

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

## 1. Type index:

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

**HP . 31. 10VG. HR. E. P. - . G. 3. - . - . AE**

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

**1 series:**

HP = pressure filter

**2 nominal size: 31**

**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 fibre)

**4 resistance of pressure difference for filter element:**

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: (see catalog)**

- = standard

VA = stainless steel

IS06 = see sheet-no. 31601

**8 connection:**

G = thread connection according to ISO 228

**9 connection size:**

3 = G 1/2

**10 filter housing specification: (see catalog)**

- = standard

IS06 = see sheet-no. 31605

**11 internal valve:**

- = without

S1 = with by-pass valve  $\Delta p$  3,5 bar

S2 = with by-pass valve  $\Delta p$  7,0 bar

**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. 30. 10VG. HR. E. P. -**

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

**1 series:**

01E. = filter element according to INTERNORMEN factory specification

**2 nominal size: 30**

3 - 7 see type index-complete filter

weight: approx. 3,0 kg

## 2. Spare parts:

| item | qty. | designation                           | dimension    | article-no.        |              |
|------|------|---------------------------------------|--------------|--------------------|--------------|
| 1    | 1    | filter element                        | 01E. 30      |                    |              |
| 2    | 1    | O-ring                                | 11 x 3       | 312603 (NBR)       | 312727 (FPM) |
| 3    | 1    | O-ring                                | 40 x 3       | 304389 (NBR)       | 304391 (FPM) |
| 4    | 1    | support ring                          | 48 x 2,6 x 1 | 305391             |              |
| 5    | 1    | clogging indicator, visual            | AOR or AOC   | see sheet-no. 1606 |              |
| 6    | 1    | clogging indicator, visual-electrical | AE           | see sheet-no. 1615 |              |
| 7    | 1    | clogging sensor, electrical           | VS1          | see sheet-no. 1617 |              |
| 8    | 1    | clogging sensor, electrical           | VS2          | see sheet-no. 1618 |              |
| 9    | 1    | O-ring                                | 15 x 1,5     | 315357 (NBR)       | 315427 (FPM) |
| 10   | 1    | O-ring                                | 22 x 2       | 304708 (NBR)       | 304721 (FPM) |
| 11   | 1    | O-ring                                | 14 x 2       | 304342 (NBR)       | 304722 (FPM) |
| 12   | 1    | screw plug                            | 20913-4      | 309817             |              |

item 12 execution only without clogging indicator or clogging sensor

## 3. Description:

The pressure filters of the series HP 31 are suitable for a working pressure up to 420 bar.

The pressure peaks are absorbed by a sufficient margin of safety. The HP-filter is in-line mounted.

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 the inside. Filter elements are available down to 4  $\mu\text{m}_{(c)}$ .

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.

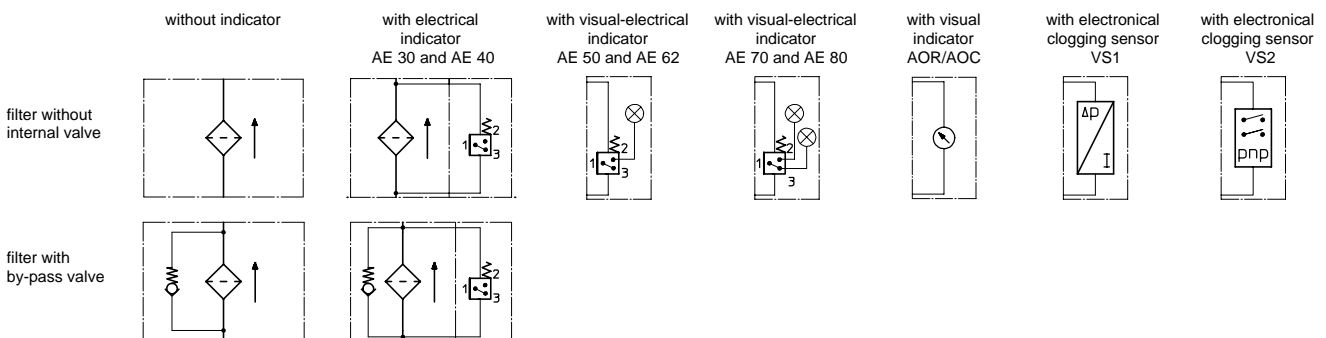
## 4. Technical data:

|                          |  |
|--------------------------|--|
| temperature range:       | -10°C to + 80°C (for a short time + 100°C)               |
| operating medium:        | mineral oil, other media on request                      |
| max. operating pressure: | 420 bar  |
| test pressure:           | 600 bar  |
| connection system:       | thread connection according to ISO 228                   |
| housing material:        | C-steel  |
| sealing material:        | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position:   | vertical   |
| volume tank:             | 0,1 l  |

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).

## 5. Symbols:



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

## 7. 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 |