

Return Line Filter

Series TEF 625

DN50 PN10

Description:

Return-line filter series TEF 625 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. 625. 10VG. 16. S. P. -. FS. 8. -. E1. O. -. -

1	2	3	4	5	6	7	8	9	10	11	12	13	14
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- | | |
|----|---|
| 1 | series:
TEF = tank-mounted return-line-filter |
| 2 | nominal size: 625 |
| 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 applications, see sheet-no. 31601 |
| 8 | process connection:
FS = SAE-flange connection 3000 PSI |
| 9 | process connection size:
8 = 2" |
| 10 | filter housing specification:
- = standard
IS06 = for HFC applications, see sheet-no. 31605
IS10 = for ATEX, see sheet-no. 68267
IS11 = for mining applications, see sheet-no. 40530 |
| 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 | clogging indicator at M3:
possible indicators see position 11 of the type index |
| 14 | discharge pipe:
- = without
1 = with discharge pipe |

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. 631. 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: 631 |
| 3 | - 7 see type index-complete filter |

Accessories:

- SAE-counter flange, see sheet-no. 1652

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:	SAE-flange connection 3000 PSI
housing material standard:	filter head and cover AL, / filter bowl glass fiber reinforced polyamide
housing material IS10, category 2 and 3:	filter head and cover AL, / filter bowl carbon fiber reinforced polyamide
housing material IS11, category M2:	filter head and cover GG, / filter bowl carbon fiber reinforced polyamide
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	3,7 l

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:

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

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

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

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

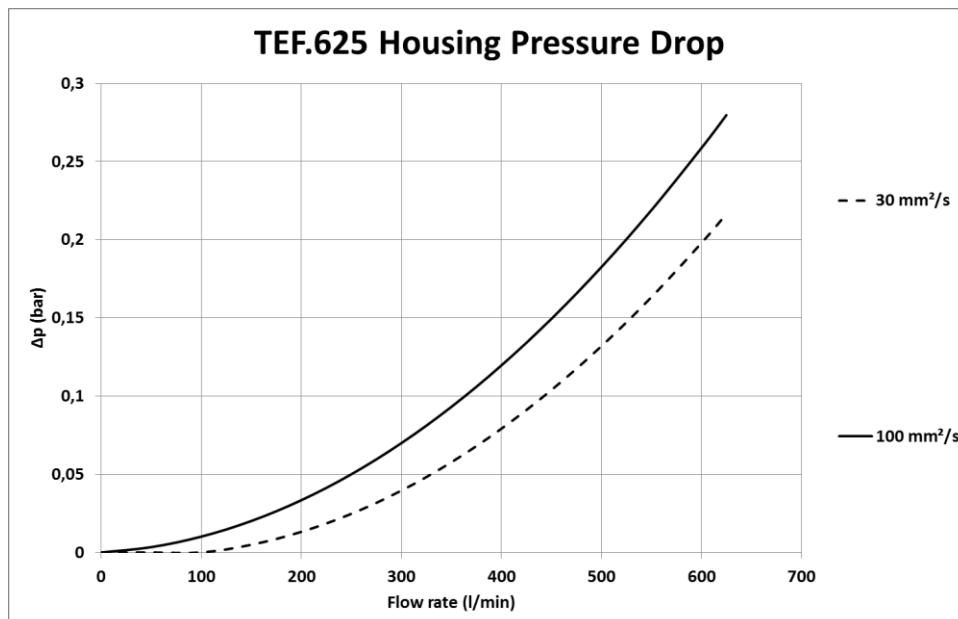
Material gradient coefficients (MSK) for filter elements

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
625	0,533	0,370	0,237	0,206	0,141	0,0193	0,0180	0,0123	0,116

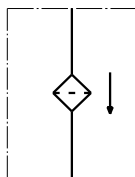
$\Delta p = f(Q)$ – characteristics according to ISO 3968

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.

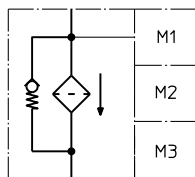


Symbols:

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	article-no.	
1	1	filter element	01.E631...		
2	1	O-ring	120 x 4	301914 (NBR)	304765 (FPM)
3	1	O-ring	140 x 3	304602 (NBR)	308140 (FPM)
4	1	O-ring	135 x 3,5	303963 (NBR)	307762 (FPM)

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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