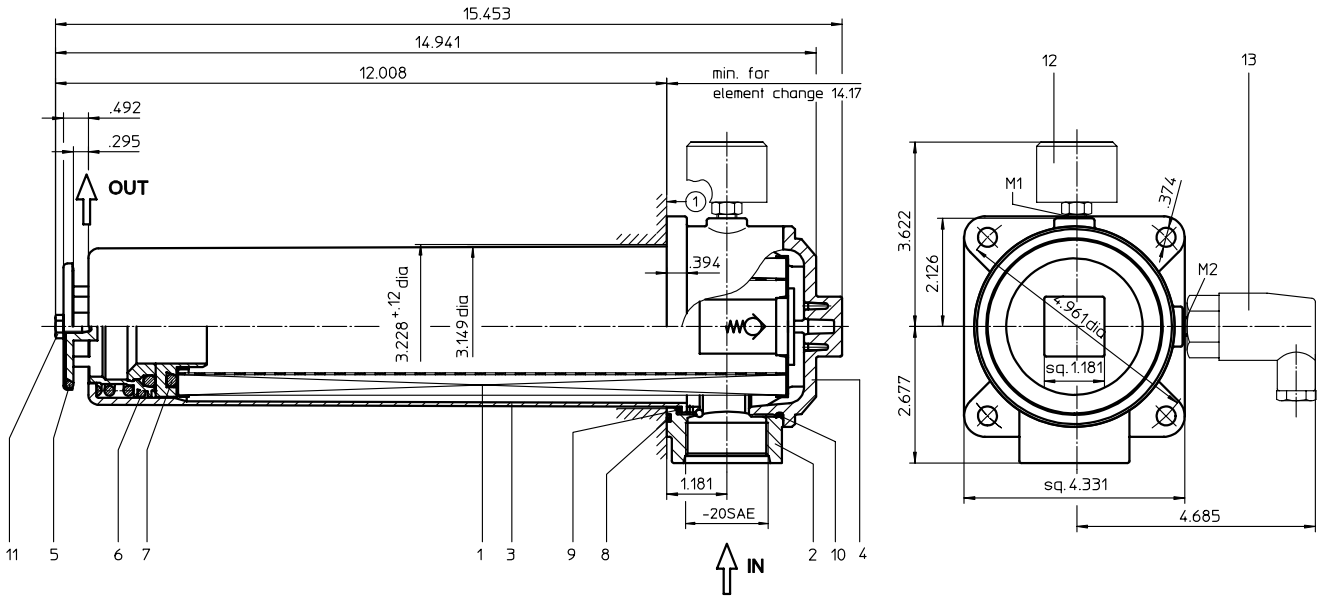


RETURN LINE FILTER, for horizontal tank-mounting

Series TRW 310 145 PSI

Sheet No.
1068 C



1. Type index:

1.1. Complete filter: (ordering example)

TRW. 310. 10VG. 16. S. P. -. UG. 6. -. O. E2

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

- 1 **series:**
TRW = return-line-filter for horizontal tank-mounting
- 2 **nominal size:** 310
- 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 $\mu\text{m}_{(c)}$, 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 μm , 10 P = 10 μm paper
- 4 **resistance of pressure difference for filter element:**
16 = Δp 232 PSI
- 5 **filter element design:**
E = without by-pass valve
S = with by-pass valve, Δp 29 PSI
- 6 **sealing material:**
P = Nitrile (NBR) V = Viton (FPM)
- 7 **filter element specification:**
- = standard
VA = stainless steel
- 8 **connection:**
UG = thread connection
- 9 **connection size:**
6 = -20SAE
- 10 **filter housing specification:**
- = standard
- 11 **clogging indicator at M1:**
- = without
O = visual, see sheet-no. 1616
E1 = pressure switch, see sheet-no. 1616
E2 = pressure switch, see sheet-no. 1616
E5 = pressure switch, see sheet-no. 1616
- 12 **clogging indicator at M2:**
possible indicators see position 12 of the type index

1.2. Filter element: (ordering example)

01E. 320. 10VG. 16. S. P. -

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

- 1 **series:**
01E. = filter element according to
INTERNORMEN factory specification
- 2 **nominal size:** 320
- 3 - 7 see type index-complete filter

| | |
|--------------------|----------|
| mounting surface | ① |
| surface quality | 3,2 ▽ |
| flatness tolerance | ▭ 0,2 |

weight: approx. 6.20 lbs.

2. Spare parts:

| item | qty. | designation | dimension | article-no. | |
|------|------|-----------------------------|-------------------|--------------------|--------------|
| 1 | 1 | filter element | 01.E 320 | | |
| 2 | 1 | filter head | NG 210-310 | 304423 | |
| 3 | 1 | filter bowl | NG 310 | | |
| 4 | 1 | screw plug | M 90 x 2 | 316637 | |
| 5 | 1 | O-ring | 53 x 4 | 309143 (NBR) | - (FPM) |
| 6 | 1 | O-ring | 62 x 4 | 308045 (NBR) | 311472 (FPM) |
| 7 | 2 | O-ring | 44 x 6 | 302222 (NBR) | 304384 (FPM) |
| 8 | 1 | O-ring | 88 x 3 | 304417 (NBR) | 310266 (FPM) |
| 9 | 1 | O-ring | 75 x 3 | 302215 (NBR) | 304729 (FPM) |
| 10 | 1 | O-ring | 82 x 3 | 305191 (NBR) | 305298 (FPM) |
| 11 | 1 | sheet metal screw | DIN 7976-F 6,3x13 | 316641 | |
| 12 | 1 | clogging indicator, visual | O | 301721 | |
| 13 | 1 | pressure switch, electrical | E1, E2 or E5 | see sheet-no. 1616 | |

3. Description:

Return-line filters in the TRW series are suitable for a working pressure up to 145 PSI.

Pressure peaks will be absorbed by a sufficient margin of safety.

The TRW-filters are directly mounted to the reservoir and connected to the return-line. The return-area „IN“ must be below the oil level.

The filter element consists of a 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 is from outside to inside. Filters finer than 40 µm should use throw-away elements made of paper or Interpor fleece (glass fiber). Filter elements as fine as 5 µm_(c) are available; finer filter elements on request.

INTERNORMEN-Filters can be used for petroleum-based fluids, HW emulsions, water glycols, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

INTERNORMEN-Filters elements are known as stable elements which have excellent filtration capabilities and a high dirt retaining capacity, therefore having a long service life. Due to its practical design, the return-line filter is easy to service.

When changing the filter element a detachable connection between the filter head and the filter bowl prevents a flow back of dirty oil into the tank.

4. Technical data:

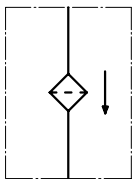
| | |
|---------------------------------|--|
| temperature range: | +14°F to + 176°F (for a short time + 212°F) |
| operating medium: | mineral oil, other media on request |
| max. operating pressure: | 145 PSI |
| opening pressure by-pass valve: | 29 PSI |
| connection system: | thread connection |
| housing material: | Al-cast, glass fiber reinforcing polyamide |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |
| volume tank: | .40 Gal. |

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

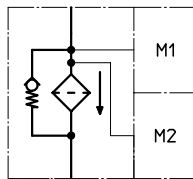
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

5. Symbols:

without indicator



with by-pass valve



visual O



electrical contact maker
E1



electrical contact breaker
E5



electrical contact maker/breaker
E2



6. Pressure drop flow curves:

Precise flow rates see 'INT-Expert-System Filter', respectively Δp-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