RETURN LINE FILTER Series **TEF 625 DN 50 PN 10**





When equiped with one clogging indicator use preferably connection M1.

¹⁾ connection for the potential equalisation, only for application in the explosive area

- 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
 1 series: TEF = tank-mounted return-line-filter 2 nominal size: 625 | filter-material and filter-fineness: 3 80 G = 80 µm, 40 G = 40 µm, 25 G = 25µm stainless steel wire mesh 25 VG = 20 μ m_(c), 16 VG = 15 μ m_(c), 10 VG = 10 μ m_(c), $\begin{array}{l} 6 \ \text{VG} = 7 \ \mu\text{m}_{(c)}, \ 3 \ \text{VG} = 5 \ \mu\text{m}_{(c)} & \text{Interpor fleece (glass fibre)} \\ 25 \ \text{P} = 25 \ \mu\text{m}, & 10 \ \text{P} = 10 \ \mu\text{m} & \text{paper} \end{array}$ 4 | resistance of pressure difference for filter element: 16 = ∆p 16 bar 5 filter element design: = without by-pass valve Ē S = with by-pass valve ∆p 2,0 bar 6 | sealing material: = Nitrile (NBR) P v = Viton (FPM) 7 filter element specification: (see catalog) = standard VA = stainless steel IS06 = see sheet-no. 31601 8 | connection: FS = SAE-flange connection 3000 PSI 9 | connection size: 8 = 2' 10 | filter housing specification: (see catalog) = standard IS06 = see sheet-no. 31605 IS11 = see sheet-no. 40530 11 measuring connection at M1: = without clogging indicator = clogging indicator visual, see sheet-no. 1616 \cap E1 = pressure switch, see sheet-no. 1.616 = pressure switch, see sheet-no. 1616 E2 F5 = pressure switch, see sheet-no. 1616 PA = potential equalisation 12 | measuring connection at M2: possible indicators see position 11 of the type index 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 INTERNORMEN factory specification
 - nominal size: 631
 - 7 | see type index complete filter 3

2. Accessories:

Counter flange, see sheet-no. 1652

url

weight: 4,5 kg

EDV 06/07

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Changes of measures and design are subject to alteration!



item	qty.	designation	dimension	artic	e-no.
1	1	filter element	01E. 631		
2	1	filter head	NG 625		
3,	1	filter cover			
4	1	filter bowl	NG 625		
5	1	O-ring	140 x 3	304604 (NBR)	307 <u>514 (</u> FPM)
6	1	O-ring	120 x 4	305300 (NBR)	307991 (FPM)
7	1	O-ring	63 x 3,5	311189 (NBR)	311592 (FPM)
8	1	O-ring	135 x 3,5	318386 (NBR)	318387 (FPM)
9	1	clogging indicator, visual	0	301	721
10	1	clogging indicator, electrical	alternatively E1, E2 or E5	see sheel	t-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 throwaway elements made of paper or Interpor fleece. 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
connection system:	SAE-flange connection 3000 PSI
housing material:	filter head / filter cover AL; filter bowl glass fibre reinforced polyamide (standard)
· .	filter head / filter cover GG; filter bowl carbon fibre reinforced polyamide (according to IS11)
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	3,7

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:





with by-pass valve



visual O



electrical contact maker E1



electrical

contact breaker E5





electrical

contact maker/breaker E2

7. Pressure drop flow curves: Precise flow rates see 'INT-Expert-System Filter' respectively Ap-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
- Evaluation of pressure drop versus flow characteristics ISO 3968
- ISO 16889 Multi-pass method for evaluating filtration performance

RETURN LINE FILTER Series TEF 952 DN 80 PN 10

¹⁾ min. for element change without discharge pipe 556 min. for element change witht discharge pipe 780



When equiped with one clogging indicator use preferably connection M1.

fax

²⁾ Connection for the potential equalisation, only for application on the explosive area.

1. Type index:

1.1. Complete filter: (ordering example)

- TEF. 952. 10VG. 10. S. P. -. FS. A. -. 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: 952 3 | filter-material and filter-fineness: 80 G = 80 μm, 40 G = 40 μm, 25 G = 25μm stainless steel wire mesh 25 VG = 20 μ m_(c), 16 VG = 15 μ m_(c), 10 VG = 10 μ m_(c), 6 VG = 7 μ m_(c), 3 VG = 5 μ m_(c) Interpor fleece (glass fibre) 25 P = 25 μm, 10 P = 10 μm paper 4 | resistance of pressure difference for filter element: 10 = Δp 10 bar 5 | filter element design: = without by-pass valve Е s = with by-pass valve Δp 2,0 bar S1 = with by-pass valve Δp 3,5 bar 6 sealing material: = Nitrile (NBR) = Viton (FPM) v 7 | filter element specification: (see catalog) = standard VA = stainless steel IS06 = see sheet-no. 31601 8 connection: = SAE-flange connection 3000 PSI FS 9 connection size: А $= 3^{"}$ 10 filter housing specification: (see catalog) = standard IS06 = see sheet-no. 31605 IS11 = see sheet-no. 40530 11 | clogging indicator at M1: = without 0 = visual, see sheet-no. 1616 = pressure switch, see sheet-no. 1616 E1 E2 = pressure switch, see sheet-no. 1616 = pressure switch, see sheet-no. 1616 E5 12 clogging indicator at M2: possible indicators see position 11 of the type index 13 discharge pipe: = without = with discharge pipe 1 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 INTERNORMEN factory specification
- 2 nominal size: 950
- 3 7 see type index-complete filter

2. Accessories:

Counter flange see sheet-no. 1652

url

Changes of measures and design are subject to alteration!

EDV 11/10

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weight: approx.18 kg

item	qty.	designation	dimension	artic	e-no.
1	1	filter element	01.E950		
2	1	filter head			
3	1	filter cover			
4	1	filter bowl without discharge pipe			
	1	filter bowl with discharge pipe			
5	1	O-ring	195 x 3,5	301831 (NBR)	306528 (FPM)
6	1	O-ring	170 x 6	304799 (NBR)	306529 (FPM)
7	1	O-ring	190 x 5	305432 (NBR)	310283 (FPM)
8	1	O-ring	78 x 10	305017 (NBR)	305552 (FPM)
9	1	clogging indicator visual	0	301	721
10	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 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 throwaway 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: operating medium:	-10°C to +80°C (for a short time +100°C) mineral oil, other media on request	
max. operating pressure:	10 bar	
opening pressure by-pass valve:	2,0 bar, 3,5 bar	
connection system:	SAE-flange connection 3000 PSI	
housing material:	filter head / filter cover AL, filter bowl glass fibre reinforced polyamide	(standard)
sealing material: installation position:	filter head / filter cover GG, filter bowl carbon fibre reinforced polyamide Nitrile (NBR) or Viton (FPM), other materials on request vertical	(IS11)
volume tank:	10,01	

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 Ap-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

- Verification of fabrication integrity ISO 2942
- ISO 2943 Verification of material compatibility with fluids
- ISO 3723 Method for end load test
- ISO 3724 Verification of flow fatigue characteristi
- ISO 3968 Evaluation of pressure drop versus flow characteristics
- ISO 16889 Multi-pass method for evaluating filtration performance

RETURN LINE FILTER Series TEF 1652 **DN 100 PN 10**

Sheet No.

1056 D



¹⁾min, for element change with discharge pipe 740 min. for element change without discharge pipe 575



When equiped with one clogging indicator use preferably connection M1.

- 1. Type index:
- 1.1. Complete filter: (ordering example)

TEF. 1652.10VG. 16. S. P. - FS. B. - 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: 1652
- 3 | filter-material and filter-fineness: $80 \text{ G} = 80 \ \mu\text{m}, \ 40 \text{ G} = 40 \ \mu\text{m}, \ 25 \text{ G} = 25 \ \mu\text{m}$ stainless steel wire mesh 25 VG = 20 μ m_(c), 16 VG = 15 μ m_(c), 10 VG = 10 μ m_(c),
- $6 \text{ VG} = 7 \mu m_{(c)}, 3 \text{ VG} = 5 \mu m_{(c)}$ Interpor fleece (glass fibre) $25 P = 25 \mu m$, $10 P = 10 \mu m$ paper
- 4 | resistance of pressure difference for filter element: = ∆p 16 bar 16
- 5 filter element design:
 - = without by-pass valve Е
 - S = with by-pass valve Δp 2,0 bar
- 6 | sealing material:
 - = Nitrile (NBR) Р
 - V = Viton (FPM)
- 7 | filter element specification: (see catalog)
 - = standard
 - VA = stainless steel IS06 = see sheet-no. 31601
- 8 | connection:
 - FS = SAE-flange connection 3000 PSI
- 9 connection size:
- В = 4"
- 10 | filter housing specification: (see catalog)
 - = standard
 - IS06 = see sheet-no. 31605
- 11 clogging indicator at M1:
 - = without 0
 - = visual, see sheet-no. 1616
 - E1 = pressure switch, see sheet-no. 1616 = pressure switch, see sheet-no. 1616
 - E2 F5 = pressure switch, see sheet-no. 1616
- 12 | clogging indicator at M2:
 - possible indicators see position 11 of the type index
- 13 discharge pipe:
 - = without
 - = with discharge pipe

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 INTERNORMEN factory specification
- 2 nominal size: 631
- 3 | 7 | see type index-complete filter

2. Accessories:

Counter flange see sheet-no. 1652

url

weight: approx. 55 kg

Changes of measures and design are subject to alteration!

EDV 08/03

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item	qty.	designation	dimension	articl	article-no	
1	3	filter element	01E.631			
2	1	filter head 1)				
3	3	filter bowl with discharge pipe ¹⁾				
	3	filter bowl without discharge pipe1)				
4	1	filter cover 1)				
5	1	O-ring	355 x 5	314740 (NBR)	314739 (FPM)	
6	3	O-ring	120 x 4	305300 (NBR)	307991 (FPM)	
7	1	gasket	430 x 350 x 2	313271 (NBR)	316659 (FPM)	
8	3	O-ring	63 x 3,5	311189 (NBR)	311592 (FPM)	
9	1	clogging indicator, visual	0	301	301721	
10	1	clogging indicator, electrical	E1, E2 or E5	see sheel	see sheet-no. 1616	

¹⁾ In case of ordering these spare parts use the complete type index

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. 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: operating medium: max. operating pressure: opening pressure by-pass valve: connection system: housing material: sealing material: installation position: volume tank: -10°C to +80°C (for a short time +100°C) mineral oil, other media on request 10 bar 2,0 bar SAE-flange connection 3000 PSI C-steel; glass fibre reinforced polyamide Nitrile (NBR) or Viton (FPM), other materials on request vertical 22,0 I

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 ∆p-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

RETURN LINE FILTER Series TEF 2551 DN 125 PN 10



EDV 08/06

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item	qty.	designation	dimension	article-no	
1	3	filter element	01E.950		
2	1	filter head 1)		313295	
3	3	filter bowl 1)		327461	
4	1	filter cover 1)			
5	1	O-ring	455 x 5	314742 (NBR) 314741 (FPM)	
6	3	O-ring	170 x 6	304799 (NBR) 306529 (FPM)	
7	1	gasket	540 x 441 x 2	313293	
8	3	O-ring	78 x 10	305017 (NBR) 305552 (FPM)	
9	1	clogging indicator, visual	0	301721	
10	1	clogging indicator, electrical	E1, E2 or E5	see sheet-no. 1616	

¹⁾ In case of ordering these spare parts use the complete type index

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 throwaway elements made of paper or Interpor fleece. 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:

-10°C to +80°C (for a short time +100°C) temperature range: mineral oil, other media on request operating medium: max. operating pressure: 10 bar opening pressure by-pass valve: 2,0 bar connection system: SAE-flange connection 3000 PSI housing material: C-steel. glass fiber reinforced polyamide (filter bowl) sealing material: Nitrile (NBR) or Viton (FPM), other materials on request installation position: vertical 47,0 I volume tank:

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:

without indicator



7. Pressure drop flow curves: Precise flow rates see 'INT-Expert-System Filter' respectively Ap-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 1688	9 Multi-pass method for evaluating filtration performance
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EOV 08/05

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technology

item	designation	qty.	dimension and article-no. TEF 4801	qty.	dimension and article-no. TEF 7201
1	filter element	4	01E. 1201	6	01E. 1201
2	O-ring	4	93 x 5 307588 (NBR) 307589 (FPM)	6	93 x 5 307588 (NBR) 307589 (FPM)
з	O-ring	2	429 x 6 308659 (NBR) 310273 (FPM)	2	516 x 6 301962 (NBR) 311474 (FPM)
4	O-ring	4	85 x 10 304386 (NBR) 304541 (FPM)	6	85 x 10 304386 (NBR) 304541 (FPM)
5	O-ring	1	170 x 4 306875 (NBR) 307987 (FPM)	1	225 x5 308652 (NBR) 311473 (FPM)
6	pressure plate	1	319677	1	327718
7	screw plug	2	G 1 309732		
8	gasket	2	A 33 x 39 308257		
9	clogging indicator, visual	1	O see sheet-no. 1616		
10	pressure switch, electrical	1	E1, E2 oder 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_(e) 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.

INTERNORMÉN-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
line adapter:	flange connection according to DIN 2633 and DIN 2632
housing material:	c-steel
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). 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

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