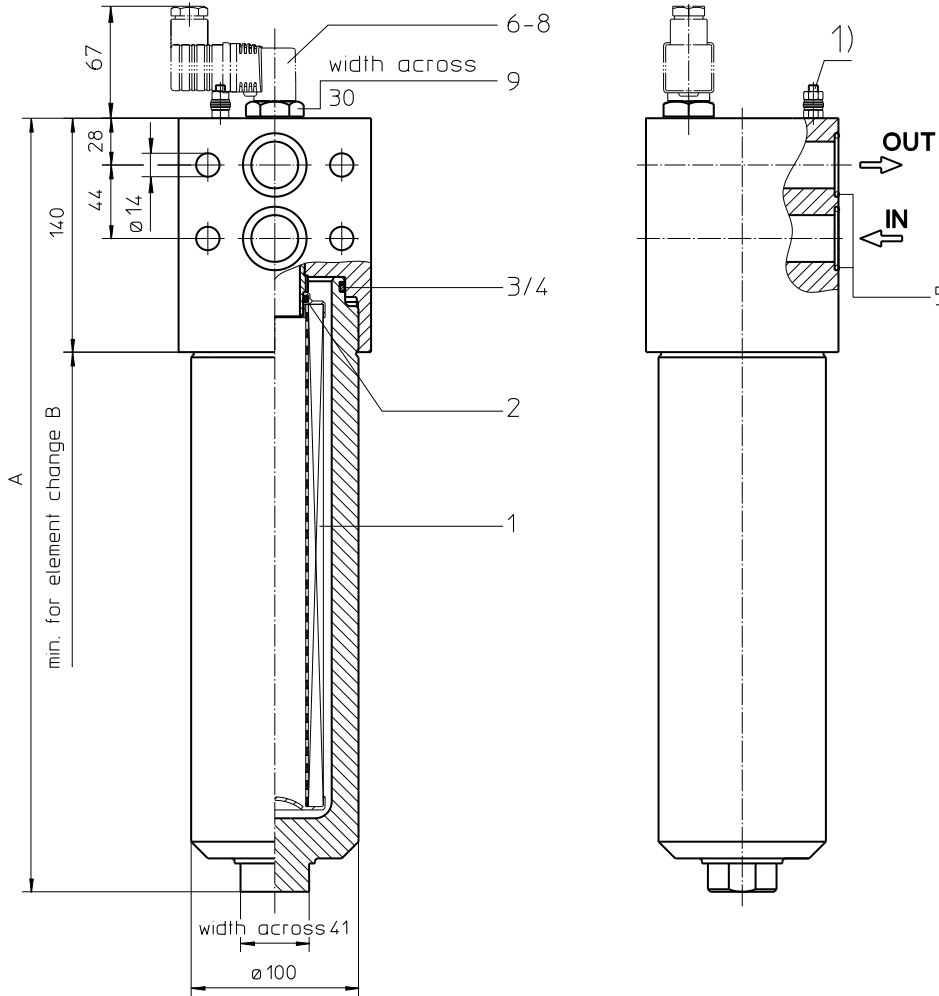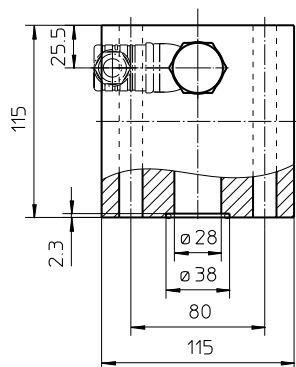# Series EHPF 170-450
DN28 PN315

1) Connection for the potential equalization,
   only for application in the explosive area.

Dimensions:

type	EHPF 170	EHPF 240	EHPF 360	EHPF 450
connection	DN 28			
A	333	383	463	568
B	330	380	460	656
weight kg	22	24	26	30
volume tank	0,7 l	0,9 l	1,2 l	1,6 l

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter
Series EHPF 170-450
DN28 PN315

Description:

Stainless steel-pressure filter series EHPF 170-450 have a working pressure up to 315 bar. Pressure peaks can be absorbed with a sufficient safety margin. The EHPF-filters are flanged to the mounting-surface.

The filter element consists of star-shaped, pleated filter material, which is supported on the inside by a perforated core tube and is bonded to the end caps with a high-quality adhesive. The flow direction is from outside to inside. Filter elements are available down to 5 µm$_{(c)}$.

Eaton filter elements are known for high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

Eaton filter elements are available up to a pressure resistance of Δp 160 bar and a rupture strength of Δp 250 bar.

Eaton filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.

The internal valve is integrated into the filter head. After reaching the bypass pressure setting, the bypass valve will send unfiltered partial flow around the filter.

The reversing valve provides another level of protection for the filter element. The reverse flow will not be filtered.

1. Type index:

1.1. Complete filter: (ordering example)

EHPF. 360. 10VG. HR. E. P. VA. F. 5. VA. -. AE
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

1 | series:
EHPF = stainless steel-pressure filter, manifold mounted

2 | nominal size: 170, 240, 360, 450

3 | filter material:
80G, 40G, 25G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass

4 | filter element collapse rating:
30 = Δp 30 bar
HR = Δp 160 bar (rupture strength Δp 250 bar)

5 | filter element design:
E = single-end open

6 | sealing material:
P = Nitrile (NBR)
V = Viton (FPM)

7 | filter element specification:
- = standard
VA = stainless steel
IS06 = for HFC applications, see sheet-no. 31601

8 | process connection:
F = manifold mounted

9 | process connection size:
5 = DN 28

10 | filter housing specification:
VA = stainless steel

11 | internal valve:
- = without
S1 = with by-pass valve Δp 3,5 bar
S2 = with by-pass valve Δp 7,0 bar
R = reversing valve, Q ≤ 211,008 l/min

12 | clogging indicator or clogging sensor:
- = without
AOR = visual, see sheet-no. 1606
AOC = visual, see sheet-no. 1606
AE = visual-electric, see sheet-no. 1615
VS5 = electronic, see sheet-no. 1619

To add an indicator/sensor to your filter, use the corresponding indicator data sheet to find the indicator details and add them to the filter assembly model code.

1.2. Filter element: (ordering example)

01E. 360. 10VG. HR. E. P. VA
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

1 | series:
01E. = filter element according to company standard

2 | nominal size: 170, 240, 360, 450

3 | - | 7 | see type index-complete filter

.

Technical data:

operating temperature:	-10°C to +100°C
operating medium	mineral oil, other media on request
max. operating pressure:	315 bar
test pressure:	450 bar
process connection:	manifold mounted
housing material:	EN10088-1.4571 (320 S 18, 320 S 31 according to B.S.)
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical

Classified under the Pressure Equipment Directive 2014/68/EU for mineral oil (fluid group 2), Article 4, Para. 3.
Classified under ATEX Directive 2014/34/EU according to specific application (see questionnaire sheet-no. 34279-4).

Pressure drop flow curves:

Filter calculation/sizing

The pressure drop of the assembly at a given flow rate Q is the sum of the housing Δp and the element Δp and is calculated as follows:

$\Delta p_{\,assembly} = \Delta p_{\,housing} + \Delta p_{\,element}$
$\Delta p_{\,housing} = (\text{see } \Delta p = f\,(Q) \text{ - characteristics})$

$$\Delta p_{element}\,(mbar) = \; Q\,\left(\frac{l}{min}\right)\; x\; \frac{MSK}{10}\left(\frac{mbar}{l/min}\right)\; x\; v\left(\frac{mm^2}{s}\right)\; x\; \frac{p}{0{,}876}\left(\frac{kg}{dm^3}\right)$$

For ease of calculation our Filter Selection tool is available online at www.eaton.com/hydraulic-filter-evaluation
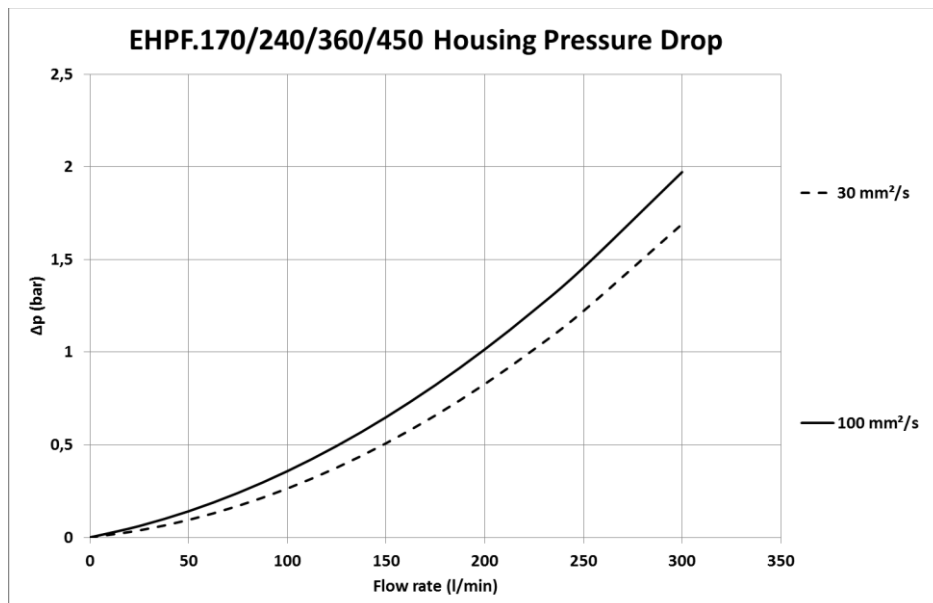
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in mbar/(l/min) apply to mineral oil (HLP) with a density of 0,876 kg/dm³ and a kinematic viscosity of 30 mm²/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.
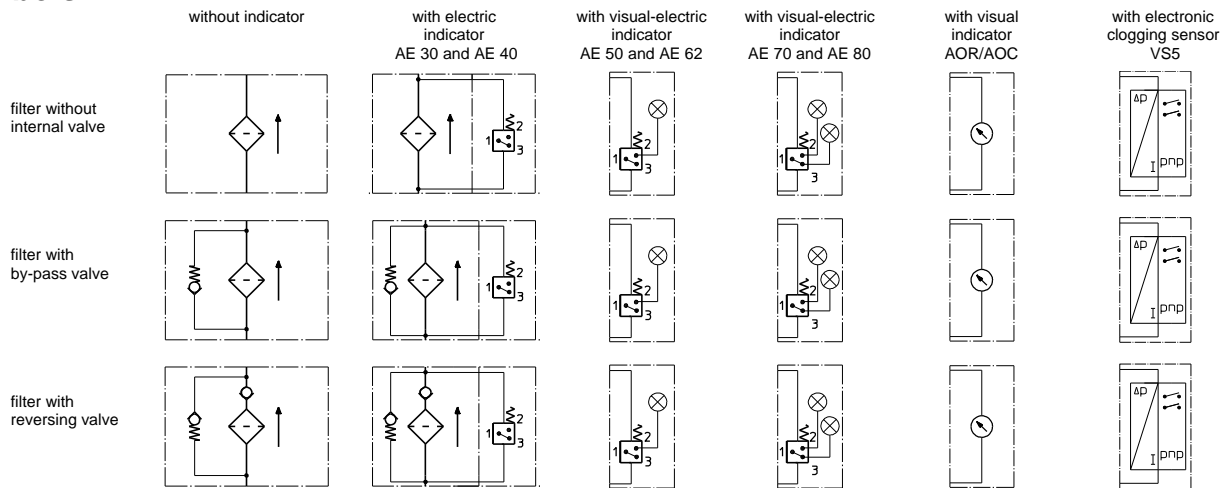
EHPF	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
170	2,187	1,518	0,972	0,846	0,578	0,0685	0,0640	0,0438
240	1,685	1,170	0,749	0,652	0,446	0,0531	0,0496	0,0340
360	1,233	0,856	0,548	0,477	0,326	0,0388	0,0362	0,0248
450	0,907	0,630	0,403	0,351	0,240	0,0285	0,0266	0,0182

Δp = f(Q) – characteristics according to ISO 3968

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0,876 kg/dm³. The pressure drop changes proportionally to the density.

EHPF.170/240/360/450 Housing Pressure Drop

Symbols:

	without indicator	with electric indicator AE 30 and AE 40	with visual-electric indicator AE 50 and AE 62	with visual-electric indicator AE 70 and AE 80	with visual indicator AOR/AOC	with electronic clogging sensor VS5
filter without internal valve						
filter with by-pass valve						
filter with reversing valve						

Spare parts:

item	qty.	designation	dimension				article-no.	
			EHPF 170	EHPF 240	EHPF 360	EHPF 450		
1	1	filter element	01E.170…	01E.240…	01E.360…	01E.450…		
2	1	O-ring	34 x 3,5				304338 (NBR)	304730 (FPM)
3	1	O-ring	76 x 4				305599 (NBR)	310291 (FPM)
4	1	support ring	84 x 3,6 x 1,5				312307	
5	2	O-ring	32 x 3				304368 (NBR)	311020 (FPM)
6	1	clogging indicator visual	AOR or AOC				siehe Blatt-Nr. 1606	
7	1	clogging indicator visual-electric	AE				siehe Blatt-Nr. 1615	
8	1	clogging sensor electronic	VS5				siehe Blatt-Nr. 1619	
9	1	screw plug	20913-4				314442	

item 9 execution only without clogging indicator or clogging sensor

Test methods:

Filter elements are tested according to the following ISO standards:

ISO 2941	Verification of collapse/burst resistance
ISO 2942	Verification of fabrication integrity
ISO 2943	Verification of material compatibility with fluids
ISO 3723	Method for end load test
ISO 3724	Verification of flow fatigue characteristics
ISO 3968	Evaluation of pressure drop versus flow characteristics
ISO 16889	Multi-pass method for evaluating filtration performance

For more information, please email us at *filtration@eaton.com* **or visit** *www.eaton.com/filtration*

F·A·T·O·N
Powering Business Worldwide