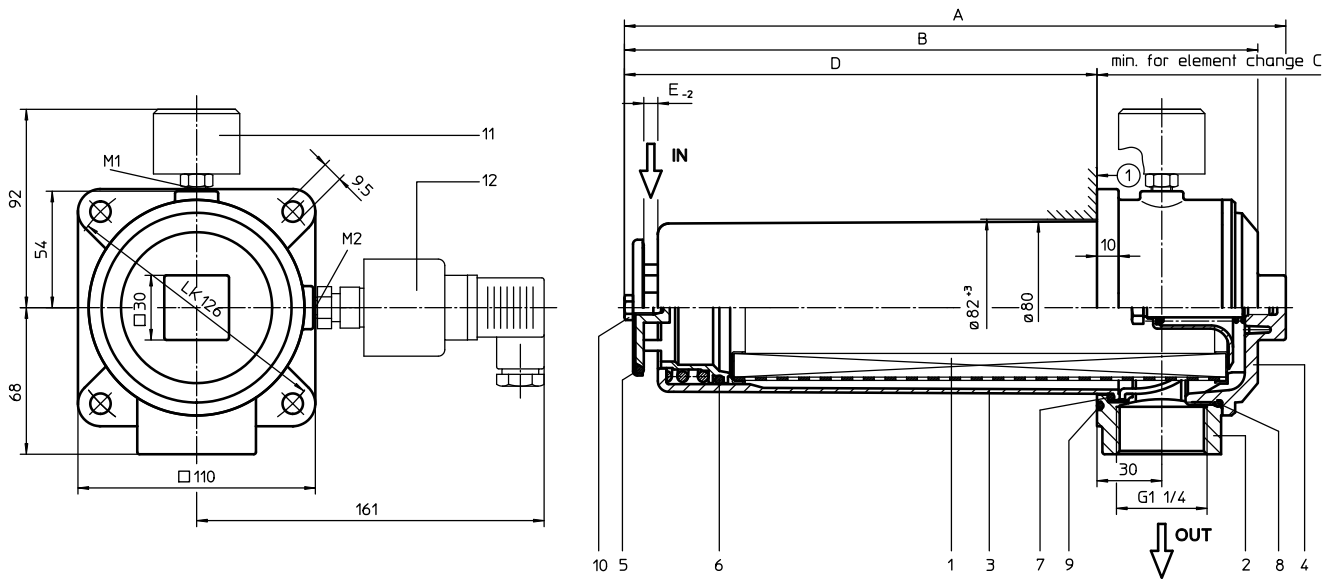


# SUCTION FILTER, for horizontal tank-mounting

## Series TSW 210-310 DN 32

Sheet No.  
**1905 H**



### 1. Type index:

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

**TSW.210.10VG. - . B. P. - . G. 6. - . - . O1. E4**

1	2	3	4	5	6	7	8	9	10	11	12	13
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- 1 series:**  
TSW = suction filter for horizontal tank-mounting
- 2 nominal size:** 210, 310
- 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  $\mu\text{m}_{(e)}$ , 16 VG = 15  $\mu\text{m}_{(e)}$ , 10 VG = 10  $\mu\text{m}_{(e)}$ ,  
6 VG = 7  $\mu\text{m}_{(e)}$ , 3 VG = 5  $\mu\text{m}_{(e)}$  Interpor fleece (glass fibre)  
10 P = 10  $\mu\text{m}$  paper
- 4 resistance of pressure difference for filter element:**  
- = not specified
- 5 filter element design:**  
B = both sides open
- 6 sealing material:**  
P = Nitrile (NBR) V = Viton (FPM)
- 7 filter element specification:**  
- = standard VA = stainless steel
- 8 connection:**  
G = thread connection according to DIN 3852, T2
- 9 connection size:**  
6 = G 1 1/4
- 10 filter housing specification:**  
- = standard
- 11 internal valve:**  
- = without  
S = with by-pass valve  $\Delta p$  0,28 bar
- 12 clogging indicator at M1:**  
- = without  
O1 = visual, see sheet-no. 1616  
E4 = pressure switch, see sheet-no. 1616
- 13 clogging indicator at M2:**  
possible indicators see position 12 of the type index

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

**01TS.210.10VG. - . B. - . -**

1	2	3	4	5	6	7
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- 1 series:**  
01TS. = suction filter element according to company standard
- 2 nominal size:** 210, 310
- 3 - 5 , 7** see type index-complete filter
- 6 sealing material:**  
- = without

### 2. Dimensions:

type	connection	A	B	C	D	E	weight kg
TSW 210	G 1 1/4	307	294	290	219	6,5	2,3
TSW 310	G 1 1/4	393	380	375	305	7,5	3,0

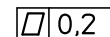
mounting surface



surface quality



flatness tolerance



weight: approx. 2,7 kg

### 3. Spare parts:

item	qty.	designation	dimension		article-no.	
			TSW 210	TSW 310		
1	1	filter element	01TS. 210	01TS. 310		
2	1	filter head				304423
3	1	filter bowl				304518.1
4	1	filter cover		M 90 x 2		
5	1	O-ring		53 x 4	309143 (NBR)	- (FPM)
6	1	O-ring		62 x 4	308045 (NBR)	311472 (FPM)
7	1	O-ring		75 x 3	302215 (NBR)	304729 (FPM)
8	1	O-ring		82 x 3	305191 (NBR)	305298 (FPM)
9	1	O-ring		88 x 3	304417 (NBR)	310266 (FPM)
10	1	sheet metal screw		B 6,3 x 13		316641
11	1	clogging indicator, visual		O1		301722
12	1	pressure switch, electrical		E4		311016

### 4. Description:

The TSW-filters are directly mounted to the reservoir and connected to the suction-line. 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 inside to outside. Filters finer than 40 µm should use throw-away elements made of paper or Interpor fleece (VG). Filter elements as fine as 5 µm<sub>(c)</sub> are available; finer filter elements on request.

Internormen Product Line 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 Product Line filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.

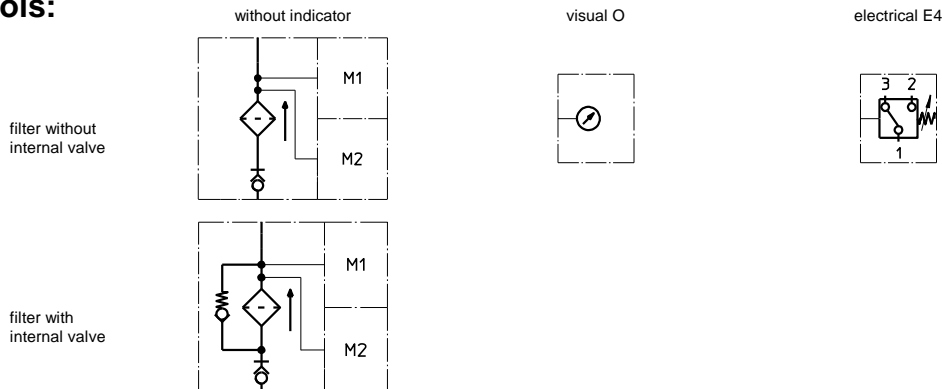
Due to its practical design, the return-line filter is easy to service. When releasing the filter cover a plate-shaped valve closes the suction-inlet of the filter bowl and prevents leakage of fluid out of the tank. Filter element can be removed from filter pot for cleaning purposes.

### 5. Technical data:

temperature range:	-10°C to + 80°C (for a short time + 100°C)
operating medium:	mineral oil, other media on request
connection system:	thread connection according to DIN 3852, T2
housing material:	Al-casting; glass fibre reinforced polyamide
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	horizontal
volume tank TSW 210:	1,1 l
TSW 310:	1,5 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).

### 6. Symbols:



### 7. Pressure drop flow curves:

Precise flow rates see 'Interactive Product Specifier' 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

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