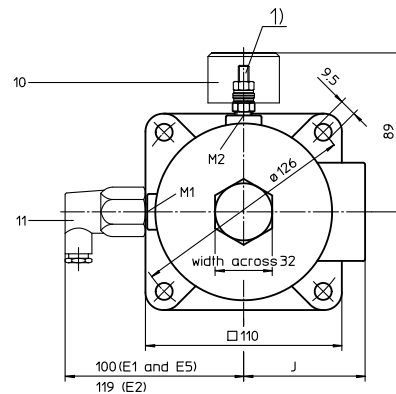
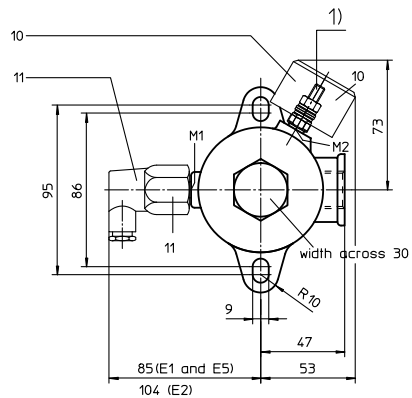
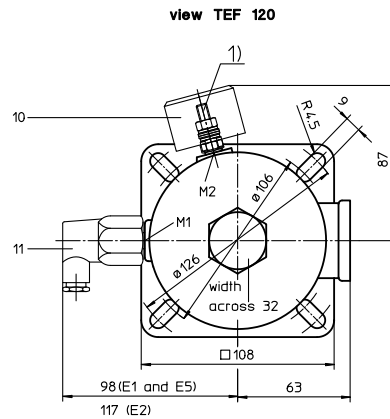
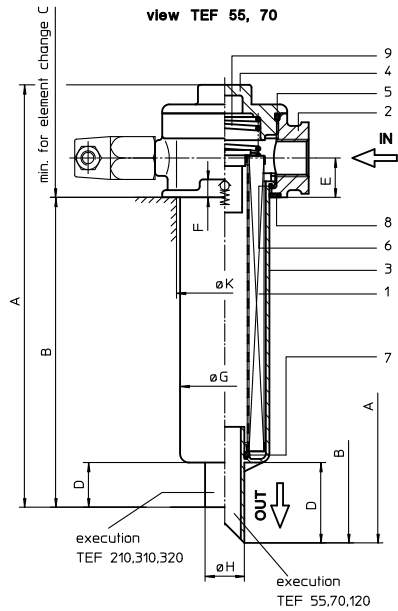


RETURN LINE FILTER

Series TEF 55-320 DN 16-40 PN 10

Sheet No.
1002 U



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 ¹⁰	1,5	0,6 l
TEF 210	G 1 ¼	302	227	350	25	30	10	80	38	68	82 ¹³	2,1	1,1 l
TEF 310	G 1 ¼	387	312	405	25	30	10	80	38	68	82 ¹³	2,5	1,4 l
TEF 320	G 1 ½	418	327	465	40	36	10	85	44	71	86 ¹⁶	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_(c), 16 VG = 15 µm_(c), 10 VG = 10 µm_(c), 6 VG = 7 µm_(c), 3 VG = 5 µm_(c) 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 INTERNORMEN factory specification
- 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:

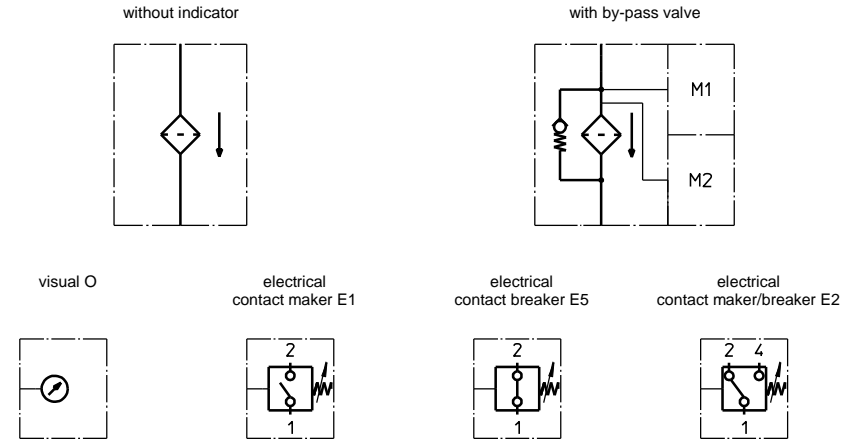
Return-line filters in the TEF series are suitable for a working pressure up to 10 bar. Pressure peaks will be absorbed by a sufficient margin of safety. The TEF-filters are directly mounted to the reservoir and connected to the return-line. The filter element consists of a star-shaped, pleated filter 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_(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, 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 '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