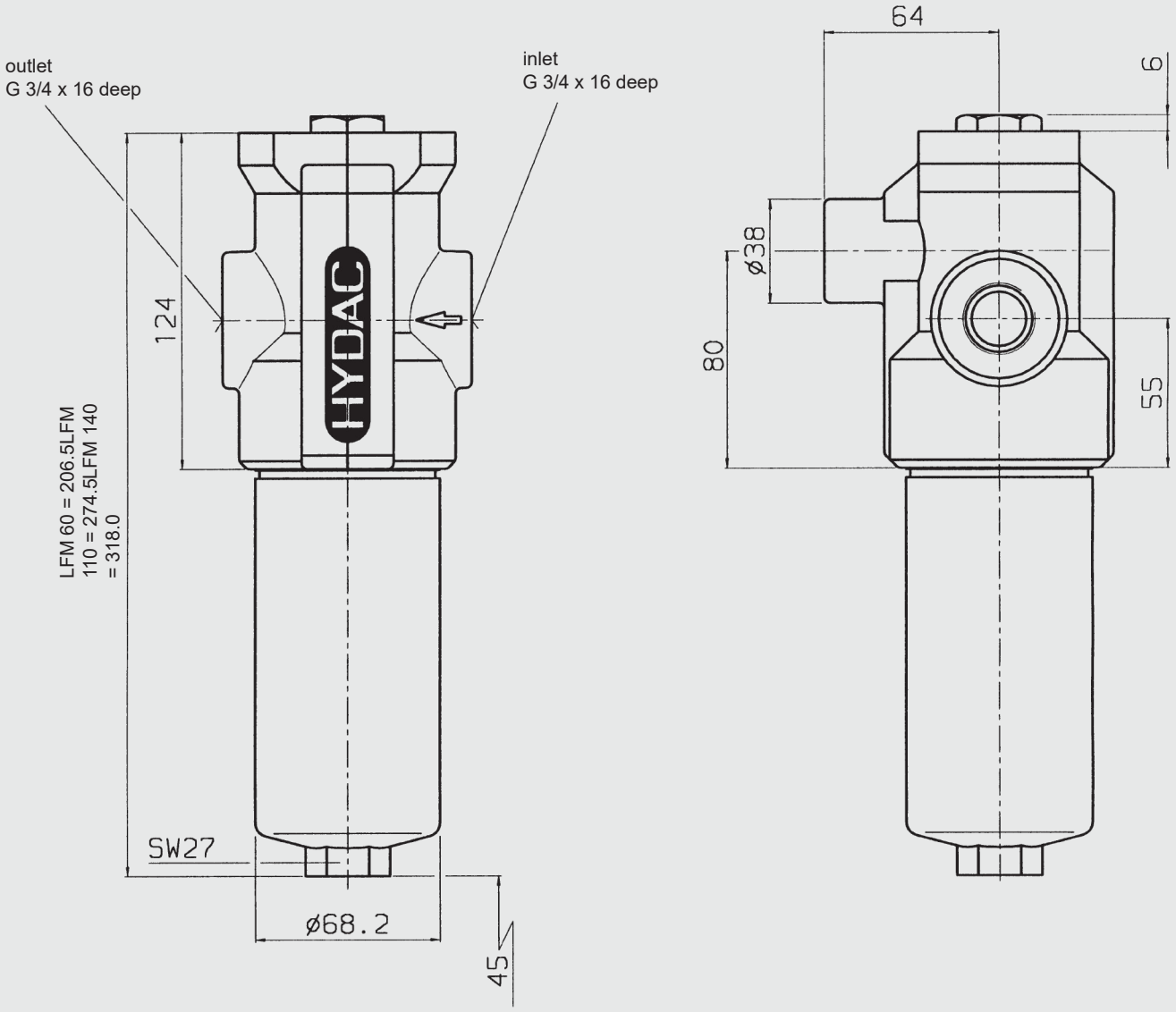


3.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS

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.

LFM	ON					
	1 µm	3 µm	5 µm	10 µm	15 µm	20 µm
60	53.5	26.0	18.3	12.1	9.78	6.32
110	25.8	13.4	9.61	6.06	4.63	2.99
140	19.9	11.5	7.39	4.38	3.54	2.29

4. DIMENSIONS



LFM	Weight incl. element [kg]	Vol. of pressure chamber [l]
60	1.9	0.20
110	2.3	0.33
140 4.5		0.40

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.