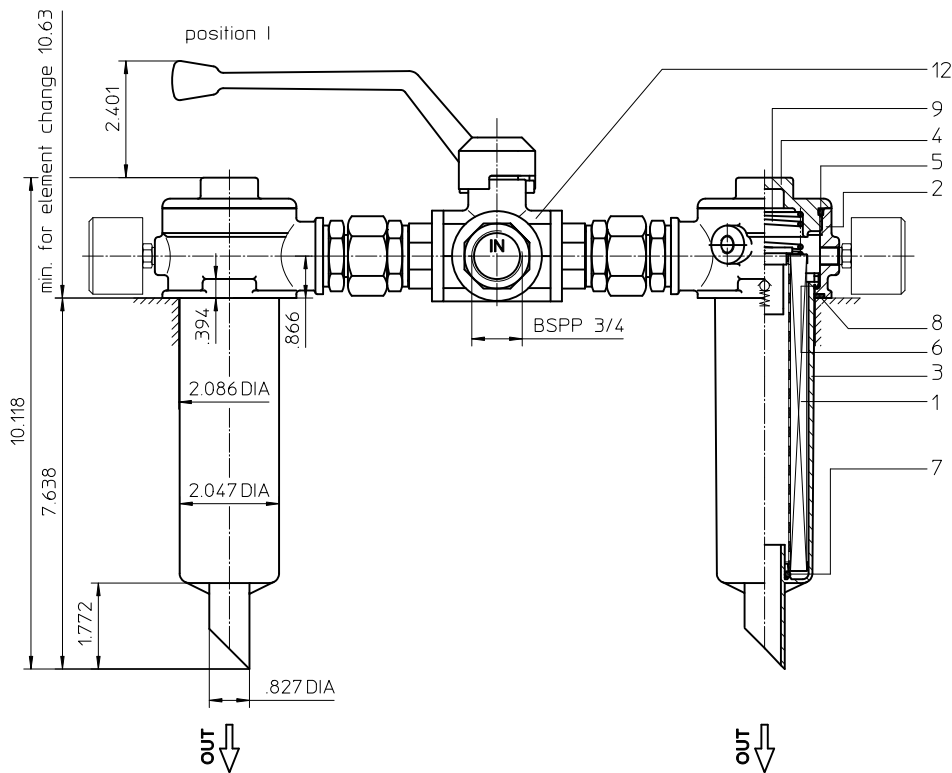
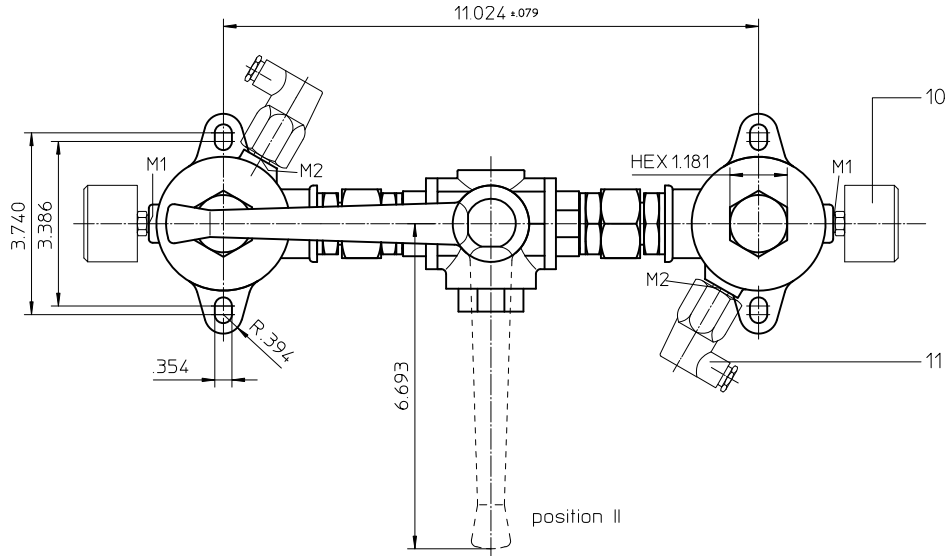


Series DTEF 70

145 PSI



Position I: left filter-side in operation
 Position II: right filter-side in operation

Weight: approx. 8.0 lbs.

Dimensions: inches

Designs and performance values are subject to change.



Powering Business Worldwide

Return Line Filter

Series DTEF 70

145 PSI

Description:

Return-line filter series DTEF 70 have a working pressure up to 145 PSI.

The DTEF-filters are directly mounted to the reservoir and connected to the return-line.

A three way changeover valve which is integrated in the middle of the housing makes it possible to switch from the dirty filter-side to the clean filter-side without interrupting operation. These filters can be installed as suction filters.

The filter element consists of 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 direction is from outside to inside.

Eaton filter elements are known for a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

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

Eaton filter elements 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)

DTEF. 70. 10VG. 16. S. P. -. G. 4. -. O. E1

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

- 1 | **series:**
DTEF = tank-mounted return-line-filter, change over
- 2 | **nominal size:** 70
- 3 | **filter-material and filter-fineness:**
80G, 40G, 25G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass
10P paper
- 4 | **filter element collapse rating:**
16 = Δp 232 PSI
- 5 | **filter element design:**
E = without by-pass valve
S = with by-pass valve Δp 29 PSI
- 6 | **sealing material:**
P = Nitrile (NBR)
V = Viton (FPM)
- 7 | **filter element specification: (see catalog)**
- = standard
VA = stainless steel
IS06 = for HFC application, see sheet-no. 31601
- 8 | **process connection:**
G = thread connection
- 9 | **process connection size:**
4 = BSPP ¾
- 10 | **filter housing specification: (see catalog)**
- = standard
IS06 = for HFC application, see sheet-no. 31605
- 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
- 12 | **clogging indicator at M2:**
possible indicators see position 11 of the type index

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
- 3 | - 7 | see type index-complete filter

Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
max. operating pressure:	145 PSI
opening pressure by-pass valve:	29 PSI
process connection:	thread connection
housing material standard:	Al-casting, glass fibre reinforced polyamide
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	2x .08 Gal.

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.
Classified under ATEX Directive 2014/34/EC 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:

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

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

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left(\frac{PSI}{GPM} \right) \times \nu (SUS) \times \frac{\rho}{0.876} \left(\frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

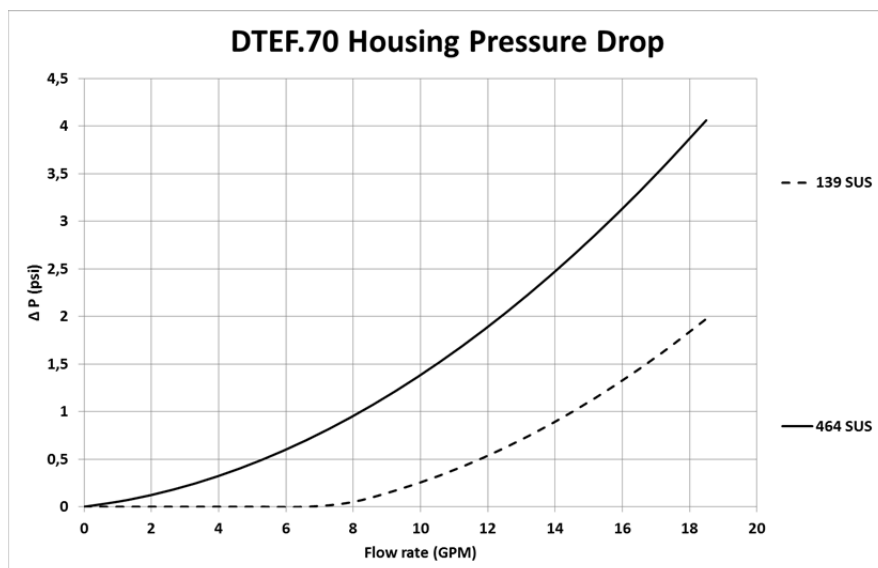
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

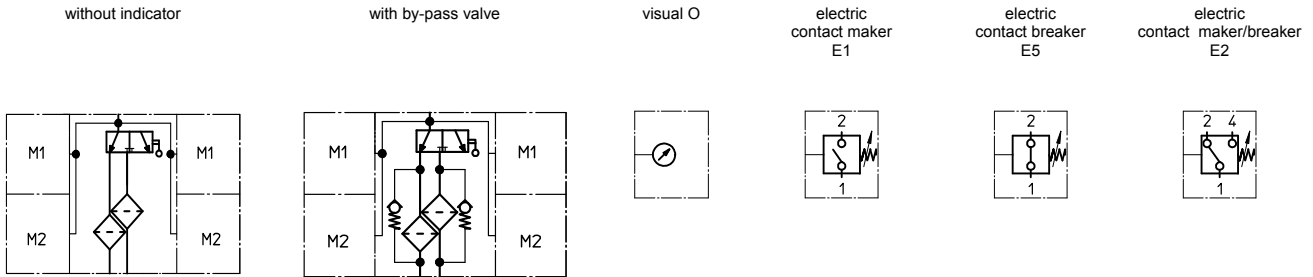
DTEF	VG					G			P
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P
70	3.535	2.454	1.571	1.368	0.935	0.1196	0.1117	0.0765	0.797

$\Delta p = f(Q)$ – 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:



Spare parts:

item	qty.	designation	dimension	article-no.	
1	2	filter element	01.E70...	-	
2	2	filter head		305459	
3	2	filter bowl		304595	
4	2	screw plug	M 60 x 2	303621	
5	2	O-ring	56 x 3	305072 (NBR)	305322 (FPM)
6	2	O-ring	50 x 2,5	305239 (NBR)	305321 (FPM)
7	2	O-ring	22 x 3	304387 (NBR)	304931 (FPM)
8	4	O-ring	56 x 3	305072 (NBR)	305322 (FPM)
9	2	spring	DA = 40	304982	
10	2	clogging indicator, visual	O	see sheet-no. 1616	
11	2	pressure switch, electric	alternatively E1, E2 or E5	see sheet-no. 1616	
12	1	three-way-change-over valve		308115	

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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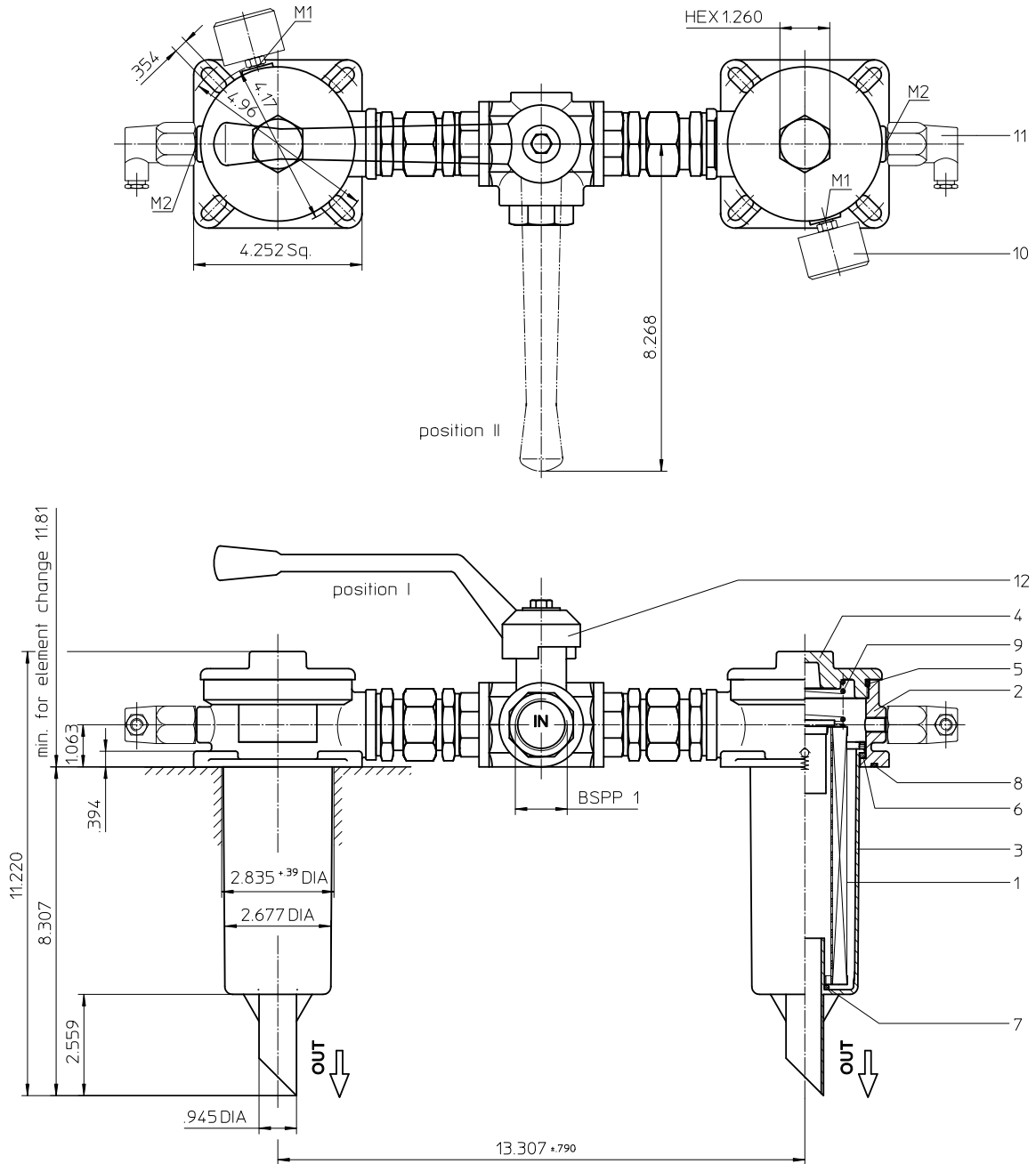
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Series DTEF 120 145 PSI



Position I: left filter-side in operation
 Position II: right filter-side in operation

Weight: approx. 13 lbs.

Dimensions: inches

Designs and performance values are subject to change.

Return Line Filter

Series DTEF 120

145 PSI

Description:

Return-line filter series DTEF 120 have a working pressure up to 145 PSI.

The DTEF-filters are directly mounted to the reservoir and connected to the return-line.

A three way changeover valve which is integrated in the middle of the housing makes it possible to switch from the dirty filter-side to the clean filter-side without interrupting operation. These filters can be installed as suction filters.

The filter element consists of 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 direction is from outside to inside.

Eaton filter elements are known for a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

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

Eaton filter elements 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)

DTEF. 120. 10VG. 16. S. P. - . G. 5. - . O. E1

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

- | | |
|----|---|
| 1 | series:
DTEF = tank-mounted return-line-filter, change over |
| 2 | nominal size: 120 |
| 3 | filter-material and filter-fineness:
80G, 40G, 25G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass
10P paper |
| 4 | filter element collapse rating:
16 = Δp 232 PSI |
| 5 | filter element design:
E = without by-pass valve
S = with by-pass valve Δp 29 PSI |
| 6 | sealing material:
P = Nitrile (NBR)
V = Viton (FPM) |
| 7 | filter element specification: (see catalog)
- = standard
VA = stainless steel
IS06 = for HFC application, see sheet-no. 31601 |
| 8 | process connection:
G = thread connection |
| 9 | process connection size:
5 = BSPP 1 |
| 10 | filter housing specification: (see catalog)
- = standard
IS06 = for HFC application, see sheet-no. 31605 |
| 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 |
| 12 | clogging indicator at M2:
possible indicators see position 11 of the type index |

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. 120. 10VG. 16. S. P. -

1	2	3	4	5	6	7
---	---	---	---	---	---	---

- | | |
|---|---|
| 1 | series:
01E. = filter element according to company standard |
| 2 | nominal size: 120 |
| 3 | - 7 see type index-complete filter |

Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
max. operating pressure:	145 PSI
opening pressure by-pass valve:	29 PSI
process connection:	thread connection
housing material standard:	Al-casting, glass fiber reinforced polyamide
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	2x .16 Gal.

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.
 Classified under ATEX Directive 2014/34/EC 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:

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

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

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left(\frac{PSI}{GPM} \right) \times v (SUS) \times \frac{\rho}{0.876} \left(\frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

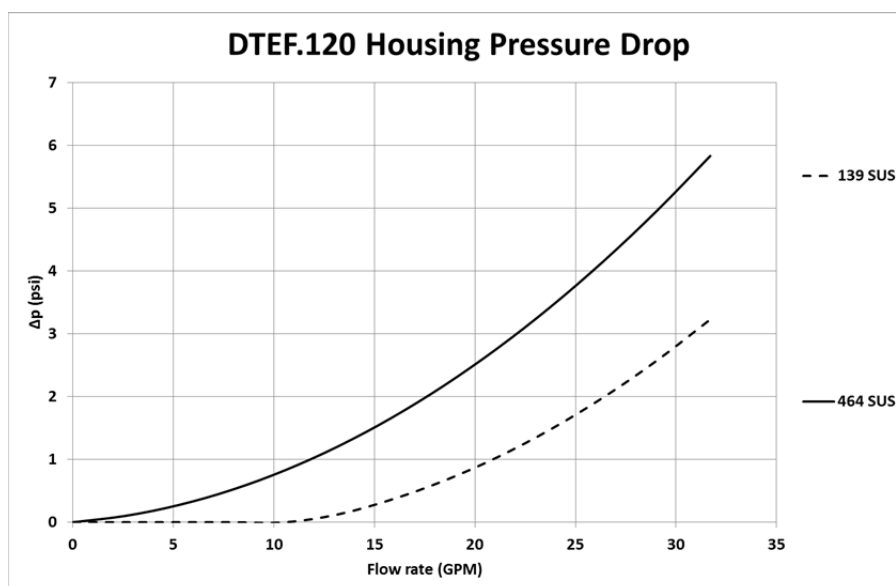
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

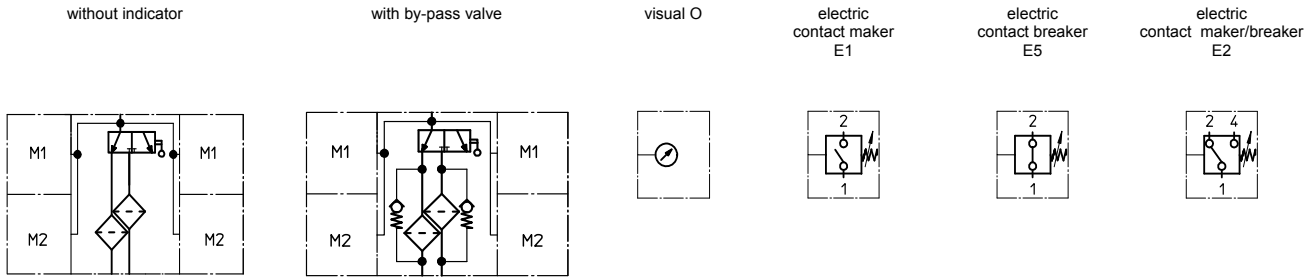
DTEF	VG					G			P
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P
120	3.162	2.195	1.405	1.224	0.836	0.1144	0.1068	0.0731	0.690

$\Delta p = f(Q)$ – 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:



Spare parts:

item	qty.	designation	dimension	article-no.	
1	2	filter element	01.E120...		
2	2	filter head		305467	
3	2	filter bowl		303041	
4	2	screw plug	M 60 x 2	302069	
5	2	O-ring	75 x 3	302215 (NBR)	304729 (FPM)
6	2	O-ring	68 x 4	303037 (NBR)	313046 (FPM)
7	2	O-ring	24 x 3	303038 (NBR)	304397 (FPM)
8	4	O-ring	86 x 3	305470 (NBR)	313047 (FPM)
9	2	spring	DA = 52	302144	
10	2	clogging indicator, visual	O	see sheet-no. 1616	
11	2	pressure switch, electric	alternatively E1, E2 or E5	see sheet-no. 1616	
12	1	three-way-change-over valve		308123	

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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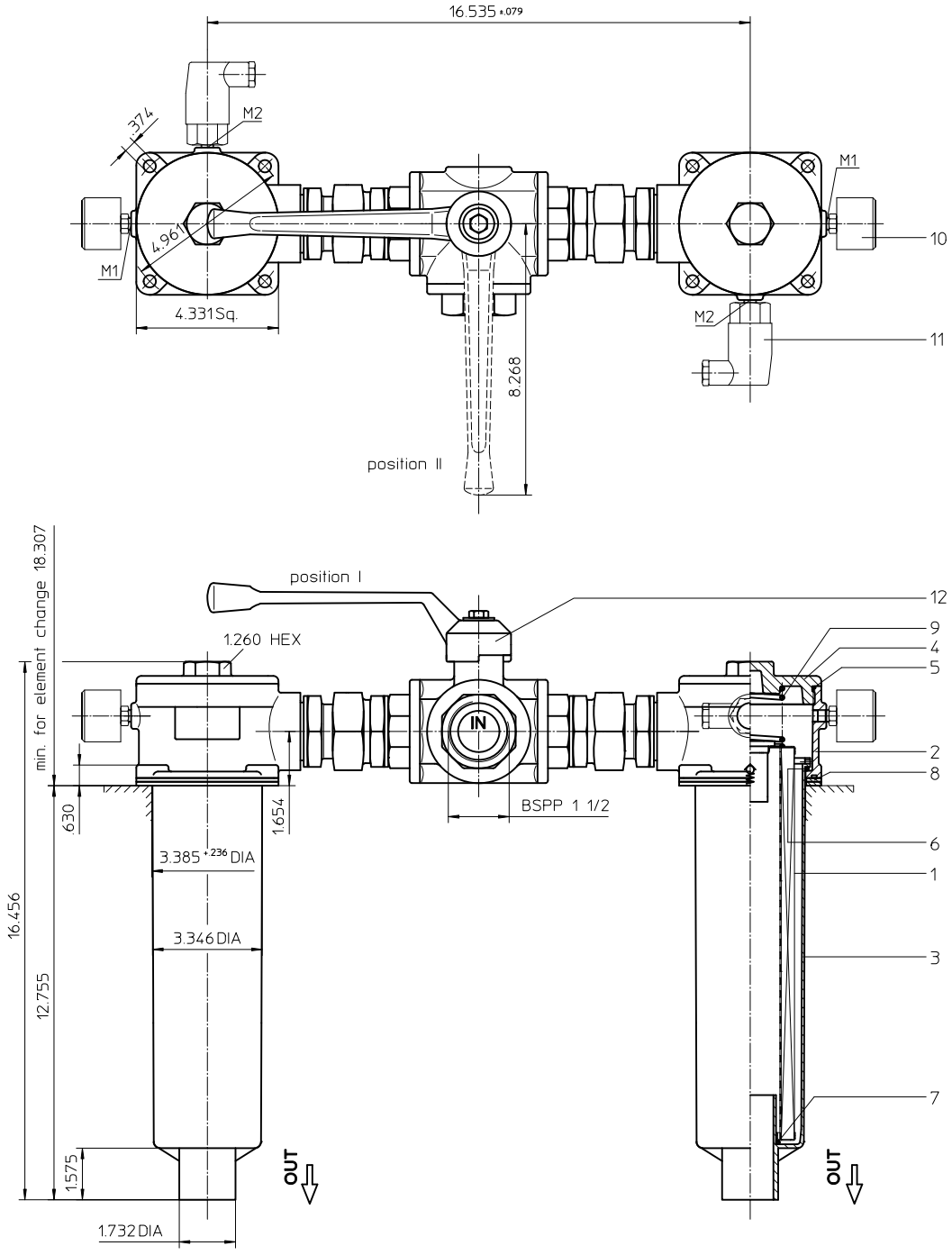
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Series DTEF 320

145 PSI



Position I: left filter-side in operation
 Position II: right filter-side in operation

Weight: approx. 22 lbs.
 Dimensions: inches

Designs and performance values are subject to change.

Return Line Filter Series DTEF 320 145 PSI

Description:

Return-line filter series DTEF 320 have a working pressure up to 145 PSI.

The DTEF-filters are directly mounted to the reservoir and connected to the return-line.

A three way changeover valve which is integrated in the middle of the housing makes it possible to switch from the dirty filter-side to the clean filter-side without interrupting operation. These filters can be installed as suction filters.

The filter element consists of 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 direction is from outside to inside.

Eaton filter elements are known for a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

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

Eaton filter elements 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)

DTEF. 320. 10VG. 16. S. P. -. G. 7. -. O. E1

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

- | | |
|----|---|
| 1 | series:
DTEF = tank-mounted return-line-filter, change over |
| 2 | nominal size: 320 |
| 3 | filter-material and filter-fineness:
80G, 40G, 25G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass
10P paper |
| 4 | filter element collapse rating:
16 = Δp 232 PSI |
| 5 | filter element design:
E = without by-pass valve
S = with by-pass valve Δp 29 PSI |
| 6 | sealing material:
P = Nitrile (NBR)
V = Viton (FPM) |
| 7 | filter element specification: (see catalog)
- = standard
VA = stainless steel
IS06 = for HFC application, see sheet-no. 31601 |
| 8 | process connection:
G = thread connection |
| 9 | process connection size:
7 = BSPP 1 ½ |
| 10 | filter housing specification: (see catalog)
- = standard
IS06 = for HFC application, see sheet-no. 31605 |
| 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 |
| 12 | clogging indicator at M2:
possible indicators see position 11 of the type index |

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. 320. 10VG. 16. S. P. -

1	2	3	4	5	6	7
---	---	---	---	---	---	---

- | | |
|---|---|
| 1 | series:
01E. = filter element according to company standard |
| 2 | nominal size: 320 |
| 3 | - 7 see type index-complete filter |

Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
max. operating pressure:	145 PSI
opening pressure by-pass valve:	29 PSI
process connection:	thread connection
housing material standard:	Al-casting, glass fibre reinforced polyamide
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	2x .48 Gal.

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.
Classified under ATEX Directive 2014/34/EC 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:

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

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

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left(\frac{PSI}{GPM} \right) \times v (SUS) \times \frac{\rho}{0.876} \left(\frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

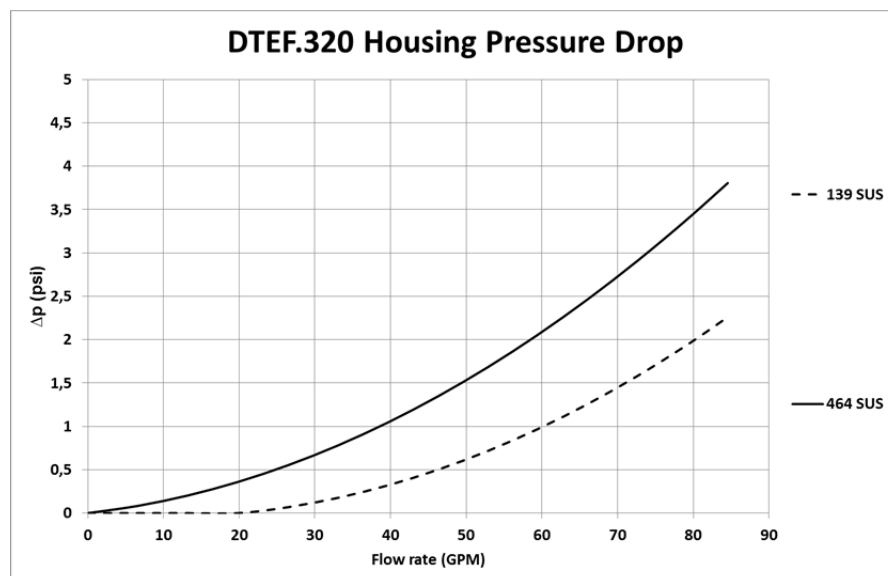
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

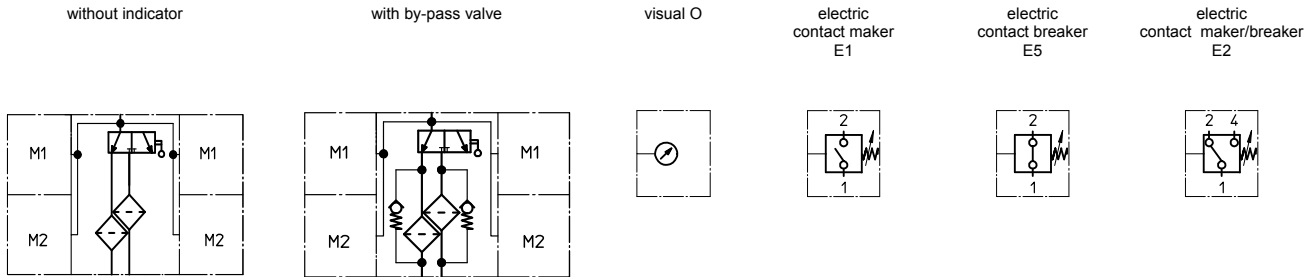
DTEF	VG					G			P
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P
320	1.148	0.797	0.510	0.444	0.304	0.0337	0.0314	0.0215	0.253

$\Delta p = f(Q)$ – 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:



Spare parts:

item	qty.	designation	dimension	article-no.	
1	2	filter element	01.E320...		
2	2	filter head		305475	
3	2	filter bowl		302145	
4	2	screw plug	M 100 x 2	302338	
5	2	O-ring	96 x 3	305292 (NBR)	305297 (FPM)
6	2	O-ring	82 x 3	305191 (NBR)	305298 (FPM)
7	2	O-ring	40 x 3	304389 (NBR)	304391 (FPM)
8	4	gasket	110 x 110 x 3	304456 (NBR)	314138 (FPM)
9	2	spring	DA = 52	305053	
10	2	clogging indicator, visual	O	see sheet-no. 1616	
11	2	pressure switch, electric	alternatively E1, E2 or E5	see sheet-no. 1616	
12	1	three-way-change-over valve		308128	

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
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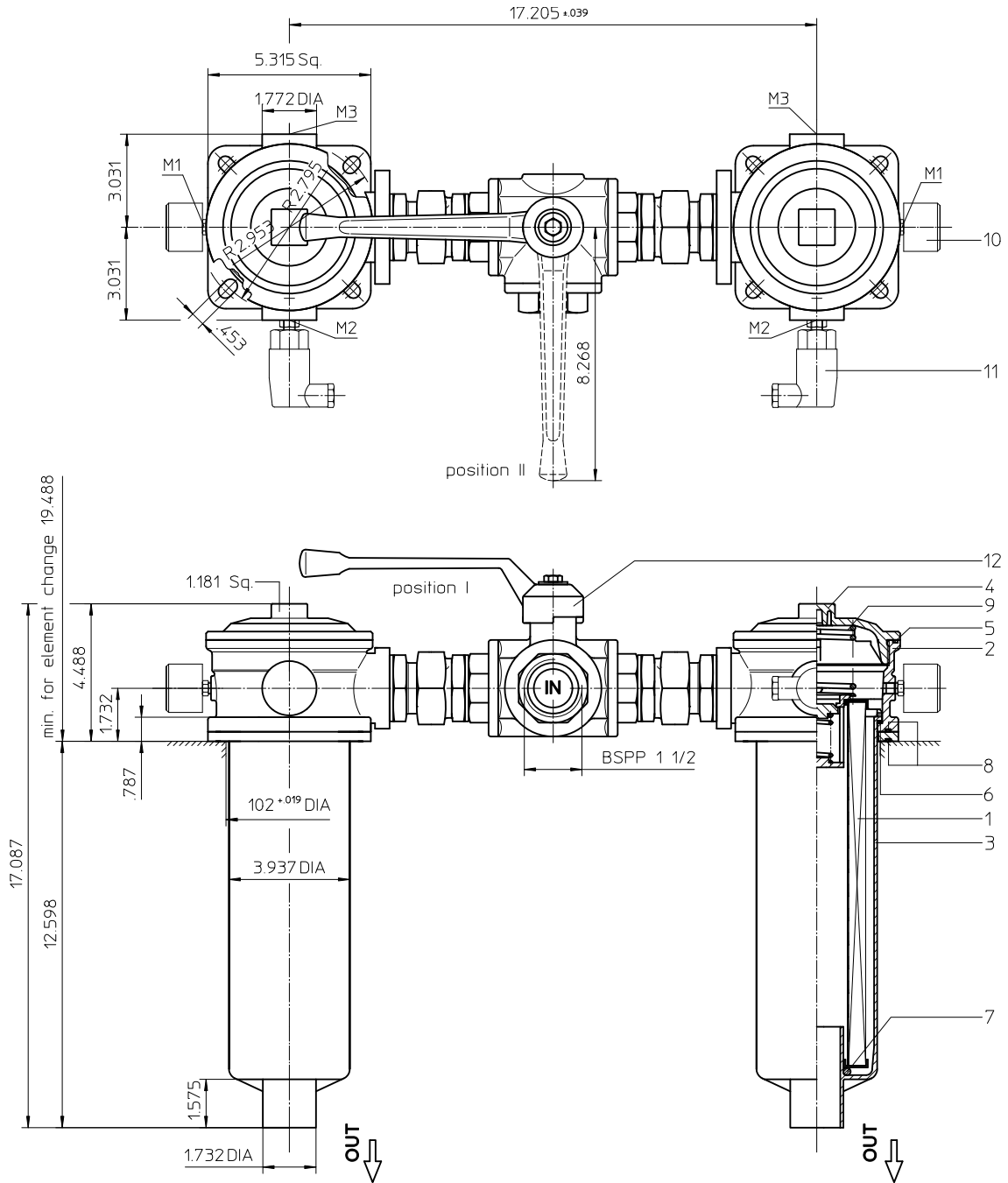
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Series DTEF 426

145 PSI



Position I: left filter-side in operation
 Position II: right filter-side in operation

Weight: approx. 27.5 lbs.

Dimensions: inches

Designs and performance values are subject to change.

Return Line Filter

Series DTEF 426

145 PSI

Description:

Return-line filter series DTEF 426 have a working pressure up to 145 PSI.

The DTEF-filters are directly mounted to the reservoir and connected to the return-line.

A three way changeover valve which is integrated in the middle of the housing makes it possible to switch from the dirty filter-side to the clean filter-side without interrupting operation. These filters can be installed as suction filters.

The filter element consists of 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 direction is from outside to inside.

Eaton filter elements are known for a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

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

Eaton filter elements 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)

DTEF. 426. 10VG. 16. S. P. - G. 7. - O. E1. -

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

- 1 | **series:**
DTEF = tank-mounted return-line-filter, change over
- 2 | **nominal size:** 426
- 3 | **filter-material and filter-fineness:**
80G, 40G, 25G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass
10P paper
- 4 | **filter element collapse rating:**
16 = Δp 232 PSI
- 5 | **filter element design:**
E = without by-pass valve
S = with by-pass valve Δp 29 PSI
- 6 | **sealing material:**
P = Nitrile (NBR)
V = Viton (FPM)
- 7 | **filter element specification:** (see catalog)
- = standard
VA = stainless steel
IS06 = for HFC application, see sheet-no. 31601
- 8 | **process connection:**
G = thread connection
- 9 | **process connection size:**
7 = BSPP 1 ½
- 10 | **filter housing specification:** (see catalog)
- = standard
IS06 = for HFC application, see sheet-no. 31601
- 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
- 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

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. 425. 10VG. 16. S. P. -

1	2	3	4	5	6	7
---	---	---	---	---	---	---

- 1 | **series:**
01E. = filter element according to company standard
- 2 | **nominal size:** 425
- 3 | - 7 | see type index-complete filter

Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
max. operating pressure:	145 PSI
opening pressure by-pass valve:	29 PSI
process connection:	thread connection
housing material standard:	Al-casting, glass fibre reinforced polyamide
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	2x .70 Gal.

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.
 Classified under ATEX Directive 2014/34/EC 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:

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

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

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left(\frac{PSI}{GPM} \right) \times v (SUS) \times \frac{\rho}{0.876} \left(\frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

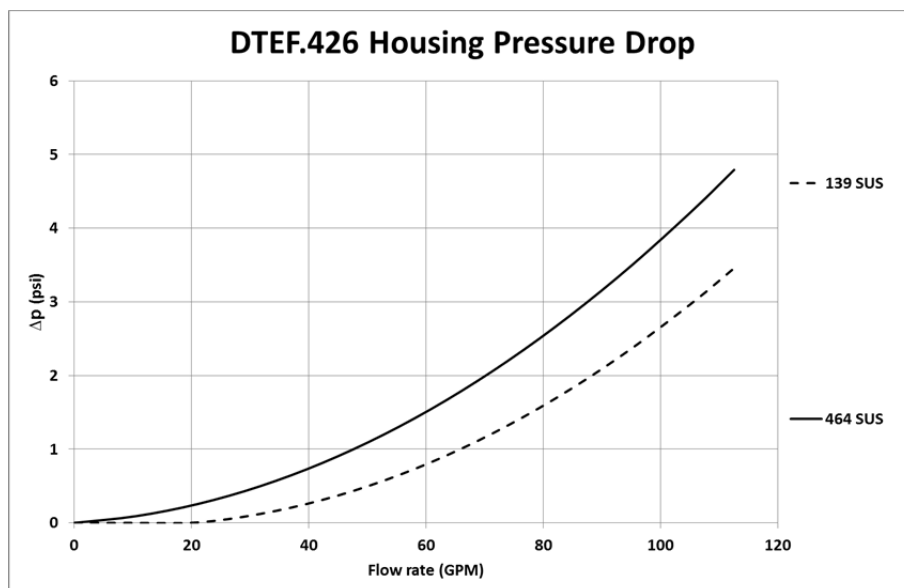
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

DTEF	VG					G			P
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P
426	0.849	0.589	0.377	0.328	0.224	0.0270	0.0252	0.0172	0.182

$\Delta p = f(Q)$ – 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

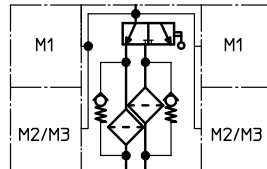
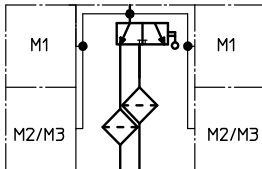
with by-pass valve

visual O

electric contact maker
E1

electric contact breaker
E5

electric contact maker/breaker
E2



Spare parts:

item	qty.	designation	dimension	article-no.
1	2	filter element	01.E425...	
2	2	filter head		313434
3	2	filter bowl		303732
4	2	screw plug	M 120 x 3	313649
5	2	O-ring	128 x 3	304602 (NBR) 308140 (FPM)
6	2	O-ring	98 x 4	301914 (NBR) 304765 (FPM)
7	2	O-ring	44 x 6	302222 (NBR) 304384 (FPM)
8	4	O-ring	115 x 3	303963 (NBR) 307762 (FPM)
9	2	spring	DA = 63,5	304983
10	2	clogging indicator, visual	O	see sheet-no. 1616
11	2	pressure switch, electric	alternatively E1, E2 or E5	see sheet-no. 1616
12	1	three-way-change-over valve		308128

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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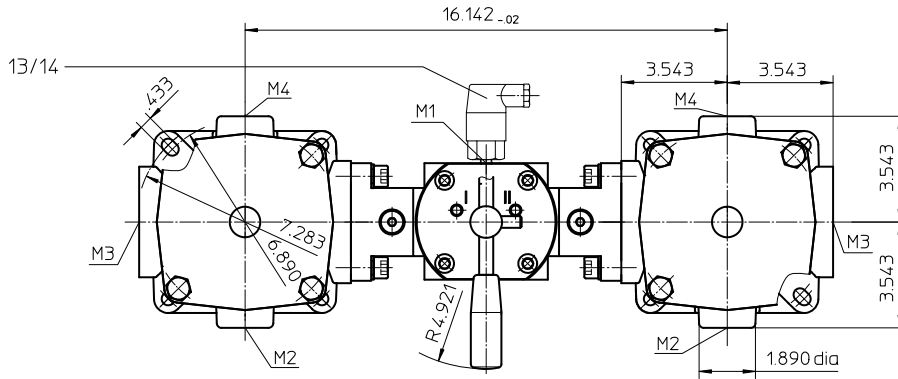
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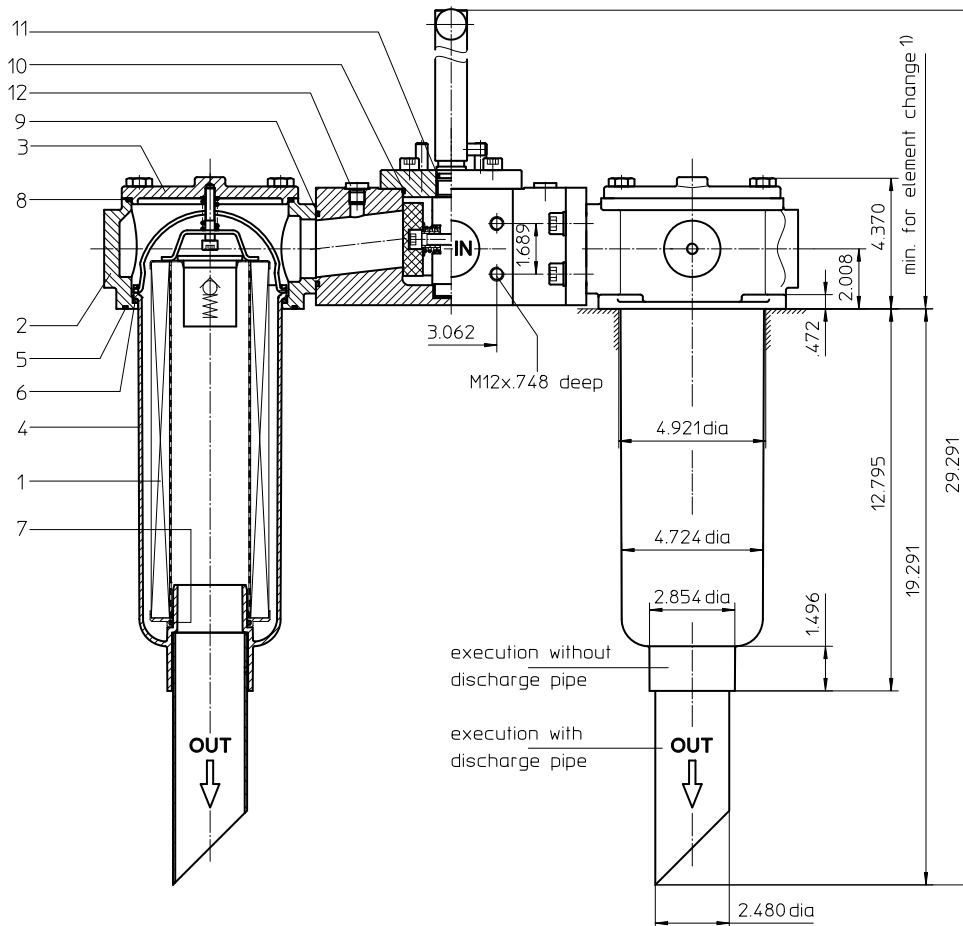
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Series DTEF 625

145 PSI



1) min. for element change without discharge pipe 20.47
 min. for element change with discharge pipe 26.97



Position I: left filter-side in operation
 Position II: right filter-side in operation

Weight: approx. 33 lbs.

Dimensions: inches

Designs and performance values are subject to change.



Powering Business Worldwide

Return Line Filter

Series DTEF 625

145 PSI

Description:

Return-line filter series DTEF 625 have a working pressure up to 145 PSI.

The DTEF-filters are directly mounted to the reservoir and connected to the return-line.

A rotary slide valve which is integrated in the middle of the housing makes it possible to switch from the dirty filter-side to the clean filter-side without interrupting operation. These filters can be installed as suction filters.

The filter element consists of 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 direction is from outside to inside.

Eaton filter elements are known for a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

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

Eaton filter elements 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)

DTEF. 625. 10VG. 16. S. P. - FS. 8. - E1. - - - -

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----

- 1 series:**
DTEF = tank-mounted return-line-filter, change over
- 2 nominal size:** 625
- 3 filter-material and filter-fineness:**
80G, 40G, 25G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass
10P paper
- 4 filter element collapse rating:**
16 = Δp 232 PSI
- 5 filter element design:**
E = without by-pass valve
S = with by-pass valve Δp 29 PSI
- 6 sealing material:**
P = Nitrile (NBR)
V = Viton (FPM)
- 7 filter element specification:** (see catalog)
- = standard
VA = stainless steel
IS06 = for HFC application, see sheet-no. 31601
- 8 process connection:**
FS = SAE-flange 3000 PSI
- 9 process connection size:**
8 = 2"
- 10 filter housing specification:** (see catalog)
- = standard
IS06 = for HFC application, see sheet-no. 31605
- 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
- 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 clogging indicator at M4:**
possible indicators see position 11 of the type index
- 15 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
---	---	---	---	---	---	---

- 1 series:**
01E. = filter element according to company standard
- 2 nominal size:** 631
- 3 - 7** see type index-complete filter

Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
max. operating pressure:	145 PSI
opening pressure by-pass valve:	29 PSI
process connection:	SAE-flange 3000 PSI
housing material standard:	Al-casting, C-steel
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	2x 1.0 Gal.

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.
Classified under ATEX Directive 2014/34/EC 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:

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

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

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left(\frac{PSI}{GPM} \right) \times v (SUS) \times \frac{\rho}{0.876} \left(\frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

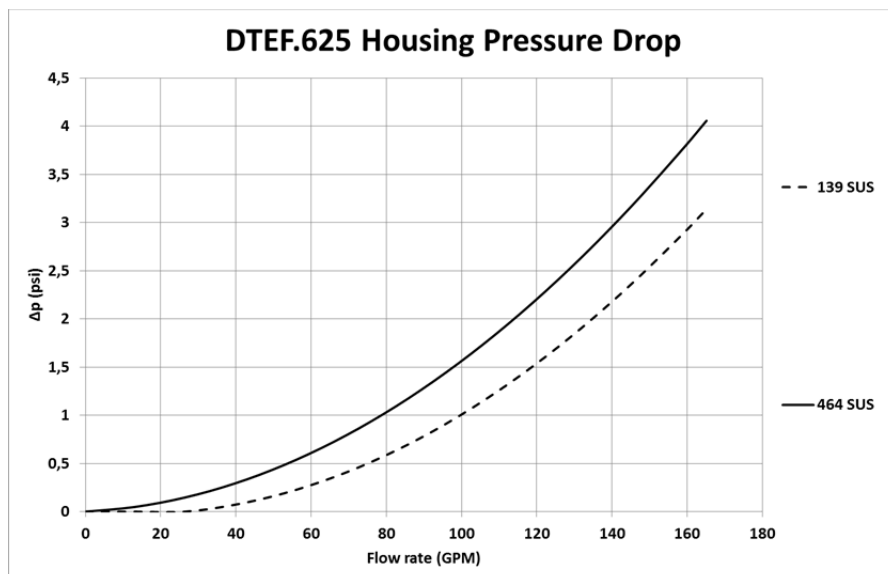
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

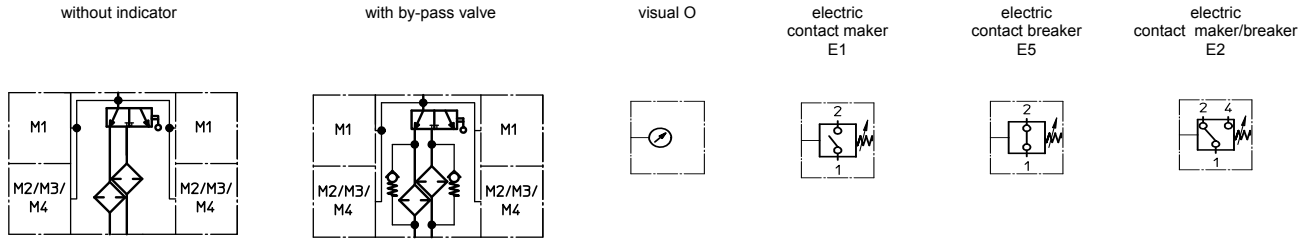
DTEF	VG					G			P
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P
625	0.643	0.446	0.286	0.249	0.170	0.0236	0.0220	0.0151	0.142

$\Delta p = f(Q)$ – 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:



Spare parts:

item	qty.	designation	dimension	article-no.	
1	2	filter element	01.E631...		
2	2	filter head		316414	
3	2	filter cover	32571-4		
4	2	filter bowl without discharge pipe		316416	
	2	filter bowl with discharge pipe			
5	2	O-ring	140 x 3	304604 (NBR)	307514 (FPM)
6	2	O-ring	120 x 4	305300 (NBR)	307991 (FPM)
7	2	O-ring	63 x 3,5	311189 (NBR)	311592 (FPM)
8	2	O-ring	135 x 3,5	318386 (NBR)	318387 (FPM)
9	1	O-ring	56,75 x 3,53	306035 (NBR)	310264 (FPM)
10	1	O-ring	75 x 3	302215 (NBR)	304729 (FPM)
11	2	O-ring	18 x 3	304359 (NBR)	304399 (FPM)
12	2	screw plug	¼ BSPP	305003	
13	1	pressure switch, electric	alternatively E1, E2 or E5	see sheet-no. 1616	
14	1	clogging indicator, visual	O	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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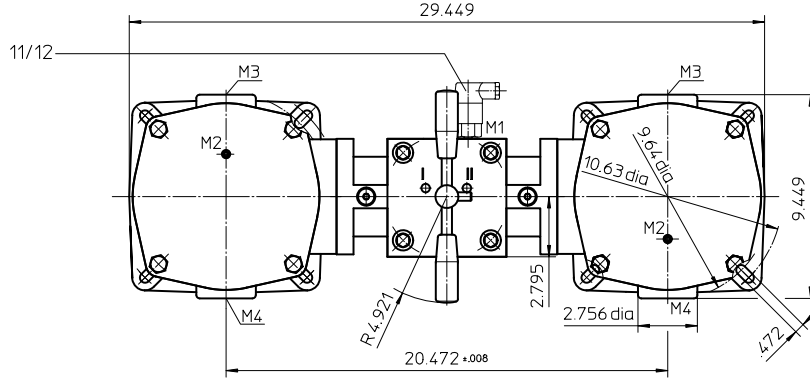
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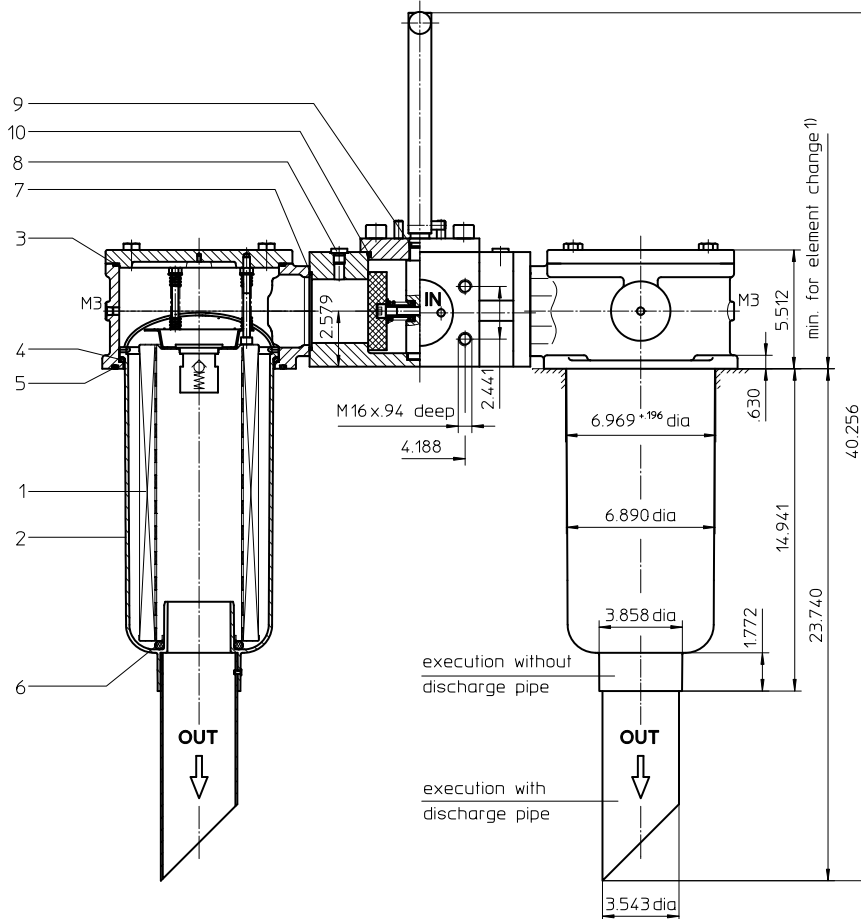
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Series DTEF 952 145 PSI



1) min. for element change without discharge pipe 21.88
min. for element change with discharge pipe 30.70



Position I: left filter-side in operation
Position II: right filter-side in operation

Weight: approx. 119 lbs.

Dimensions: inches

Designs and performance values are subject to change.



Powering Business Worldwide

Return Line Filter Series DTEF 952 145 PSI

Description:

Return-line filter series DTEF 952 have a working pressure up to 145 PSI.

The DTEF-filters are directly mounted to the reservoir and connected to the return-line.

A rotary slide valve which is integrated in the middle of the housing makes it possible to switch from the dirty filter-side to the clean filter-side without interrupting operation. These filters can be installed as suction filters.

The filter element consists of 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 direction is from outside to inside.

Eaton filter elements are known for a high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

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

Eaton filter elements 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)

DTEF. 952. 10VG. 10. S. P. - FS. A. - E2. - - - -

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----

- 1 series:**
DTEF = tank-mounted return-line-filter, change over
- 2 nominal size:** 952
- 3 filter-material and filter-fineness:**
80G, 40G, 25G stainless steel wire mesh
25VG, 16VG, 10VG, 6VG, 3VG microglass
10P paper
- 4 filter element collapse rating:**
10 = Δp 145 PSI
- 5 filter element design:**
E = without by-pass valve
S = with by-pass valve Δp 29 PSI
- 6 sealing material:**
P = Nitrile (NBR)
V = Viton (FPM)
- 7 filter element specification:** (see catalog)
- = standard
VA = stainless steel
IS06 = for HFC application, see sheet-no. 31601
- 8 process connection:**
FS = SAE-flange 3000 PSI
- 9 process connection size:**
A = 3"
- 10 filter housing specification:** (see catalog)
- = standard
IS06 = for HFC application, see sheet-no. 31605
- 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
- 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 clogging indicator at M4:**
possible indicators see position 11 of the type index
- 15 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. 950. 10VG. 10. S. P. -

1	2	3	4	5	6	7
---	---	---	---	---	---	---

- 1 series:**
01E. = filter element according to company standard
- 2 nominal size:** 950
- 3 - 7** see type index-complete filter

Technical data:

design temperature:	14 °F to +212 °F
operating temperature:	14 °F to +176 °F
operating medium	mineral oil, other media on request
max. operating pressure:	145 PSI
opening pressure by-pass valve:	29 PSI
process connection:	SAE-flange 3000 PSI
housing material standard:	Al, glass fiber reinforced polyamide
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	2x 2.6 Gal.

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.
 Classified under ATEX Directive 2014/34/EC 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:

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

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

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left(\frac{PSI}{GPM} \right) \times \nu (SUS) \times \frac{\rho}{0.876} \left(\frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

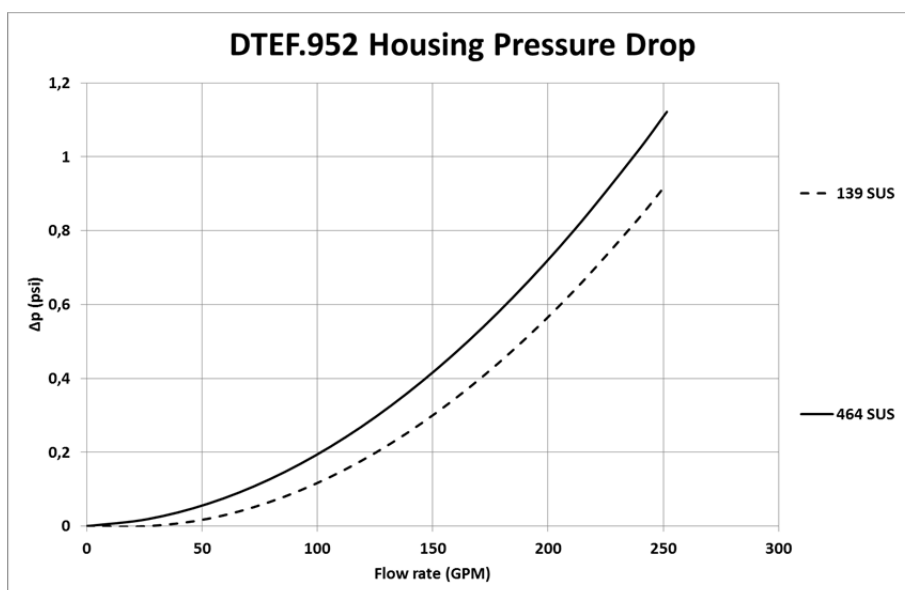
Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

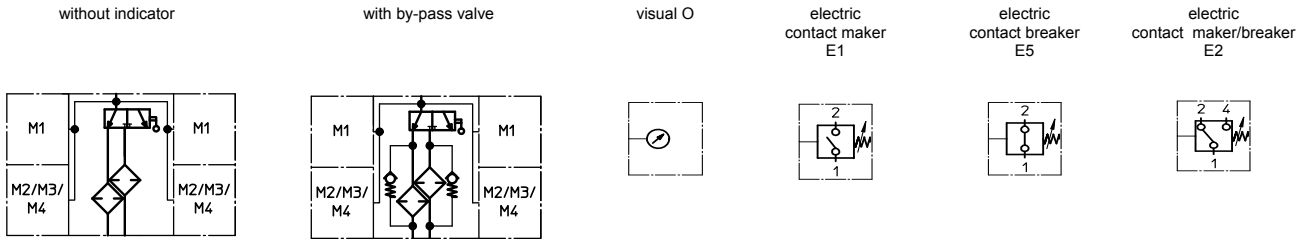
DTEF	VG					G			P
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G	10P
952	0.364	0.253	0.162	0.141	0.096	0.0179	0.0167	0.0115	0.076

$\Delta p = f(Q)$ – 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:



Spare parts:

item	qty.	designation	dimension	article-no.	
1	2	filter element	01.E950...		
2	2	filter bowl without discharge pipe		327460	
	2	filter bowl with discharge pipe		327461	
3	2	O-ring	195 x 3,5	301831 (NBR)	306528 (FPM)
4	2	O-ring	170 x 6	304799 (NBR)	306529 (FPM)
5	2	O-ring	190 x 5	305432 (NBR)	310283 (FPM)
6	2	O-ring	78 x 10	305017 (NBR)	305552 (FPM)
7	2	O-ring	85,32 x 3,53	305590 (NBR)	306308 (FPM)
8	2	screw plug	¼ BSPP	305003	
90	1	O-ring	18 x 3	304359 (NBR)	304399 (FPM)
10	1	O-ring	105 x 5	310003 (NBR)	323080 (FPM)
11	1	pressure switch, electric	alternatively E1, E2 or E5	see sheet-no. 1616	
12	1	clogging indicator, visual	O	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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