

HYDAC

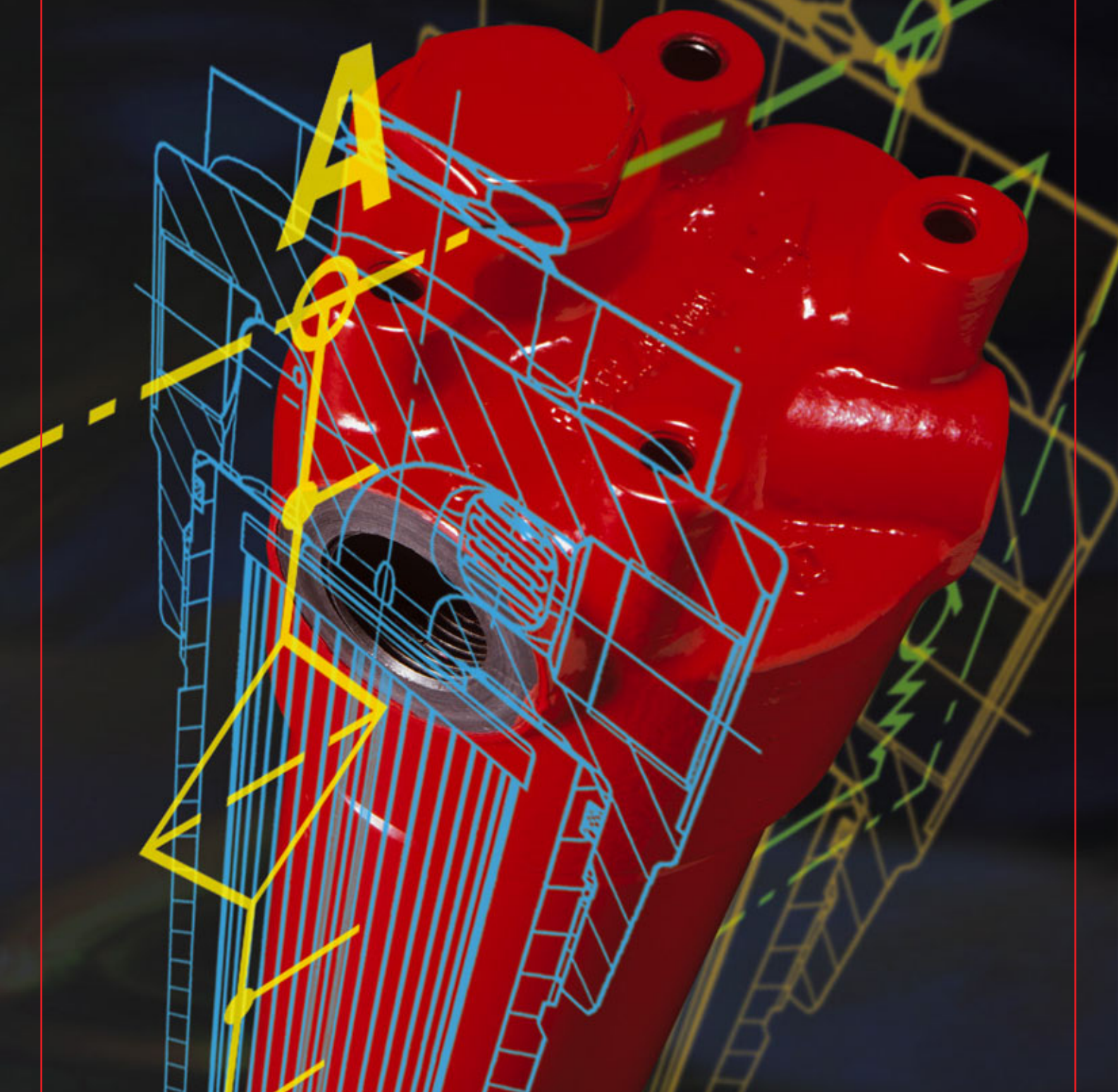
INTERNATIONAL

Inline Filter MFM

Flow rates up to 100 l/min

Pressure range up to 280 bar

Material: EN-GJS 400-15 / steel



1. TECHNICAL SPECIFICATIONS

1.1. FILTER HOUSING

Construction

The inline filter consists of a filter head with a screw-in filter bowl. The standard model is supplied with bypass valve.

The filter is supplied phosphate-plated and primed.

1.2. FILTER ELEMENTS

Original Hydac filter elements guarantee reliable function and protect hydraulic components and systems which are sensitive to contamination from wear and tear. Performance and quality tests according to international standards guarantee reliable operation of the filter.

HYDAC filters are validated and their quality is continuously monitored according to the following standards:

- DIN ISO 2941:
Verification of collapse / burst resistance
- DIN ISO 2942:
Verification of fabrication integrity and determination of first bubble point
- DIN ISO 2943:
Verification of material compatibility with fluids
- ISO 3724:
Verification of flow fatigue characteristics
- ISO 3968:
Evaluation of pressure drop versus flow characteristics
- ISO 4572/ISO16889:
Multi-pass method for evaluating filtration performance
In addition to guaranteeing retention and flow rate characteristics, the filter elements have excellent structural stability.
The careful construction and mechanically stable support of the filter media guarantee above-average beta value stability and flow fatigue characteristics of the filter elements.
The filter elements are available with the following collapse/burst stability values:
Betamicon® (BN/HC): 25 bar

1.3. CLOGGING INDICATORS

Type of indicator _____
VD differential pressure indicator

Pressure setting _____
5 5 bar standard

Indicator type code _____
B. = visual
C. = electrical
D. = visual/electrical

Modification number _____
X the latest version is always supplied

Supplementary details _____
-V Viton
-LED 2 light-emitting diodes up to 24 volt
-L.. light with corresponding voltage (24, 48, 110, 220 volt)

For further details on clogging indicators, please see:
Brochure no.: E 7.050../.

1.4. SEALS

Optionally Perbunan (= NBR) or Viton (= FPM, for HFD oils)

1.5. SPECIAL MODELS AND ACCESSORIES

On request

1.6. SPARE PARTS

See original Spare Parts and Maintenance Instructions.

1.7. COMPATIBILITY WITH OPERATING FLUIDS

DIN ISO 2943:

- Hydraulic oils H to HLPD to DIN 51524
- Lubrication oils to DIN 51517, APJ, ACEA, DIN 51515, ISO 6743
- Compressor oils to DIN 51506
- Rapidly biodegradable operating fluids to VDMA 24568 HETG, HEES, HEPG
- Non-flam operating fluids HFD. For HFA, HFB and HFC fluids, please contact HYDAC
- Operating fluids with high water content (>50 water content) on request

For further details on filter elements:

Brochure no.: E 7.200../.

2. GENERAL

Mounting

As inline filter

Direction of flow

Inlet: on side

Outlet: on opposite side,
 at same height

Temperature range

-10 °C to +100 °C

Lower temperatures (-30 °C) are only possible at reduced pressure (140 bar)

Pressure setting of the differential pressure clogging indicator

$\Delta p_a = 5 \text{ bar} - 10\%$

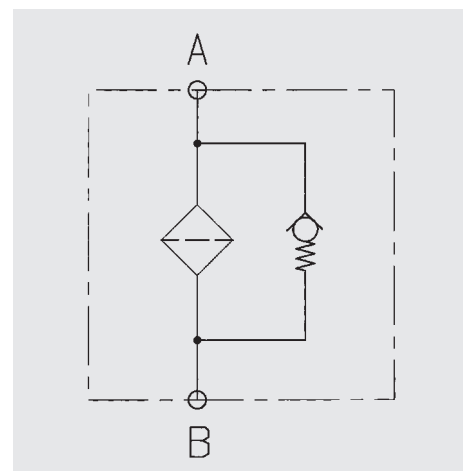
Other pressure settings on request!

Cracking pressure of the bypass valve

$\Delta p_o = 7 \text{ bar}$

Other cracking pressures on request

Symbol



3. MODEL CODE

(also order example)

MFM BN/HC 55 O D 10 W 4 . X /-V-B7

3.1. COMPLETE FILTER

Filter type _____

MFM

Filter material of element _____

BN/HC Betamicron®

Size / Material of housing _____

	Filter size			
	35	55	75	95
Head	EN-GJS 400-15 (SG iron)			
Bowl	Cold impact formed steel			

Operating pressure _____

O = 280 bar

Type / Size of port _____

Type	Port	Filter size			
		35	55	75	95
A	M 18 x 1.5	●	●	●	●
B	G ½	●	●	●	●
D	M 22 x 1.5	●	●	●	●
H	G ¾	●	●	●	●
Z	according to customer specification				

Other ports on request!

Filtration rating in µm _____

BN/HC: 3, 5, 10, 20

Type of clogging indicator _____

W = without port for clogging indicator

A = without clogging indicator, steel blanking plug in indicator port

B = with visual indicator

C = with electrical indicator

D = with combined visual/electrical indicator

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

Type code _____

3 clogging indicator port on side of head
3 mounting holes

4 clogging indicator port on top of head
4 mounting holes

Modification number _____

X the latest version is always supplied

Supplementary details _____

B7 standard (cracking pressure of the bypass valve 7 bar)

V FPM seals, filter suitable for rapidly biodegradable fluids and phosphate esters (HFD-R)

L... light with corresponding voltage (24V, 48V, 110V, 220V)

LED 2 light-emitting diodes up to 24V

WAL right-angled bracket for side mounting, inlet on left (only possible for type code 4.X)

WAR right-angled bracket for side mounting, inlet on right (only possible for type code 4.X)

3.2. REPLACEMENT ELEMENT

0055 D 010 BN/HC /-V

Size _____

0035, 0055, 0075, 0095

Type _____

D

Filtration rating in µm _____

BN/HC: 3, 5, 10, 20

Filter material _____

BN/HC

Supplementary details _____

V = FPM seals, filter suitable for rapidly biodegradable fluids and phosphate esters (HFD-R)

4. FILTER SPECIFICATIONS

Filter type	Port	Element size	Weight [kg] with element
35	M 18 x 1.5*	0035 D...	3.3 kg
55	M 18 x 1.5*	0055 D...	3.9 kg
75	M 18 x 1.5*	0075 D...	4.5 kg
95	M 18 x 1.5*	0095 D...	4.9 kg

* for other models see Point 3: Model code

4.1. MAX. OPERATING PRESSURE

280 bar is given as the max. operating pressure.
0...280 bar, min. 10^7 cycles
0...320 bar, min. 10^5 cycles

5. FILTER CALCULATION / SIZING

The total pressure drop of a filter at a certain flow rate is the sum of the housing Δp and element Δp .

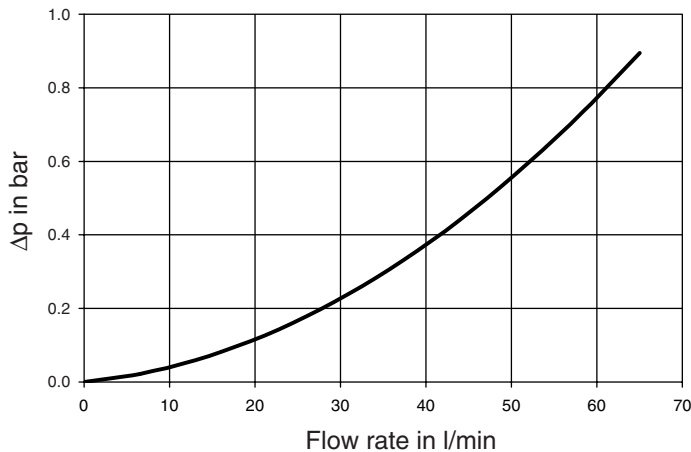
The pressure drop can be determined either with the aid of our Filter Sizing Program FSP, which is available free of charge, or by using the following graphs.

5.1. Δp -Q HOUSING GRAPHS TO ISO 3968

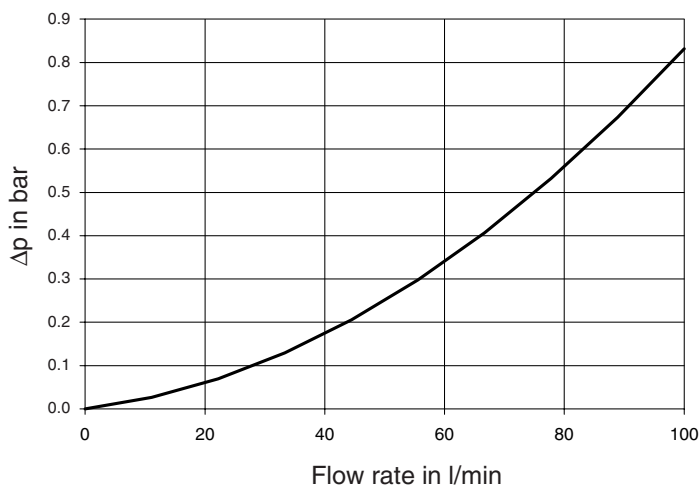
The housing graphs apply to mineral oil with a density of 0.86 kg/dm^3 and a kinematic viscosity of $30 \text{ mm}^2/\text{s}$ for, in each case, the largest nominal width per size.

In this case, the differential pressure changes proportionally to the density.

Port M18 x 1.5 / G $\frac{1}{2}$



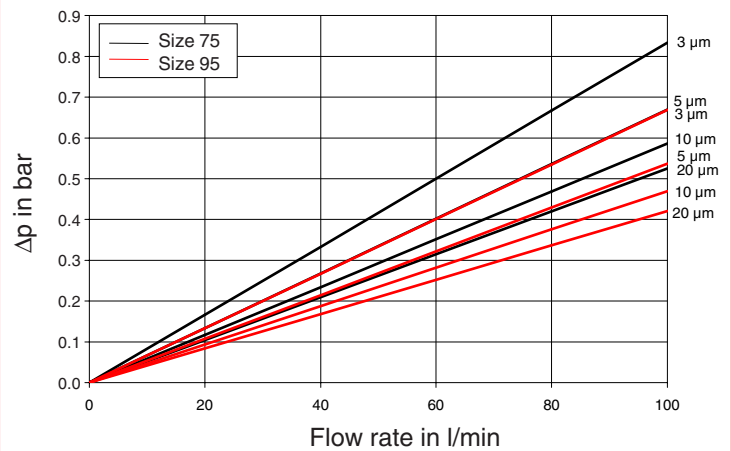
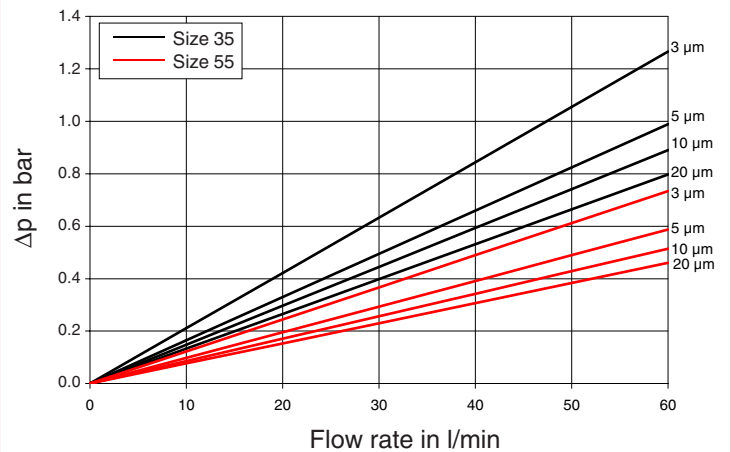
Port M22 x 1.5 / G $\frac{3}{4}$



5.2. Δp -Q GRAPHS - FILTER ELEMENTS

The element graphs apply to mineral oil with a kinematic viscosity of $30 \text{ mm}^2/\text{s}$.

The pressure drop changes proportionally to the change in viscosity (see Example 5.3.)



5.3. EXAMPLE

General

$$\Delta p_{\text{total}} = \Delta p_{\text{housing}} + \Delta p_{\text{element}} \cdot \frac{\text{Viscosity (mm}^2/\text{s)}}{30 \text{ mm}^2/\text{s}}$$

$$\Delta p_{\text{housing}} = \text{see point 5.1.}$$

$$\Delta p_{\text{element}} = \text{flow rate} \cdot \text{gradient coefficient (see 5.2.)}$$

Example

System data:

$Q = 70 \text{ l/min}$; MFM 95 with BN/HC element ($10 \mu\text{m}$);
Viscosity = $46 \text{ mm}^2/\text{s}$

$$\Rightarrow \Delta p_{\text{housing}} = 0.45 \text{ bar}$$

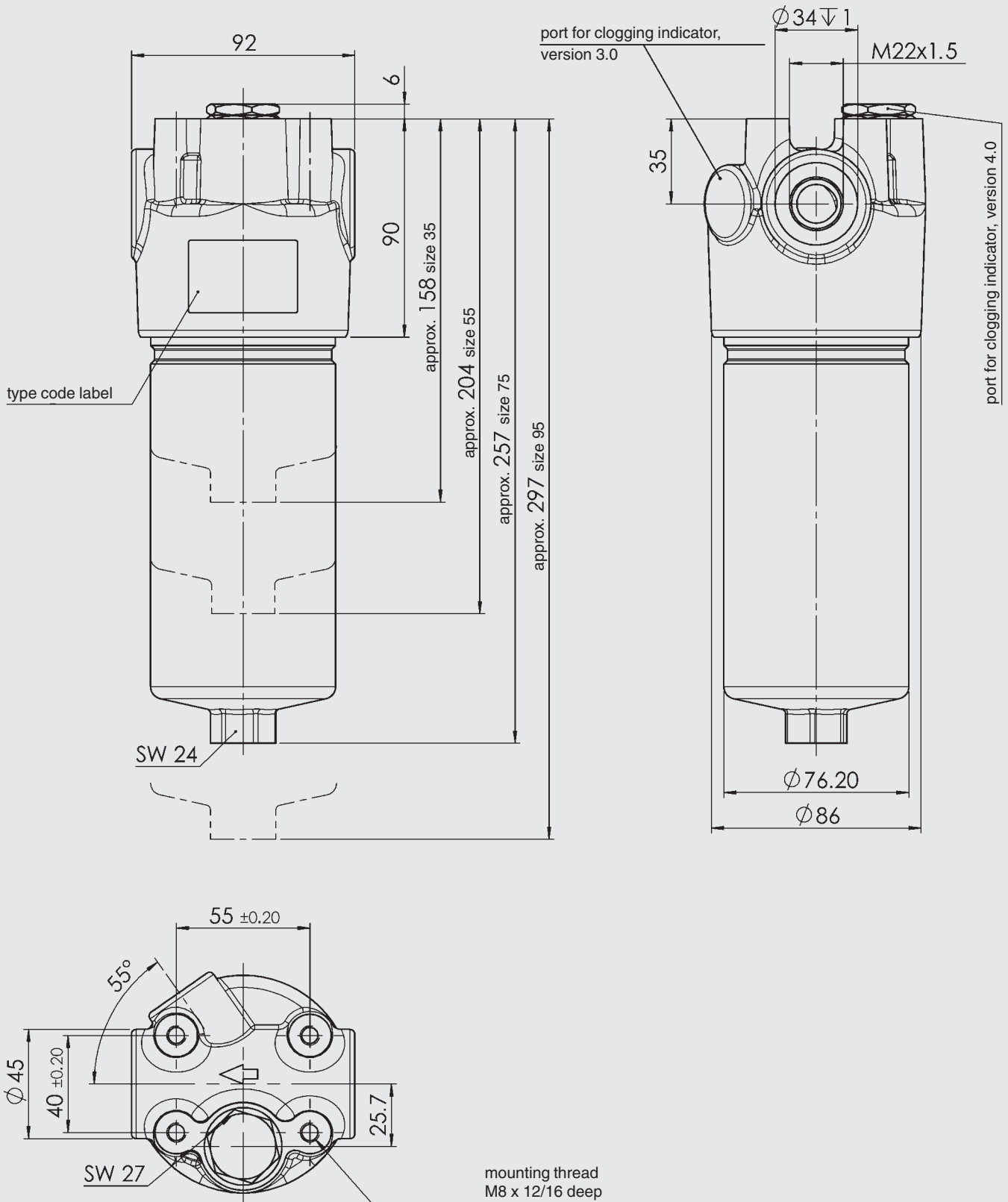
$$\Delta p_{\text{element}} = 0.32 \cdot \frac{46 \text{ mm}^2/\text{s}}{30 \text{ mm}^2/\text{s}} = 0.49 \text{ bar}$$

$$\Delta p_{\text{total}} = \underline{\underline{0.94 \text{ bar}}}$$

For ease of calculation, our Filter Sizing Program is available and can be ordered via our website www.hydac.com.

6. DIMENSIONS

6.1. MFM 35 - 95



7. 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.