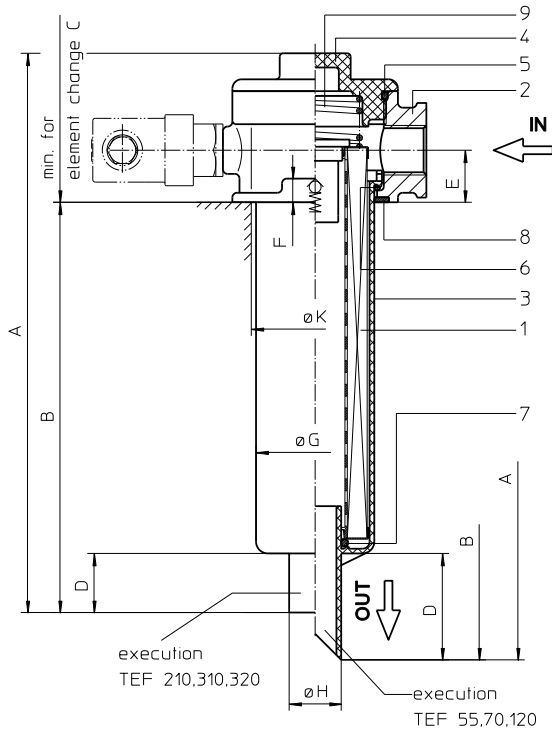
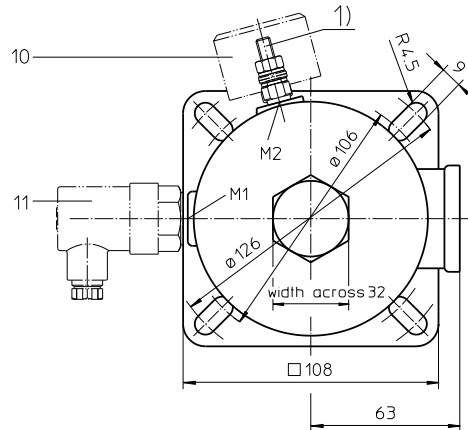


Series TEF 55-320 DN15-40 PN10

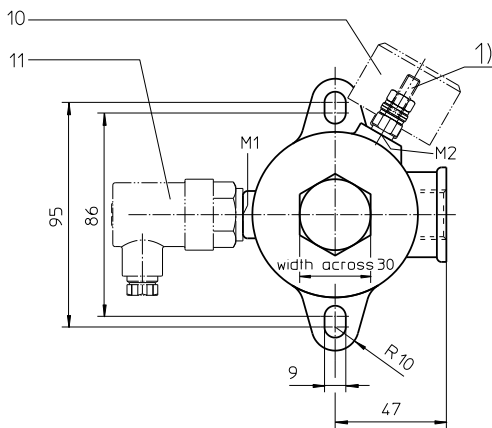
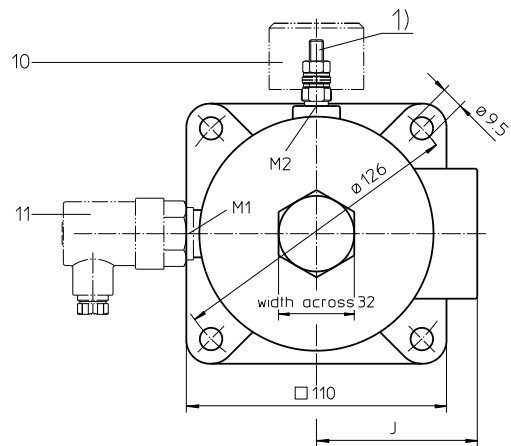
view TEF 55, 70



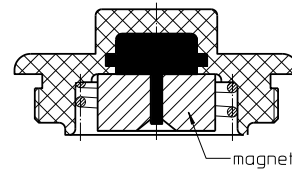
view TEF 120



view TEF 210,310,320



execution with magnet



1) Connection for the potential equalization, only for application in the explosive area.

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 | G 1 | 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 | 67 | 82 ⁺³ | 2,1 | 1,1 l |
| TEF 310 | G 1 ¼ | 387 | 312 | 405 | 25 | 30 | 10 | 80 | 38 | 67 | 82 ⁺³ | 2,5 | 1,4 l |
| TEF 320 | G 1 ½ | 418 | 327 | 465 | 40 | 36 | 10 | 85 | 40 | 71 | 86 ⁺⁶ | 2,8 | 1,7 l |

Dimensions: mm

Designs and performance values are subject to change.



Powering Business Worldwide

Return Line Filter

Series TEF 55-320

DN15-40 PN10

Description:

Return-line filter series TEF 55-320 have 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.

For cleaning the stainless steel mesh element (see special leaflets 21070-4 and 39448-4) or changing the filter element, remove the cover and take out the element. The mesh elements are not guaranteed to maintain 100% performance after cleaning.

Filters finer than 40 µm use the disposable elements made of paper or microglass. Filter elements as fine as 5 µm(c) are available; finer filter elements on request.

Eaton 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.

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

When changing the filter element, a detachable connection between the filter head and the filter bowl prevents dirty oil from flowing into the tank.

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 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|

- | | |
|----|---|
| 1 | series: TEF = tank-mounted return-line-filter |
| 2 | nominal size: 55, 70, 120, 210, 310, 320 |
| 3 | filter-material: 80G, 40G, 25G stainless steel wire mesh 25VG, 16VG, 10VG, 6VG, 3VG microglass 10P paper |
| 4 | filter element collapse rating: 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: - = standard IS06 = for HFC application, see sheet-no. 31601 |
| 8 | process connection: G = thread connection according to DIN 3852, T2 |
| 9 | process connection size: 3 = G ½ TEF 55 4 = G ¾ TEF 70 5 = G 1 TEF 120 6 = G 1 ¼ TEF 210/310 7 = G 1 ½ TEF 320 |
| 10 | filter housing specification: - = standard IS06 = for HFC application, see sheet-no. 31605 IS10 = for ATEX, see sheet-no. 68267 IS11 = for mining applications, see sheet-no. 40530 (TEF320) |
| 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 PA = ground connection |
| 12 | clogging indicator at M2: possible indicators see position 11 of the type index |
| 13 | permanent magnet: - = without M = with magnet |

To add an indicator to your filter, use the corresponding indicator data sheet to find the indicator details and add them to the filter assembly model code.

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 company standard |
| 2 | nominal size: 70 (TEF55/70), 120 (TEF120), 210 (TEF210), 320 (TEF310/320) |
| 3 | - 7 see type index-complete filter |

Technical data:

| | |
|--|--|
| operating temperature: | -10°C to +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 |
| process connection: | thread connection according to DIN 3852, T2 |
| housing material standard: | filter head AL, screw plug / filter bowl glass fiber reinforced polyamide |
| housing material IS10, category 2 and 3: | filter head AL, screw plug / filter bowl carbon fiber reinforced polyamide |
| housing material IS11, category M2: | filter head GG, screw plug steel / filter bowl carbon fiber reinforced polyamide |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |

Classified under the Pressure Equipment Directive 2014/68/EU for mineral oil (fluid group 2), Article 4, Para. 3.
 Classified under ATEX Directive 2014/34/EU according to specific application (see questionnaire sheet-no. 34279-4).

Pressure drop flow curves:

Filter calculation/sizing

The pressure drop of the assembly at a given flow rate Q is the sum of the housing Δp and the element Δp and is calculated as follows:

$$\Delta p_{assembly} = \Delta p_{housing} + \Delta p_{element}$$

$$\Delta p_{housing} = (\text{see } \Delta p = f(Q) - \text{characteristics})$$

$$\Delta p_{element} (mbar) = Q \left(\frac{l}{min} \right) \times \frac{MSK}{10} \left(\frac{mbar}{l/min} \right) \times v \left(\frac{mm^2}{s} \right) \times \frac{p}{0,876} \left(\frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at www.eaton.com/hydraulic-filter-evaluation

Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in mbar/(l/min) apply to mineral oil (HLP) with a density of 0,876 kg/dm³ and a kinematic viscosity of 30 mm²/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.

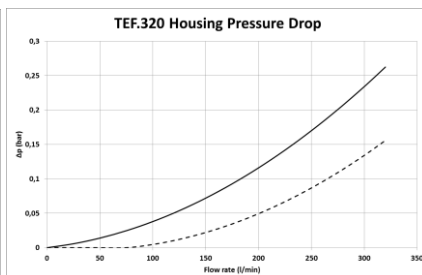
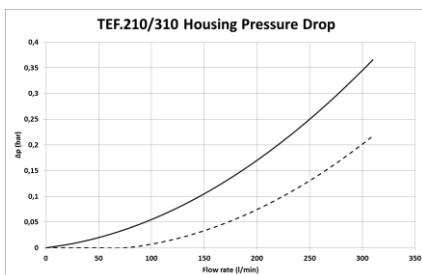
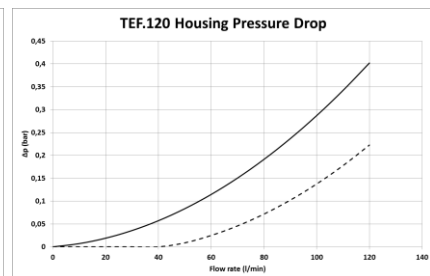
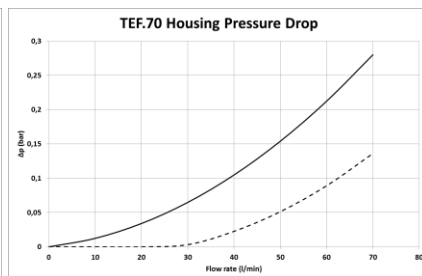
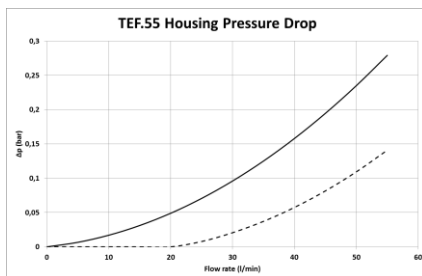
| TEF | VG | | | | | G | | | P |
|-----|-------|-------|-------|-------|-------|--------|--------|--------|-------|
| | 3VG | 6VG | 10VG | 16VG | 25VG | 25G | 40G | 80G | 10P |
| 55 | 2,933 | 2,036 | 1,304 | 1,135 | 0,775 | 0,0977 | 0,0912 | 0,0625 | 0,651 |
| 70 | 2,933 | 2,036 | 1,304 | 1,135 | 0,775 | 0,0977 | 0,0912 | 0,0625 | 0,651 |
| 120 | 2,624 | 1,821 | 1,166 | 1,015 | 0,694 | 0,0934 | 0,0872 | 0,0597 | 0,564 |
| 210 | 1,327 | 0,922 | 0,590 | 0,514 | 0,351 | 0,0480 | 0,0448 | 0,0307 | 0,288 |
| 310 | 0,953 | 0,661 | 0,423 | 0,369 | 0,252 | 0,0275 | 0,0257 | 0,0176 | 0,206 |
| 320 | 0,953 | 0,661 | 0,423 | 0,369 | 0,252 | 0,0275 | 0,0257 | 0,0176 | 0,206 |

$\Delta p = f(Q)$ – characteristics according to ISO 3968

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0,876 kg/dm³. The pressure drop changes proportionally to the density.

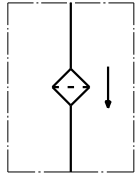
Viscosity key:

___ 30mm²/s ____ 100 mm²/s

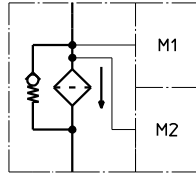


Symbols:

without indicator



with by-pass valve



visual O



electric contact maker
E1



electric contact breaker
E5



electric contact maker/breaker
E2



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 | screw plug | M60 x 2 | | M82 x 2 | | M90 x 2 | M100 x 2 |
| 5 | 1 | O-ring | 56 x 3 305072 (NBR) 305322 (FPM) | | 75 x 3 302215 (NBR) 304729 (FPM) | | 82 x 3,5 304403 (NBR) 308745 (FPM) | 96 x 3 305292 (NBR) 305297 (FPM) |
| 6 | 1 | O-ring | 50 x 2,5 305239 (NBR) 305321 (FPM) | | 68 x 4 303037 (NBR) 313046 (FPM) | | 75 x 3 302215 (NBR) 304729 (FPM) | 82 x 3 305191 (NBR) 305298 (FPM) |
| 7 | 1 | O-ring | 22 x 3 304387 (NBR) 304931 (FPM) | | 24 x 3 303038 (NBR) 304397 (FPM) | | 40 x 3 304389 (NBR) 304391 (FPM) | 40 x 3 304389 (NBR) 304391 (FPM) |
| 8 | 1 | O-ring | 56 x 3 305072 (NBR) 305322 (FPM) | | 86 x 3 305470 (NBR) 313047 (FPM) | | 88 x 3 304417 (NBR) 310266 (FPM) | 96 x 3 305292 (NBR) 305297 (FPM) |
| 9 | 1 | spring | DA = 40 344920 | | DA = 52 302144 | | DA = 52 302144 | DA = 52 305053 |
| 10 | 1 | clogging indicator, visual | O 301721 | | | | | |
| 11 | 1 | clogging indicator, electric | E1, E2 or E5 see sheet-no. 1616 | | | | | |

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 |

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