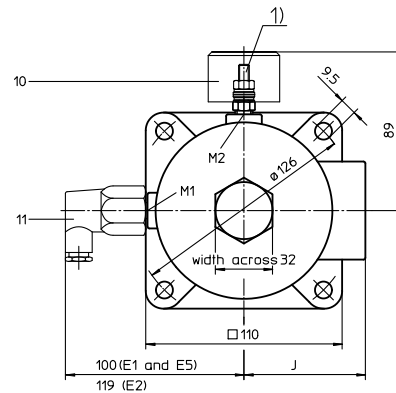
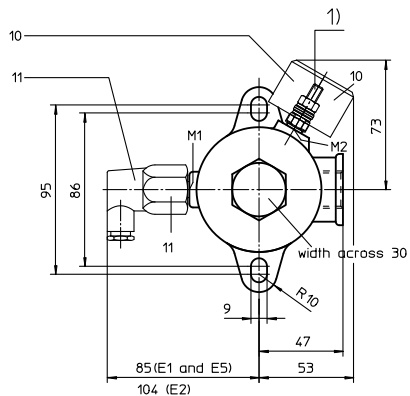
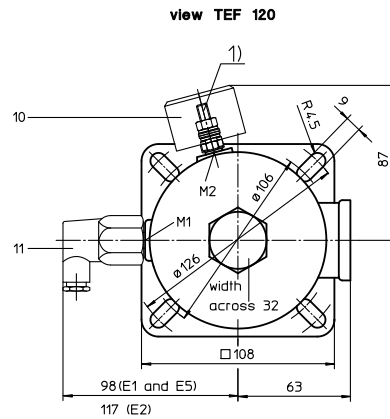
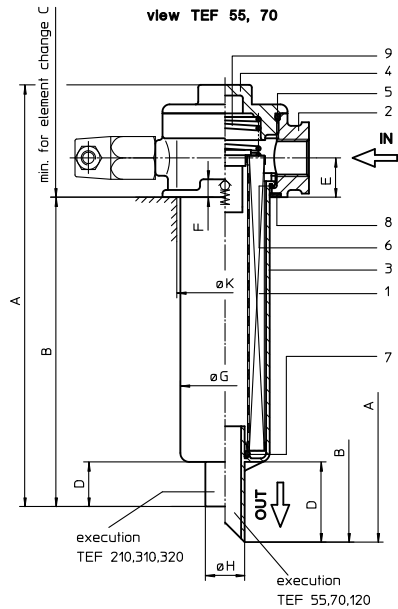


# RETURN LINE FILTER

Series TEF 55-320 DN 16-40 PN 10

Sheet No.  
1002 V



When equipped with one clogging indicator use preferably connection M1.

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

## 2. Dimensions:

type	connection	A	B	C	D	E	F	G	H	J	K	weight kg	volume tank
TEF 55	G ½	257	194	270	45	22	10	52	21	-	53	0,9	0,3 l
TEF 70	G ¾	257	194	270	45	22	10	52	21	-	53	0,9	0,3 l
TEF 120	G1	285	211	300	65	27	10	70	24	-	72 <sup>10</sup>	1,5	0,6 l
TEF 210	G 1 ¼	302	227	350	25	30	10	80	38	68	82 <sup>13</sup>	2,1	1,1 l
TEF 310	G 1 ¼	387	312	405	25	30	10	80	38	68	82 <sup>13</sup>	2,5	1,4 l
TEF 320	G 1 ½	418	327	465	40	36	10	85	44	71	86 <sup>16</sup>	2,8	1,7 l

## 1. Type index:

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

TEF. 70. 10VG. 16. S. P. -. G. 4. -. 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: 55, 70, 120, 210, 310, 320
- 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 µm<sub>(c)</sub>, 16 VG = 15 µm<sub>(c)</sub>, 10 VG = 10 µm<sub>(c)</sub>, 6 VG = 7 µm<sub>(c)</sub>, 3 VG = 5 µm<sub>(c)</sub> Interpor fleece (glass fibre)  
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  
S1 = with by-pass valve Δp 3,5 bar
- 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 DIN 3852, T2
- 9 connection size:  
3 = G ½ TEF 55  
4 = G ¾ TEF 70  
5 = G1 TEF 120  
6 = G1 ¼ TEF 210/310  
7 = G 1 ½ TEF 320
- 10 filter housing specification: (see catalog)  
- = standard  
IS06 = see sheet-no. 31605  
IS11 = see sheet-no. 40530
- 11 measure connection at M1:  
- = without clogging indicator  
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  
PA = potential equalisation
- 12 measure connection at M2:  
possible indicators see position 11 of the type index
- 13 permanent magnet:  
- = without  
M = with permanent magnet

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

01E. 70. 10VG. 16. S. P. -

1	2	3	4	5	6	7
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- 1 series:  
01E. = filter element according to company standard
- 2 nominal size: 70 (TEF55/70), 120 (TEF120), 210 (TEF210), 320 (TEF310/320)
- 3 - 7 see type index-complete filter

Changes of measures and design are subject to alteration!



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### 3. Spare parts:

item	qty.	designation	dimension and article-no.					
			TEF 55	TEF 70	TEF 120	TEF 210	TEF 310	TEF 320
1	1	filter element	01E. 70		01E. 120	01E. 210	01E.320	01E. 320
2	1	filter head						
3	1	filter bowl						
4	1	filter cover	M 60 x 2		M 82 x 2		M 90 x 2	M 100 x 2
5	1	O-ring	56 x 3		75 x 3		82 x 3	96 x 3
			305072 (NBR)		302215 (NBR)		305191 (NBR)	305292 (NBR)
			305322 (FPM)		304729 (FPM)		305298 (FPM)	305297 (FPM)
6	1	O-ring	50 x 2,5		68 x 4		75 x 3	82 x 3
			305239 (NBR)		303037 (NBR)		302215 (NBR)	305191 (NBR)
			305321 (FPM)		313046 (FPM)		304729 (FPM)	305298 (FPM)
7	1	O-ring	22 x 3		24 x 3		40 x 3	40 x 3
			304387 (NBR)		303038 (NBR)		304389 (NBR)	304389 (NBR)
			304931 (FPM)		304397 (FPM)		304391 (FPM)	304391 (FPM)
8	1	O-ring	56 x 3		86 x 3		88 x 3	96 x 3
			305072 (NBR)		305470 (NBR)		304417 (NBR)	305292 (NBR)
			305322 (FPM)		313047 (FPM)		310266 (FPM)	305297 (FPM)
9	1	spring	DA = 40		DA = 52		DA = 52	DA = 52
			304982		302144		302144	305053
10	1	clogging indicator, visual	O 301721					
11	1	pressure switch, electrical	E1, E2 or E5 see sheet-no. 1616					

### 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 (glass fibre). Filter elements as fine as 5 µm<sub>(c)</sub> are available; finer filter elements on request.

Internormen Product Line filter can be used for petroleum-based fluids, HW emulsions, water glycols, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

Internormen Product Line filter 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.

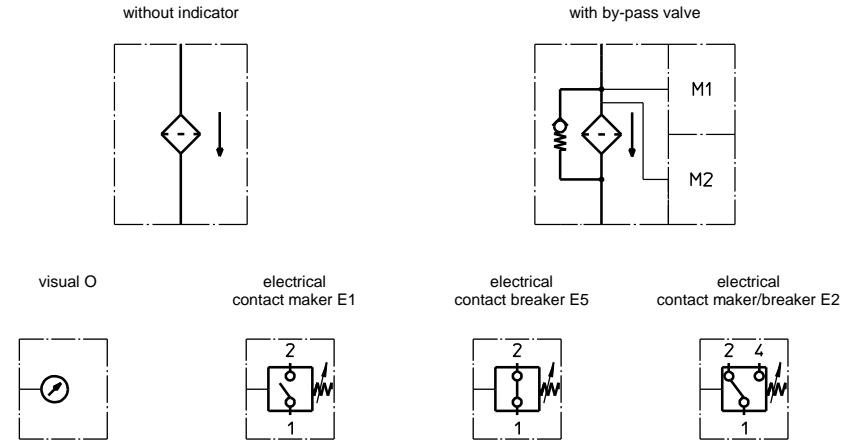
When changing the filter element a detachable connection between the filter head and the filter bowl prevents a flow back of dirty oil into the tank.

### 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, 3,5 bar
line adapter:	thread connection according to DIN 3852, T2
housing material standard:	filter head AL, filter cover / filter bowl glass fibre reinforced polyamide
housing material IS11, category M2:	filter head GG, filter cover steel, filter bowl carbon fibre reinforced polyamide
housing material IS11, category 2:	filter head AL, filter cover / filter bowl carbon fibre reinforced polyamide
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical

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