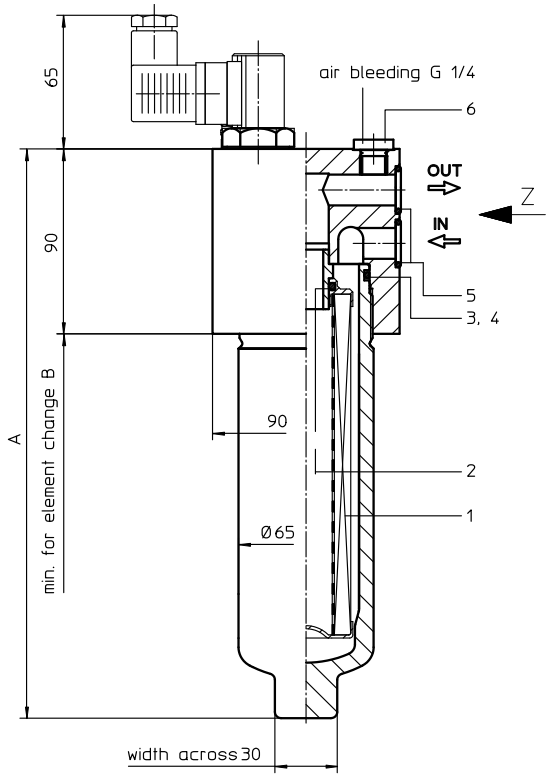
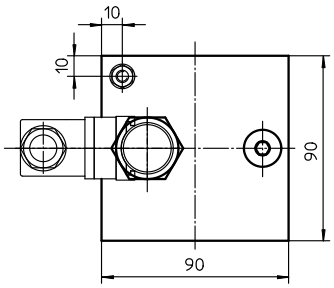
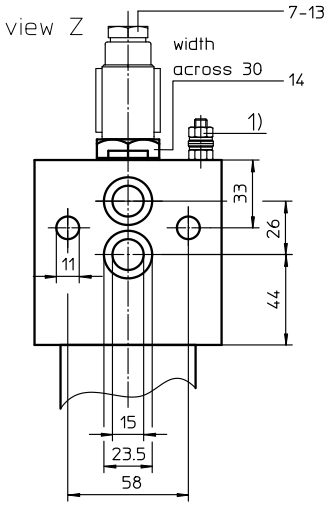
# PRESSURE FILTER, manifold mounted
## Series FHP 60 - 150 DN 15 PN 250

Sheet No.
**1474 H**




1) connection for the potential equalisation, only for application in the explosive area

## 1. Type index:

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

| FHP. | 90. | 10VG. | HR. | E. | P. | -. | F. | 4. | -. | -. | AE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

1 **series:**
FHP = pressure filter, manifold mounted

2 **nominal size:** 60, 90, 150

3 **filter-material and filter-fineness:**
80 G = 80 µm, 40 G = 40 µm, 25 G = 25 µm
stainless steel wire mesh
25 VG = 20 $\mu m_{(c)}$, 16 VG = 15 $\mu m_{(c)}$, 10 VG = 10 $\mu m_{(c)}$,
6 VG = 7 $\mu m_{(c)}$, 3 VG = 5 $\mu m_{(c)}$ Interpor fleece (glass fibre)

4 **resistance of pressure difference for filter element:**
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:** (see catalog)
- = standard
VA = stainless steel
IS06 = see sheet-no. 31601

8 **connection:**
F = manifold mounted

9 **connection size:**
4 = DN 15

10 **filter housing specification:** (see catalog)
- = standard
IS06 = see sheet-no. 31605

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 ≤ 70,06 l/min

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. | 90. | 10VG. | HR. | E. | P. | - |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

1 **series:**
01E. = filter element according to INTERNORMEN factory specification

2 **nominal size:** 60, 90, 150

3 - 7 see type index-complete filter

## 2. Dimensions:

| type | FHP 60 | FHP 90 | FHP 150 |
|---|---|---|---|
| connection | | DN 15 | |
| A | 212 | 277 | 386 |
| B | 270 | 335 | 445 |
| weight kg | 5 | 5,5 | 6,5 |
| volume tank | 0,3 l | 0,4 l | 0,6 l |

Changes of measures and design are subject to alteration!

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## 3. Spare parts:

| item | qty. | designation | dimensions | | | article-no. | |
|---|---|---|---|---|---|---|---|
| | | | FHP 60 | FHP 90 | FHP 150 | | |
| 1 | 1 | filter element | 01E. 60 | 01E. 90 | 01E. 150 | | |
| 2 | 1 | O-ring | 22 x 3,5 | | | 304341 (NBR) | 304392 (FPM) |
| 3 | 1 | O-ring | 54 x 3 | | | 304657 (NBR) | 304720 (FPM) |
| 4 | 1 | support ring | 61 x 2,6 x 1 | | | 304660 | |
| 5 | 2 | O-ring | 18 x 2,5 | | | 304371 (NBR) | |
| 6 | 1 | screw plug | G ¼ | | | 305003 | |
| 7 | 1 | clogging indicator, visual | AOR or AOC | | | see sheet-no. 1606 | |
| 8 | 1 | clogigng indicator, visual-electrical | AE | | | see sheet-no. 1615 | |
| 9 | 1 | clogging sensor, electronical | VS1 | | | see sheet-no. 1617 | |
| 10 | 1 | clogging sensor, electronical | VS2 | | | see sheet-no. 1618 | |
| 11 | 1 | O-ring | 15 x 1,5 | | | 315357 (NBR) | 315427 (FPM) |
| 12 | 1 | O-ring | 22 x 2 | | | 304708 (NBR) | 304721 (FPM) |
| 13 | 1 | O-ring | 14 x 2 | | | 304342 (NBR) | 304722 (FPM) |
| 14 | 1 | screw plug | 20913-4 | | | 309817 | |

item 14 execution only without clogging indicator or clogging sensor

## 4. Description:

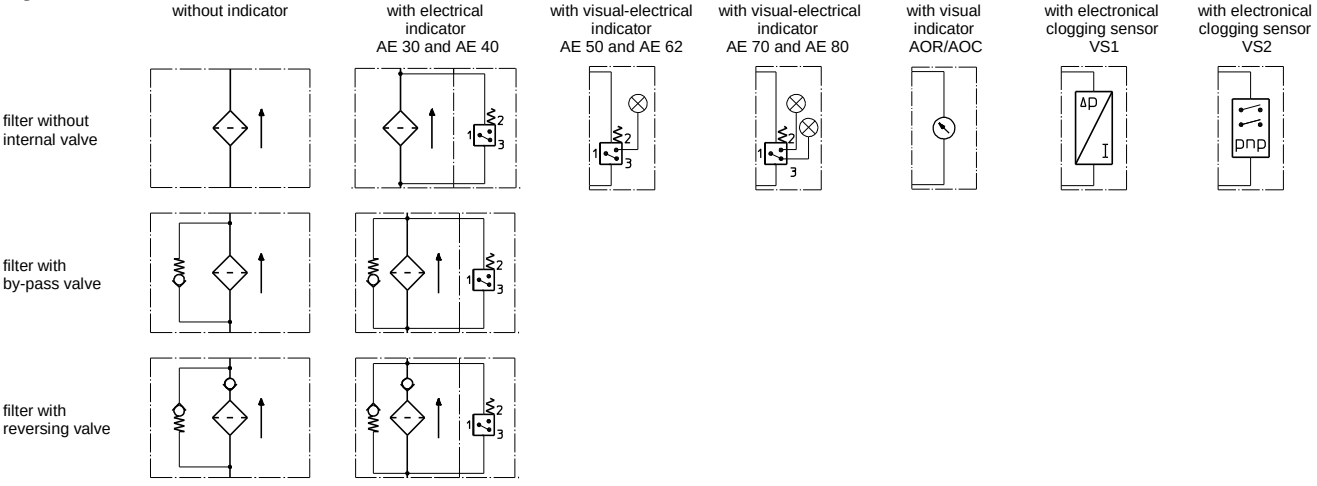
Pressure filter of the series FHP are suitable for a working pressure up to 250 bar.
The pressure peaks are absorbed by a sufficient margin of safety. The FHP-filters are flange mounted to the hydraulic system.
The filter element consists of star-shaped, pleated filter material which is supported on 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 4 $\mu m_{(c)}$.
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.
INTERNORMEN-Filter elements are available up to a pressure difference resistance of $\Delta$p 160 bar and a rupture strength of $\Delta$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. With the reverse valve a protection of the filter element is given when having a reverse flow inside the filter. The reverse flow will not be filtered.

## 5. Technical data:

| | |
|---|---|
| temperature range: | -10°C to + 80°C (for a short time + 100°C) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 250 bar |
| test pressure: | 358 bar |
| connection system: | manifold mounted |
| housing material: | C-steel |
| 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).

## 6. Symbols:




## 7. Pressure drop flow curves:

Precise flow rates see INT-Expert-System Filter respectively $\Delta$p-curves - depending on filter fineness and viscosity.

## 8. 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