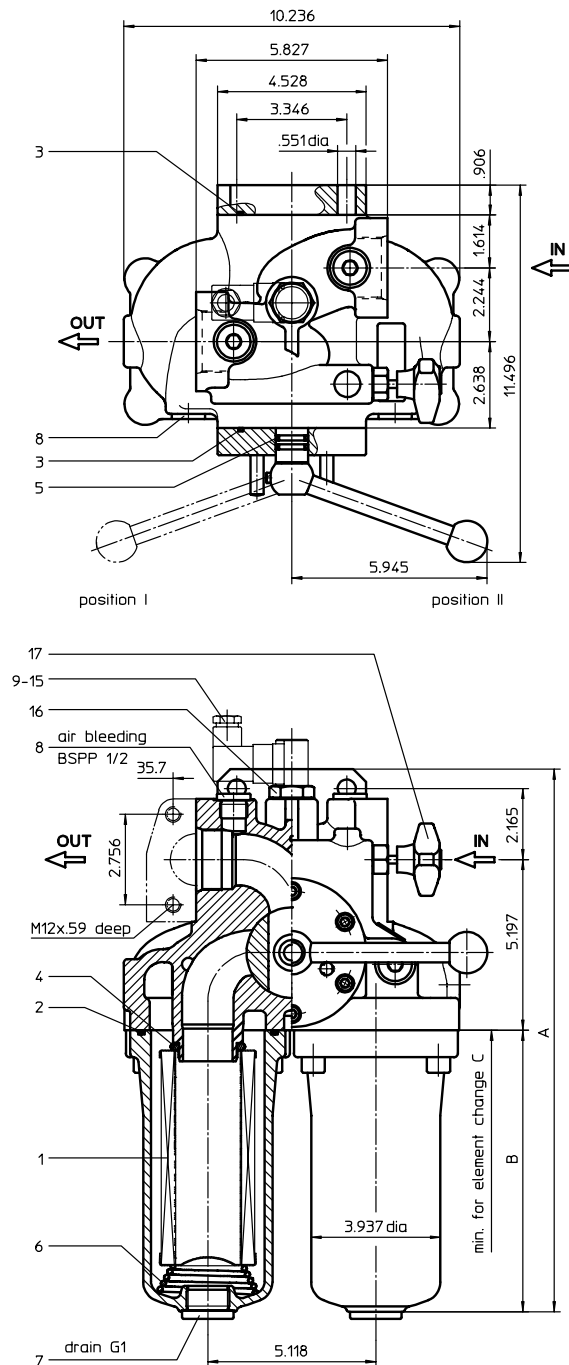


# PRESSURE FILTER, change-over

## Series DSF 176 - 331 363 PSI

Sheet No.  
**2148 A**



Pos. I: left filter-side in operation  
Pos. II: right filter-side in operation

**Information:**  
Execution IN left/OUT right  
see data sheet-no. 2149 !

### 1. Type index:

#### 1.1. Complete filter: (ordering example)

**DSF. 176. 10VG. 16. E. P. -. FS. 7. -. -. AE**

1	2	3	4	5	6	7	8	9	10	11	12
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- 1 **series:**  
DSF = duplex filter, change-over
- 2 **nominal size:** 176, 331
- 3 **filter-material and filter- fineness:**  
80 G = 80  $\mu\text{m}$ , 40 G = 40  $\mu\text{m}$ , 25 G = 25  $\mu\text{m}$  stainless steel wire mesh  
25 VG = 20  $\mu\text{m}_{(c)}$ , 16 VG = 15  $\mu\text{m}_{(c)}$ , 10 VG = 10  $\mu\text{m}_{(c)}$ ,  
6 VG = 7  $\mu\text{m}_{(c)}$ , 3 VG = 5  $\mu\text{m}_{(c)}$  Interpor fleece (glass fiber)  
25 P = 25  $\mu\text{m}$ , 10 P = 10  $\mu\text{m}$  paper
- 4 **resistance of pressure difference for filter element:**  
16 =  $\Delta p$  232 PSI
- 5 **filter element design:**  
E = without by-pass valve
- 6 **sealing material:**  
P = Nitrile (NBR)  
V = Viton (FPM)
- 7 **filter element specification:**  
- = standard  
VA = stainless steel
- 8 **connection:**  
FS = SAE-flange connection 3000 PSI  
UG = thread connection
- 9 **connection size:**  
7 = 1 1/2"
- 10 **filter housing specification:**  
- = standard
- 11 **internal valve:**  
- = without  
S1 = with by-pass valve  $\Delta p$  51 PSI  
S2 = with by-pass valve  $\Delta p$  102 PSI
- 12 **clogging indicator or clogging sensor :**  
- = without  
AOR = visual, see sheet-no. 1606  
AOC = visual, see sheet-no. 1606  
AE = visual-electrical, see sheet-no. 1615  
VS1 = electronical, see sheet-no. 1617  
VS2 = electronical, see sheet-no. 1618

#### 1.2. Filter element: (ordering example)

**01E. 175. 10VG. 16. E. P. -**

1	2	3	4	5	6	7
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- 1 **series:**  
01E. = filter element according to INTERNORMEN factory specification
- 2 **nominal size:** 175, 330
- 3 - 7 see type index complete filter

### 2. Accessories:

- counter flange see sheet-no. 1652

### 3. Dimensions:

type	A	B	C	weight lbs.	volume tank
DSF 176	16.35	8.58	9.84	79	2x .31 Gal.
DSF 331	21.85	13.89	15.35	84	2x .52 Gal.

EDV 04/09

Changes of measures and design are subject to alteration!

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## 4. Spare parts:

item	qty.	designation	dimension		article-no.	
			DSF 176	DSF 331		
1	2	filter element	01E. 175	01E. 330		
2	2	O-ring		98 x 4	301914 (NBR)	304765 (FPM)
3	2	O-ring		75 x 3	302215 (NBR)	304729 (FPM)
4	2	O-ring		44 x 6	302222 (NBR)	304384 (FPM)
5	2	O-ring		18 x 3	304359 (NBR)	304399 (FPM)
6	2	spring		Da = 52	304989	
7	2	screw plug		1 BSPP	305303	
8	4	screw plug		½ BSPP	304678	
9	1	clogging indicator, visual		AOR or AOC	see sheet-no.1606	
10	1	clogging indicator, visual-electrical		AE	see sheet-no.1615	
11	1	clogging sensor, electronical		VS1	see sheet-no.1617	
12	1	clogging sensor, electronical		VS2	see sheet-no.1618	
13	1	O-ring		15 x 1,5	315357 (NBR)	315427 (FPM)
14	1	O-ring		22 x 2	304708 (NBR)	304721 (FPM)
15	1	O-ring		14 x 2	304342 (NBR)	304722 (FPM)
16	1	screw plug		20913-4	309817	
17	1	pressure balance valve				

item 16 execution only without clogging indicator or clogging sensor

## 5. Description:

Duplex filters of the series DSF 176-331 are suitable for a working pressure up to 363 PSI.

Pressure peaks can be absorbed with a sufficient margin of safety.

A three-way-change-over valve which is integrated in the middle of the housing makes it possible to switch from the dirty filter-side to the clean filter-side without interrupting operation.

The filters can be installed as suction filter, pressure filter or return-line filter.

The filter element consist 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 the inside. Filter finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 µm<sub>(c)</sub> are available; finer filter elements on request.

INTERNORMEN-Filter elements are known as elements with a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

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

Approvals according to TÜV, and the major „Shipyards Classification Societies“ D.N.V.; B.V.; G.L.; L.R.S.; R.I.N.A.; A.B.S.; P.R.S.;USS.R.S. and others are possible.

The internal valve is integrated in the filter. After reaching the opening pressure the by-pass valve causes that an unfiltered partial flow passes the filter.

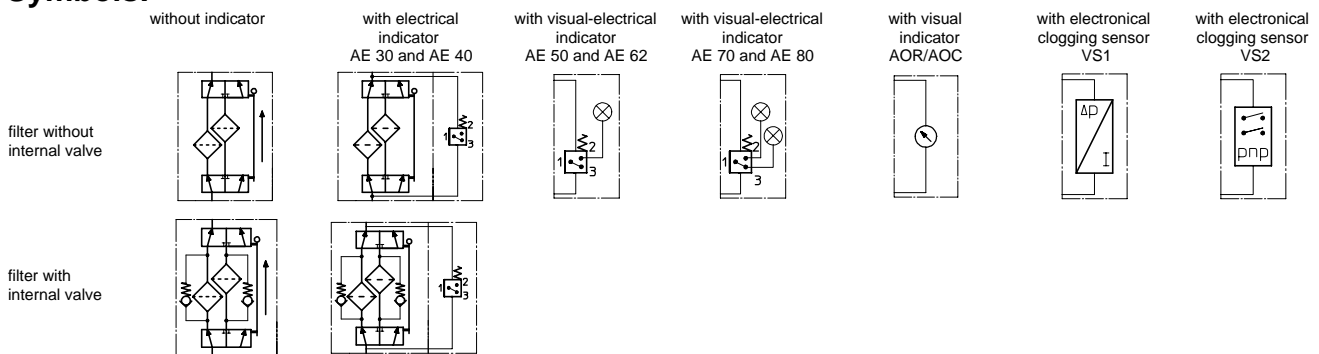
## 6. Technical data:

temperature range:	+14°F to +176°F (for a short time +212°F)
operating medium:	mineral oil, other media on request
max. operating pressure:	363 PSI
test pressure:	725 PSI
connection system:	SAE-flange 3000 PSI or thread
housing material:	EN-GJS-400-18-LT
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical

Classified under the Pressure Equipment Directive 97/23/EC for mineral oil (fluid group 2), Article 3, Para. 3.

Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

## 7. Symbols:



**8. Pressure drop flow curves:** Precise flow rates see 'INT-Expert-System Filter' respectively  $\Delta p$ -curves ; depending on filter fineness and viscosity.

**9. 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