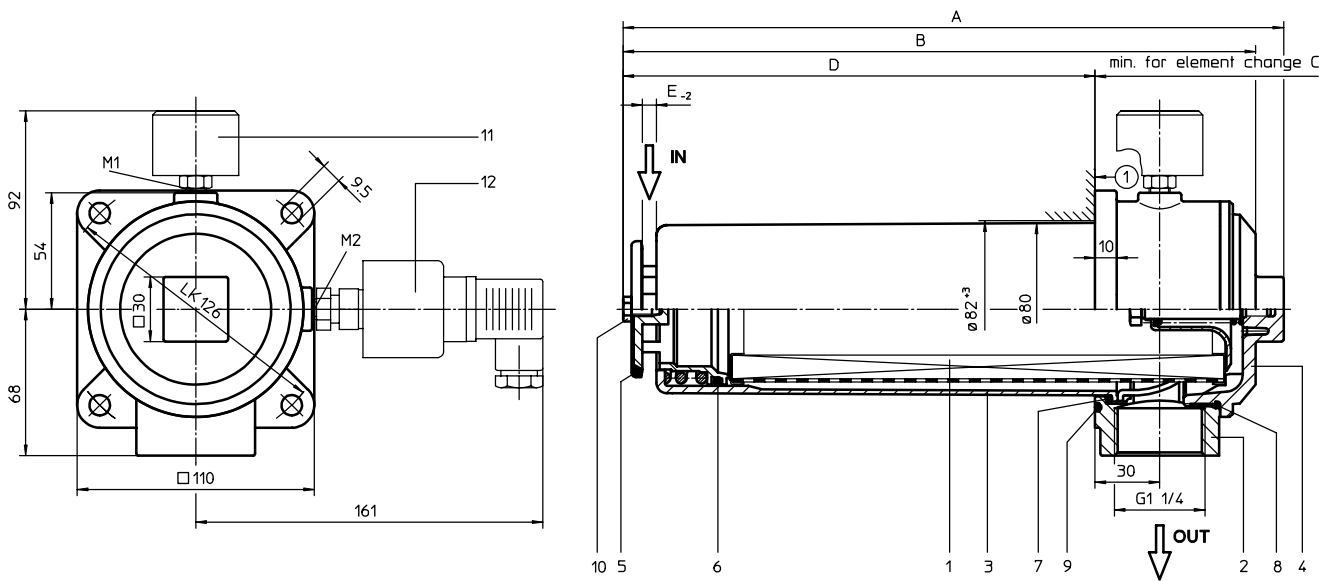


SUCTION FILTER, for horizontal tank-mounting

Series TSW 210-310 DN 32

Sheet No.
1905 G



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 μm , 40 G = 40 μm ,
25 G = 25 μm 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)
25 P = 25 μm , 10 P = 10 μm 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 Δp 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 INTERNORMEN factory specification
- 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

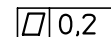
mounting surface



surface quality



flatness tolerance



weight: approx. 2,7 kg

EDV 08/03

Changes of measures and design are subject to alteration!

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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_(c) 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.

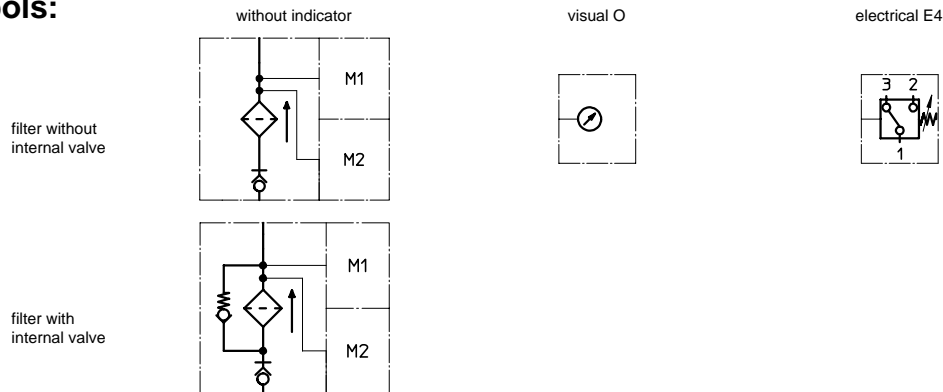
INTERNORMEN-Filter are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils. Due to its practical design, the return-line filter is easy to service. When releasing the filter cover a plate-shaped valve closes the suction-inlet of the filter bowl 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 'INT-Expert-System Filter' respectively Δp -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