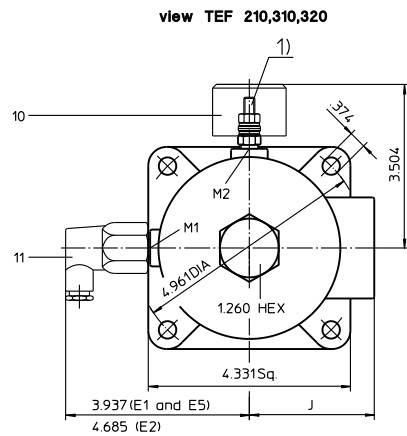
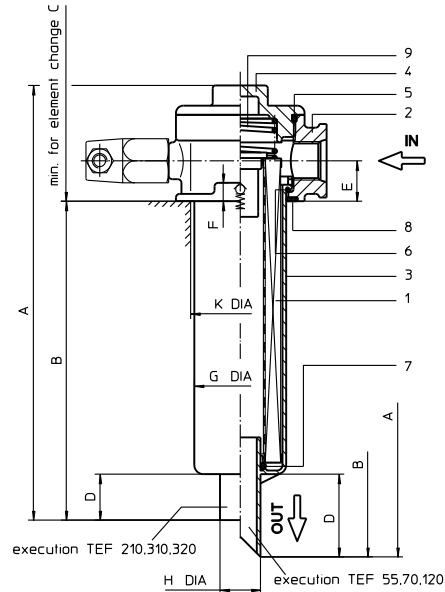
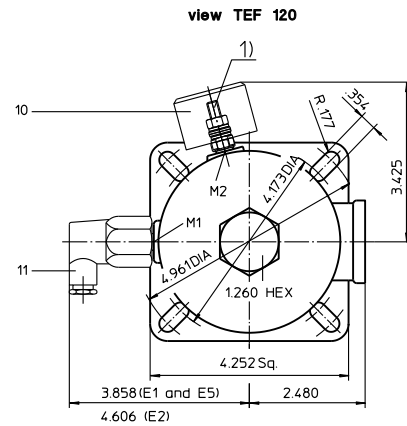
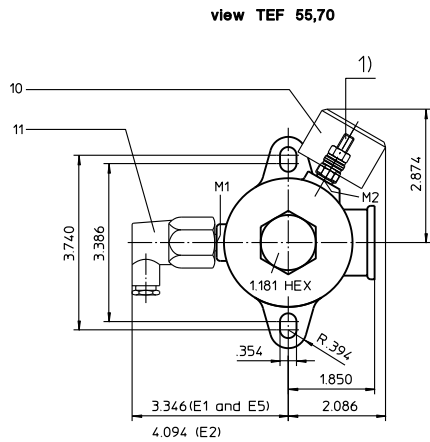


RETURN LINE FILTER
Series TEF 55-320 145 PSI



When equipped with one clogging indicator use preferably connection M1.

1) Connection for the potential equalisation at inlet and outlet, only for application in the explosive area.

1. Type index

1.1. Complete filter: (ordering example)

TEF. 70. 10VG. 16. S. P. -. UG. 4. -. E1. O. -

1	2	3	4	5	6	7	8	9	10	11	12	13
---	---	---	---	---	---	---	---	---	----	----	----	----

- 1 **series:**
TEF = tank-mounted return-line-filter
- 2 **nominal size:** 55, 70, 120, 210, 310, 320
- 3 **filter-fineness and filter-material:**
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 fiber)
10 P = 10 µm paper
- 4 **resistance of pressure difference for filter element:**
16 = Δp 232 PSI
- 5 **filter element design:**
E = without by-pass valve
S = with by-pass valve Δp 29 PSI
S1 = with by-pass valve Δp 51 PSI
- 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:**
UG = thread connection
- 9 **connection size:**
3 = - 8 SAE TEF 55
4 = - 12 SAE TEF 70
5 = - 16 SAE TEF 120
6 = - 20 SAE TEF 210/310
7 = - 24 SAE 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 = clogging indicator, 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
---	---	---	---	---	---	---

- 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!

2. Dimensions: inch

type	connection	A	B	C	D	E	F	G	H	J	K	weight lbs.	volume tank
TEF 55	-8 SAE	10.11	7.64	10.63	1.77	.87	.39	2.05	.87	-	2.08	1.98	.08 Gal.
TEF 70	-12 SAE	10.11	7.64	10.63	1.77	.87	.39	2.05	.87	-	2.08	1.98	.08 Gal.
TEF 120	-16 SAE	11.30	8.39	11.80	2.56	1.06	.39	2.76	.97	-	2.83 ^{+-.39}	3.30	.15 Gal.
TEF 210	-20 SAE	12.00	9.06	13.78	.98	1.18	.39	3.15	1.50	2.86	3.22 ^{+-.11}	4.60	.29 Gal.
TEF 310	-20 SAE	15.25	12.26	15.94	.98	1.18	.39	3.15	1.50	2.86	3.22 ^{+-.11}	5.50	.36 Gal.
TEF 320	-24 SAE	16.54	13.00	18.31	1.57	1.42	.39	3.35	1.73	2.79	3.38 ^{+-.23}	6.20	.45 Gal.

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		M100 x 2
5	1	O-ring	56 x 3		75 x 3	82 x 3		96 x 3
			305072 (NBR) 305322 (FPM)		302215 (NBR) 304729 (FPM)	305191 (NBR) 305298 (FPM)		305292 (NBR) 305297 (FPM)
6	1	O-ring	50 x 2,5		68 x 4	75 x 3		82 x 3
			305239 (NBR) 305321 (FPM)		303037 (NBR) 313046 (FPM)	302215 (NBR) 304729 (FPM)		305191 (NBR) 305298 (FPM)
7	1	O-ring	22 x 3		24 x 3	40 x 3		40 x 3
			304387 (NBR) 304931 (FPM)		303038 (NBR) 304397 (FPM)	304389 (NBR) 304391 (FPM)		304389 (NBR) 304391 (FPM)
8	1	O-ring	56 x 3		86 x 3	88 x 3		96 x 3
			305072 (NBR) 305322 (FPM)		305470 (NBR) 313047 (FPM)	304417 (NBR) 310266 (FPM)		305292 (NBR) 305297 (FPM)
9	1	spring	DA = 40 304982		DA = 52 302144	DA = 52 302144		DA = 52 305053
10	1	clogging indicator	O 301721					
11	1	clogging indicator electrical	alternatively 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 145 PSI. 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 fiber). 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 glycol's, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

INTERNORMEN-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: + 14°F to +176°F (for a short time +212°F)

operating medium: mineral oil, other media on request

max. operating pressure: 145 PSI

opening pressure by-pass valve: 29 PSI, 51 PSI

connection system: thread connection

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

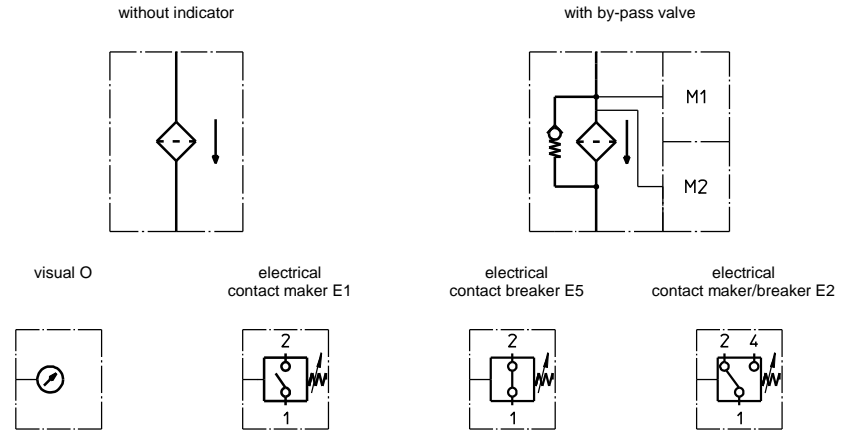
sealing material: Nitrile (NBR) or Viton (FPM), other materials on request

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