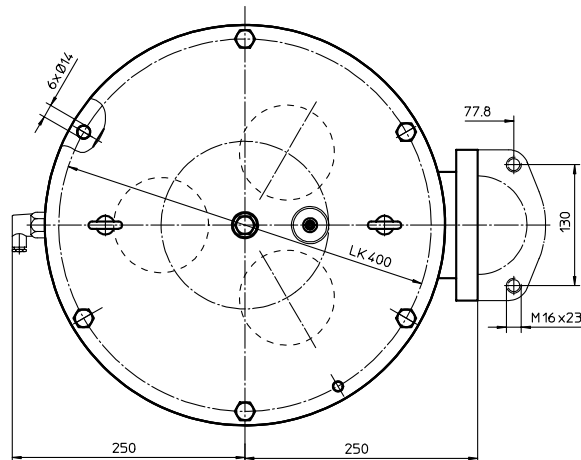
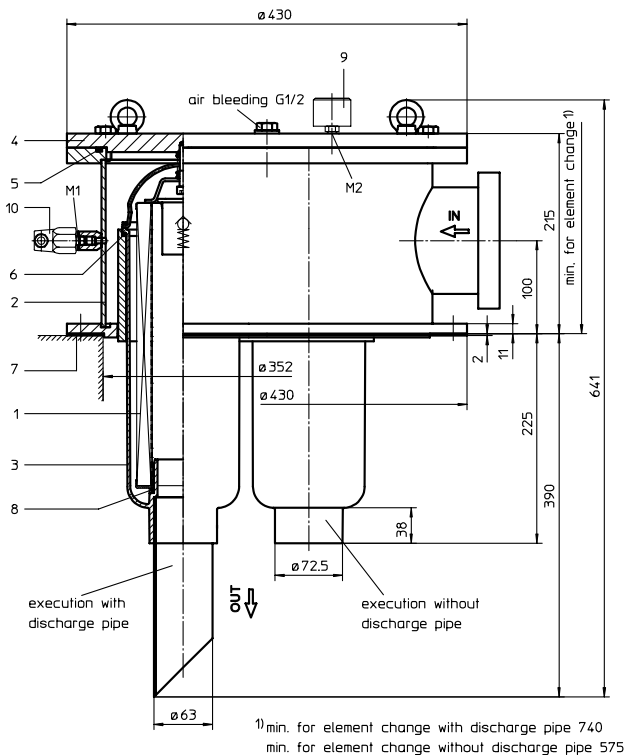


RETURN LINE FILTER

Series TEF 1652 DN 100 PN 10

Sheet No.
1056 D



When equipped with one clogging indicator use preferably connection M1.

1. Type index:

1.1. Complete filter: (ordering example)

TEF. 1652.10VG.16. S. P. - FS. B. - E1. O. -

1	2	3	4	5	6	7	8	9	10	11	12	13
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- 1 **series:**
TEF = tank-mounted return-line-filter
- 2 **nominal size:** 1652
- 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 fibre)
25 P = 25 μm , 10 P = 10 μm paper
- 4 **resistance of pressure difference for filter element:**
16 = Δp 16 bar
- 5 **filter element design:**
E = without by-pass valve
S = with by-pass valve Δp 2,0 bar
- 6 **sealing material:**
P = Nitrile (NBR)
V = Viton (FPM)
- 7 **filter element specification:** (see catalog)
- = standard
VA = stainless steel
ISO6 = see sheet-no. 31601
- 8 **connection:**
FS = SAE-flange connection 3000 PSI
- 9 **connection size:**
B = 4"
- 10 **filter housing specification:** (see catalog)
- = standard
ISO6 = see sheet-no. 31605
- 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 11 of the type index
- 13 **discharge pipe:**
- = without
1 = with discharge pipe

1.2. Filter element: (ordering example)

01E. 631. 10VG. 16. S. P. -

1	2	3	4	5	6	7
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- 1 **series:**
01E. = filter element according to INTERNORMEN factory specification
- 2 **nominal size:** 631
- 3 - 7 | see type index-complete filter

2. Accessories:

- Counter flange see sheet-no. 1652

weight: approx. 55 kg

Changes of measures and design are subject to alteration!

EDV 08/03

internormen
technology

Friedensstrasse 41, 68804 Altlusheim, Germany

phone +49 - (0)6205 - 2094-0
fax +49 - (0)6205 - 2094-40

e-mail sales@internormen.com
url www.internormen.com



3. Spare parts:

item	qty.	designation	dimension	article-no..	
1	3	filter element	01E.631		
2	1	filter head ¹⁾			
3	3	filter bowl with discharge pipe ¹⁾			
	3	filter bowl without discharge pipe ¹⁾			
4	1	filter cover ¹⁾			
5	1	O-ring	355 x 5	314740 (NBR)	314739 (FPM)
6	3	O-ring	120 x 4	305300 (NBR)	307991 (FPM)
7	1	gasket	430 x 350 x 2	313271 (NBR)	316659 (FPM)
8	3	O-ring	63 x 3,5	311189 (NBR)	311592 (FPM)
9	1	clogging indicator, visual	O	301721	
10	1	clogging indicator, electrical	E1, E2 or E5	see sheet-no. 1616	

¹⁾ In case of ordering these spare parts use the complete type index

4. Description:

Return-line filters in the TEF series are suitable for a working pressure up to 10 bar. Pressure peaks will be absorbed by a sufficient margin of safety.

The TEF-filters are directly mounted to the reservoir and connected to the return-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 outside to inside. Filters finer than 40 µm should use throw-away elements made of paper or Interpor fleece. 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.

5. Technical data:

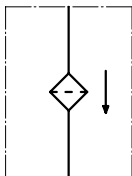
temperature range:	-10°C to +80°C (for a short time +100°C)
operating medium:	mineral oil, other media on request
max. operating pressure:	10 bar
opening pressure by-pass valve:	2,0 bar
connection system:	SAE-flange connection 3000 PSI
housing material:	C-steel; glass fibre reinforced polyamide
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	22,0 l

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

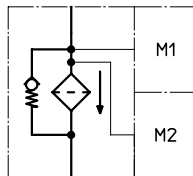
Classified under ATEX Directive 94/9/EC according to specific application (see questionnaire sheet-no. 34279-4).

6. Symbols:

without indicator



with by-pass valve



visual O



electrical contact maker E1



electrical contact breaker E5



electrical contact maker/breaker E2



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