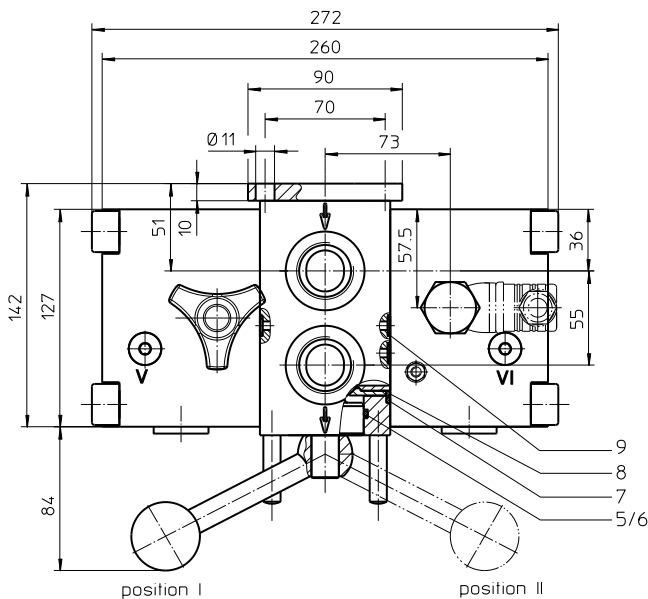
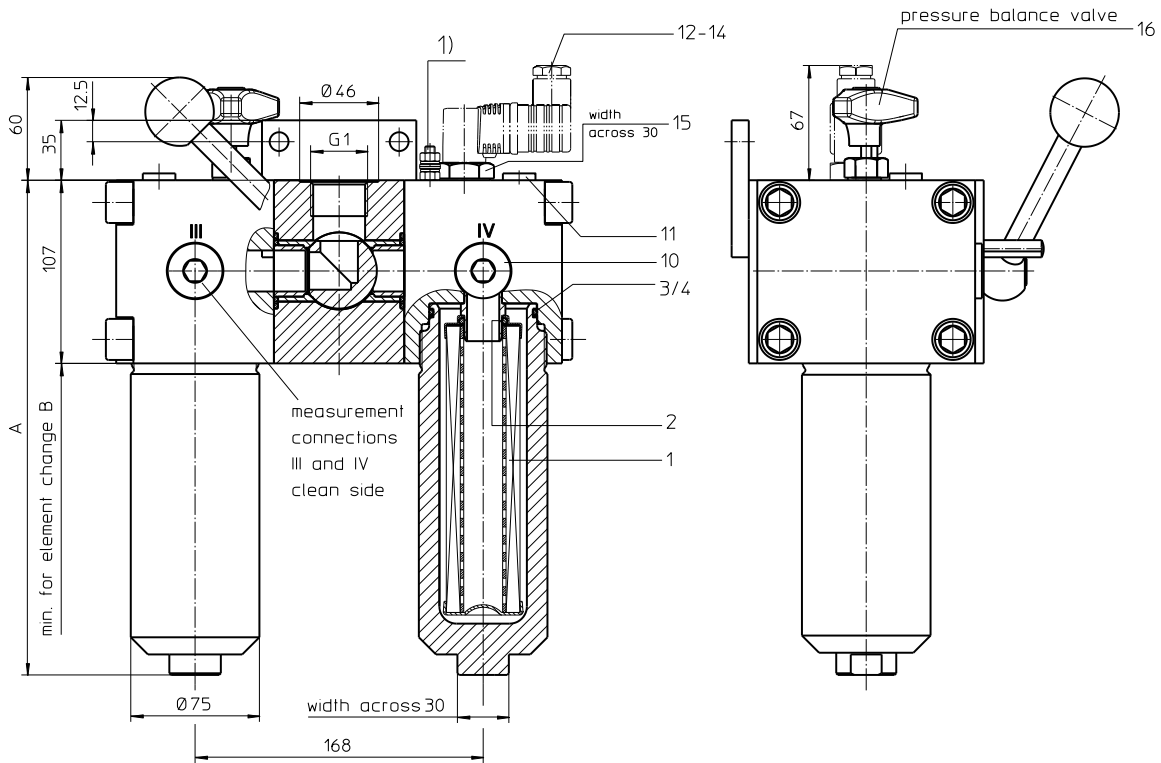


Series EHD 61-151

DN25 PN315



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

Connections V and VI to be used for pressure relief and air bleeding respective filter side.

Dimensions:

type	EHD 61	EHD 91	EHD 151
connection	G 1		
A	224	289	399
B	210	340	450
weight kg	31	34	38
volume tank	2x 0,25 l	2x 0,4 l	2x 0,6 l

Position I: left filter side in operation
 Position II: right filter side in operation

Dimensions: mm

Designs and performance values are subject to change.

Pressure Filter, change over Series EHD 61-151 DN25 PN315

Description:

Stainless steel-pressure filters change over series EHD 61-151 are suitable for operating pressure up to 315 bar. The pressure peaks are absorbed by a sufficient margin of safety.

Duplex filters can be serviced without interruption of operation. The upper part has a three-way-change-over valve which allows to change-over the flow from the dirty filter-side to the clean filter-side without interrupting the operation. The change-over procedure does not lead to a cross sectional contraction. Prior to the change-over procedure a built-in pressure balance valve equalizes the housing pressure. After change-over the pressure balance valve is to be closed again. The closed filter-side has to be air-bled by vent V respectively by vent VI. Then change filter element. After screw in the filter bowl the pressure balance has to be opened shortly and the just serviced filter-side has to be air-bled. Filter elements are available down to a filter fineness of $5 \mu\text{m}_{(C)}$.

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 with a pressure difference resistance up to Δp 160 bar and a rupture strength up to Δp 250 bar.

The internal valves are integrated into the centering pivot for the filter element.

After reaching the opening pressure the by-pass valve causes that an unfiltered partial flow passes the filter. The reversing valve provides another level of protection for the filter element. The reverse flow will not be filtered.

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

Type index:

Complete filter: (ordering example)

EHD. 91. 10VG. HR. E. P. VA. G. 5. VA. - . - . AE

1	2	3	4	5	6	7	8	9	10	11	12	13
---	---	---	---	---	---	---	---	---	----	----	----	----

- | | |
|----|--|
| 1 | series:
EHD = Stainless steel-pressure filter change over |
| 2 | nominal size: 61, 91, 151 |
| 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 |
| 8 | process connection:
G = thread connection according to ISO 228 |
| 9 | process connection size:
5 = G 1 |
| 10 | filter housing specification:
VA = stainless steel |
| 11 | specification pressure vessel:
- = standard (PED 2014/68/EU)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217 (max. operating pressure 250 bar) |
| 12 | internal valve:
- = without
S1 = with bypass valve Δp 3,5 bar
S2 = with bypass valve Δp 7,0 bar
R = reversing valve, $Q \leq 70,06$ l/min |
| 13 | 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.

Filter element: (ordering example)

01E. 90. 10VG. HR. E. P. VA

1	2	3	4	5	6	7
---	---	---	---	---	---	---

- | | |
|---|--|
| 1 | series:
01E = filter element according to company standard |
| 2 | nominal size: 60, 90, 150 |
| 3 | - 7 see type index-complete filter |

Accessories:

- gauge port- and bleeder connections, see sheet-no. 1650

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
max. operating pressure at IS20:	250 bar
test pressure at IS20:	325 bar
process connection:	thread connection according to ISO 228
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
measuring- and bleeder connections dirt side:	G ¼
measuring connections clean side:	G ¾

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:

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

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

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

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

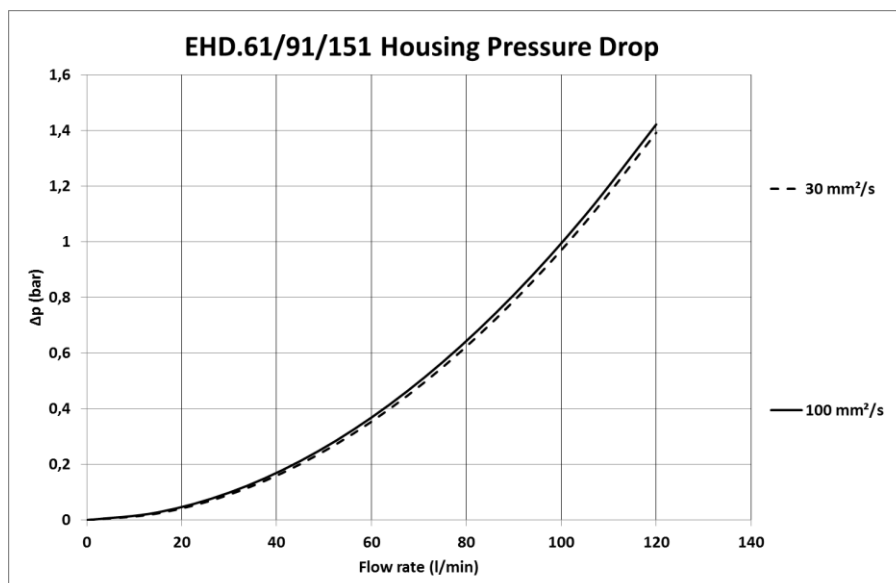
Material gradient coefficients (MSK) for filter elements

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.

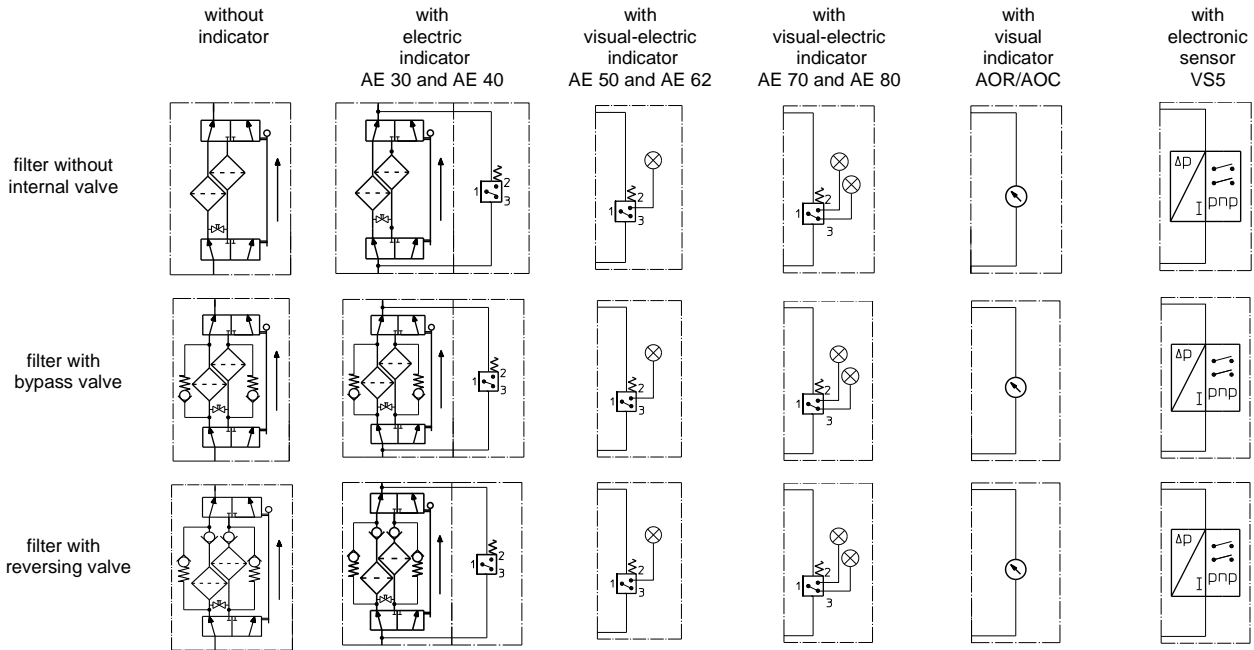
EHD	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
61	5,438	3,775	2,417	2,104	1,438	0,2205	0,1635	0,1526
91	3,271	2,271	1,454	1,266	0,865	0,1333	0,0988	0,0922
151	1,952	1,355	0,867	0,755	0,516	0,0796	0,0590	0,0551

$\Delta p = f(Q)$ – 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.



Symbols:



Spare parts:

item	qty.	designation	dimension			artike-no.	
			EHD 61	EHD 91	EHD 151		
1	2	filter element	01E.60...	01E.90...	01E.150...		
2	2	O-ring	22 x 3,5			304341 (NBR)	304392 (FPM)
3	2	O-ring	56 x 3			305072 (NBR)	305322 (FPM)
4	2	support ring	63 x 2,6 x 1			312309	
5	3	O-ring	45 x 3			304991 (NBR)	304997 (FPM)
6	2	support ring	49,7 x 2,4 x 1			317709	
7	4	O-ring	38 x 3			304340 (NBR)	317013 (FPM)
8	4	O-ring	28 x 3			316778 (NBR)	318366 (FPM)
9	4	O-ring	8 x 2			310004 (NBR)	316530 (FPM)
10	2	screw plug	G 3/4			313815	
11	2	screw plug	G 1/4			306968	
12	1	clogging indicator, visual	AOR or AOC			see sheet-no. 1606	
13	1	clogging indicator, visual-electric	AE			see sheet-no. 1615	
14	1	clogging sensor, electronic	VS5			see sheet-no. 1619	
15	1	screw plug	20913-4			314442	
16	1	pressure balance valve	DN10			310316	

item 15 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

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or visit www.eaton.com/filtration**

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