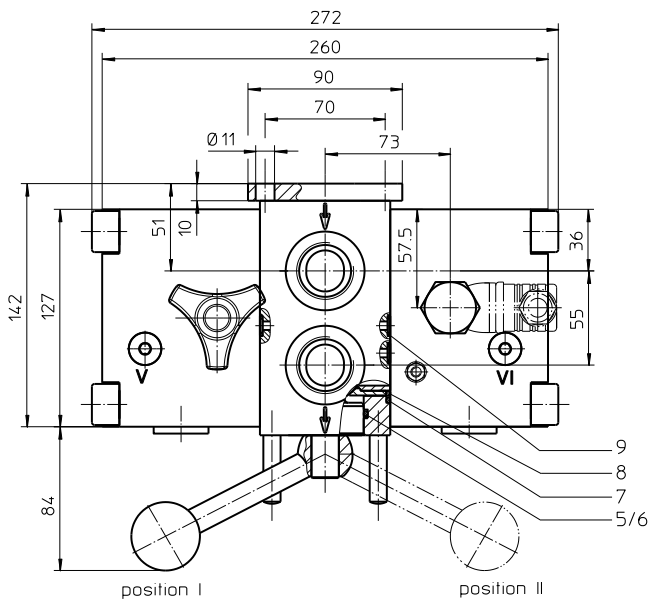
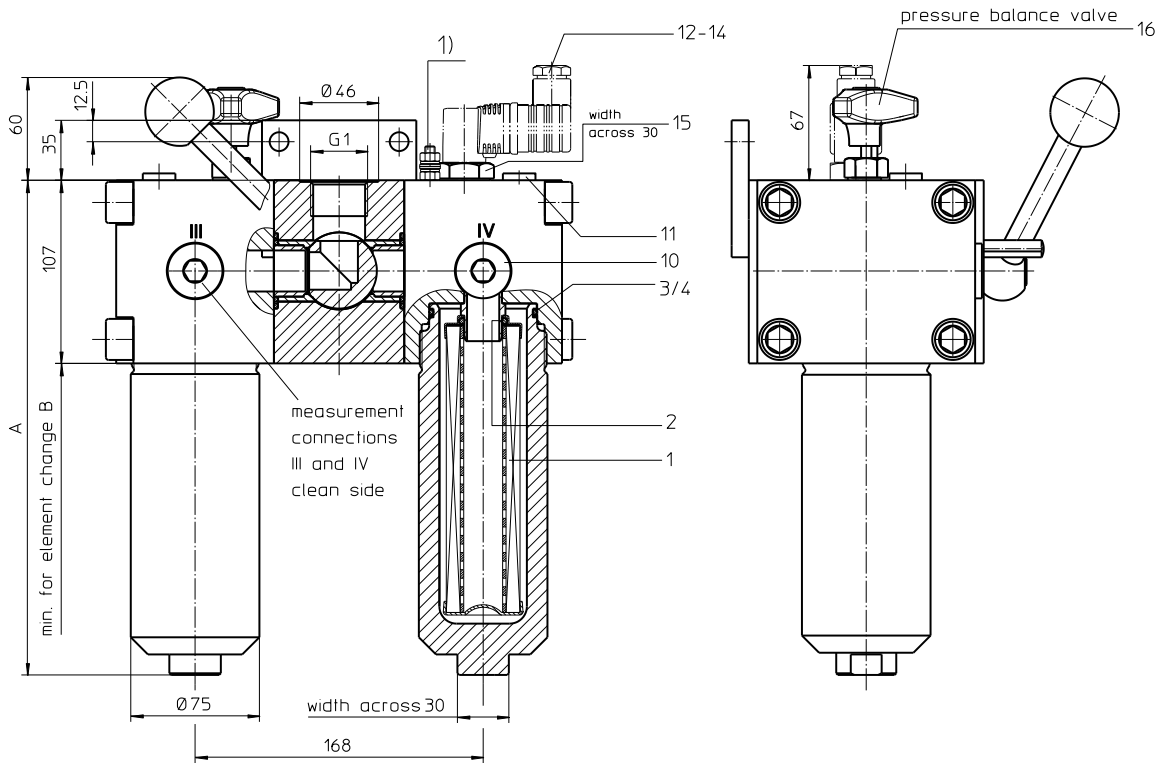


# Series EHD 61-151

## 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  $\Delta p$  160 bar and a rupture strength up to  $\Delta p$  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 =  $\Delta p$  30 bar  
HR =  $\Delta p$  160 bar (rupture strength  $\Delta p$  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  $\Delta p$  3,5 bar  
S2 = with bypass valve  $\Delta p$  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  $\Delta p$  and the element  $\Delta p$  and is calculated as follows:

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

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

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

For ease of calculation our Filter Selection tool is available online at [www.eaton.com/hydraulic-filter-evaluation](http://www.eaton.com/hydraulic-filter-evaluation)

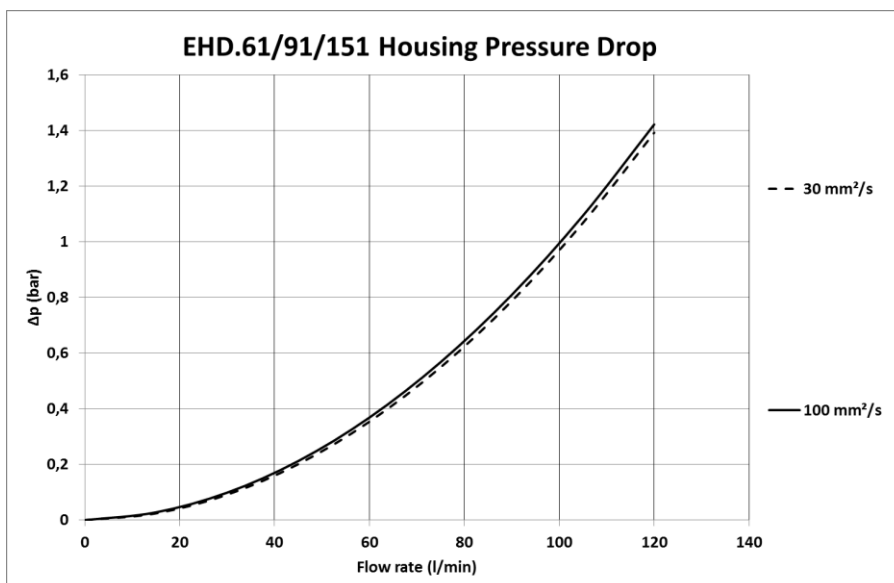
### Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in mbar/(l/min) apply to mineral oil (HLP) with a density of 0,876 kg/dm<sup>3</sup> and a kinematic viscosity of 30 mm<sup>2</sup>/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.

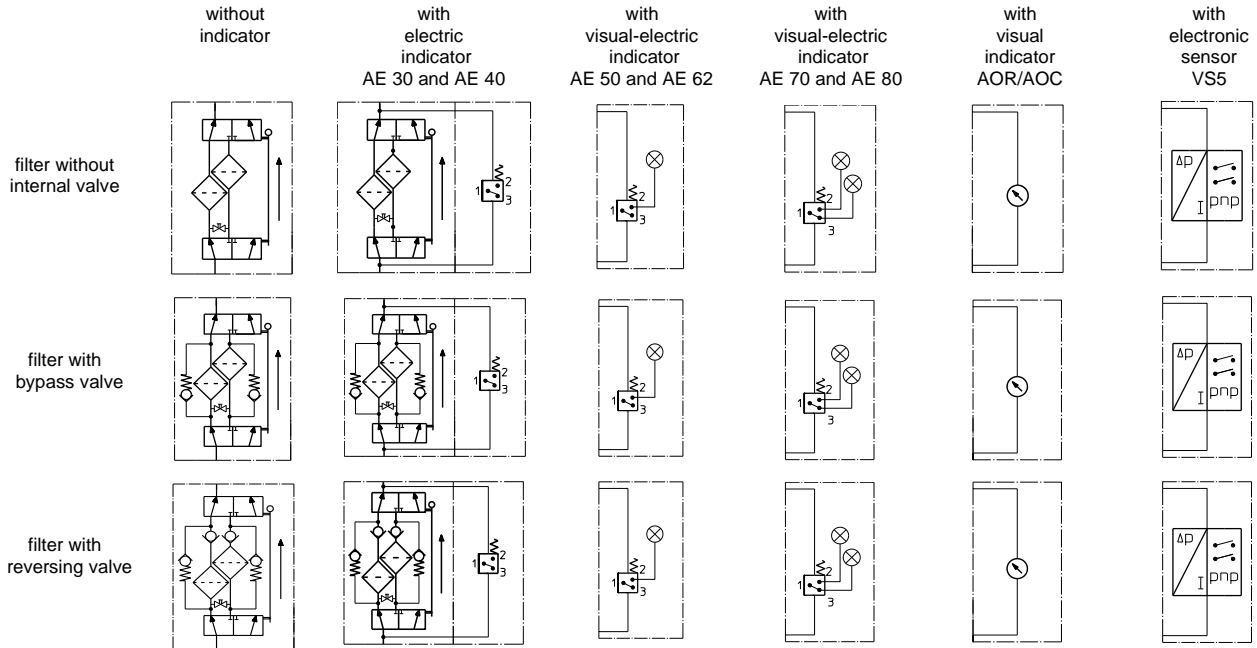
EHD	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
61	5,438	3,775	2,417	2,104	1,438	0,2205	0,1635	0,1526
91	3,271	2,271	1,454	1,266	0,865	0,1333	0,0988	0,0922
151	1,952	1,355	0,867	0,755	0,516	0,0796	0,0590	0,0551

### $\Delta p = f(Q)$ – characteristics according to ISO 3968

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0,876 kg/dm<sup>3</sup>. The pressure drop changes proportionally to the density.



## Symbols:



## Spare parts:

item	qty.	designation	dimension			article-no.	
			EHD 61 01E.60...	EHD 91 01E.90...	EHD 151 01E.150...		
1	2	filter element					
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 1/2		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

**North America**  
44 Apple Street  
Tinton Falls, NJ 07724  
Toll Free: 800 656-3344  
(North America only)  
Tel: +1 732 212-4700

**Greater China**  
No. 7, Lane 280,  
Linhong Road  
Changning District, 200335  
Shanghai, P.R. China  
Tel: +86 21 5200-0099

**Europe/Africa/Middle East**  
Auf der Heide 2  
53947 Nettersheim, Germany  
Tel: +49 2486 809-0

Friedensstraße 41  
68804 Altlußheim, Germany  
Tel: +49 6205 2094-0

An den Nahewiesen 24  
55450 Langenlonsheim, Germany  
Tel: +49 6704 204-0

**Asia-Pacific**  
100G Pasir Panjang Road  
#07-08 Interlocal Centre  
Singapore 118523  
Tel: +65 6825-1668

**For more information, please  
email us at [filtration@eaton.com](mailto:filtration@eaton.com)  
or visit [www.eaton.com/filtration](http://www.eaton.com/filtration)**

© 2021 Eaton. All rights reserved. All trademarks and registered trademarks are the property of their respective owners. All information and recommendations appearing in this brochure concerning the use of products described herein are based on tests believed to be reliable. However, it is the user's responsibility to determine the suitability for his own use of such products. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by Eaton as to the effects of such use or the results to be obtained. Eaton assumes no liability arising out of the use by others of such products. Nor is the information herein to be construed as absolutely complete, since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.