



FILTRATION TECHNOLOGY

2003

STAUFF



Return Line Filters RTF



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Stauff Filtration Technology

Stauff Filtration Technology offers a complete range of filtration products and services that will provide the system designer or user with the highest level of contamination control demanded by today's most sophisticated applications. Products include pressure filters, return line filters, elements, spin on filters suction strainers, and filler breathers for various hydraulic, lubrication and fuel oils.

Stauff has the technical expertise to provide superior filter element designs for the Stauff original filter housings and also for the interchange element market. Stauff manufactures more than 10,000 different elements. Many of these are designed to fit into filter housings produced by other companies while maintaining or surpassing the original performance.

The "Stauff Contamination Control Program" includes the diagnostic services including fluid sampling and laser particle counting products needed to monitor the system contamination level.

Stauff, through its global network of wholly owned companies and technically qualified distributors, is ideally placed to assist its customers in the total contamination process providing a well balanced filtration solution.

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Technical Data

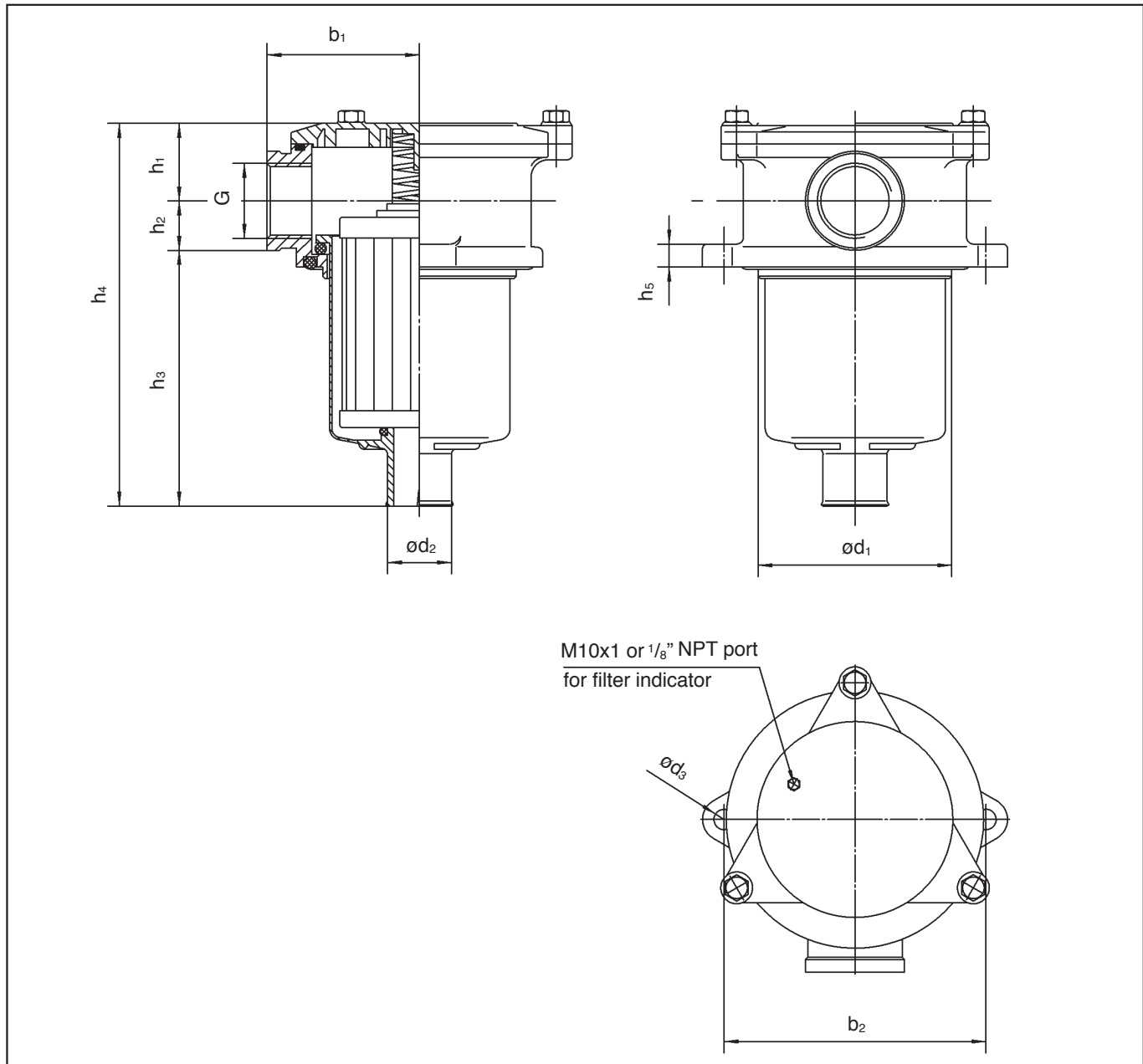
STAUFF RTF 10/25 series return filters are designed for in-tank hydraulic applications with a maximum operating pressure of 3.4 bar (50 PSI).



Technical Specification

Construction	In-line assembly	By-pass valve (integrated in the filter element)	Allows unfiltered oil to by-pass the contaminated element once the opening pressure has been reached
Filter head	Die cast aluminum		Opening pressure 1.7 bar (25 PSI)
Element bowl	Polyamide	Clogging indicators	Gage indicator 0-6.9 bar (0-100 PSI) with coloured segments; Electrical, 0,35-2,5 bar (5-35 PSI) adjustable
Seals	"O"-Rings NBR (Buna-N®), FPM (Viton®)	Elements	Flow characteristics see page 5
Port connections	BSP, NPT, SAE-"O"-Ring thread	Media	Mineral oils, other fluids on request
Flow rating	up to 95 l/min (25 US GPM) for 32 cSt (150 SUS) fluids		
Operating Pressure	max 3,4 bar (50 PSI)		
Test pressure	min 6,8 bar (100 PSI)		
Temperature range	-25°C to +100°C (-13°F to 212°F)		

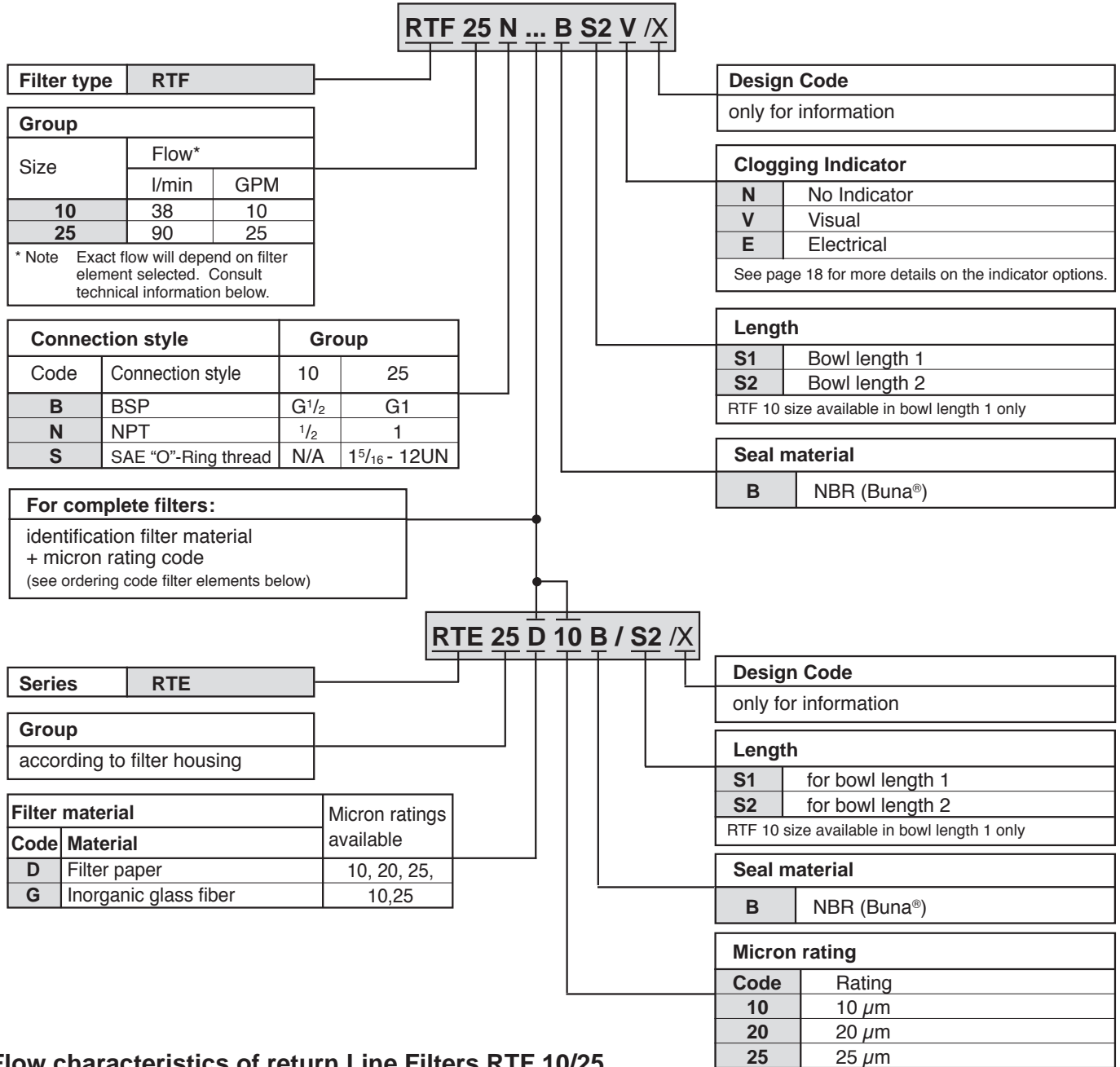
Dimensions



Dimensions RTF 10/25 Filters

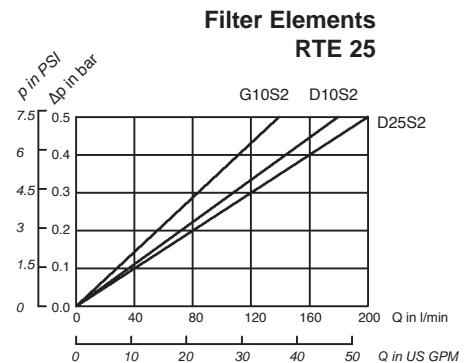
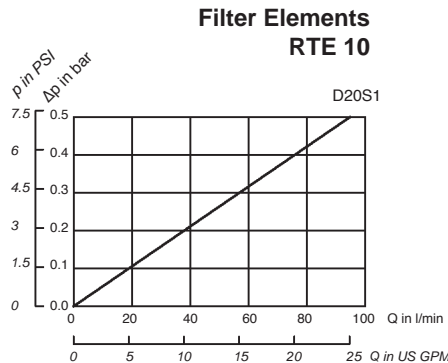
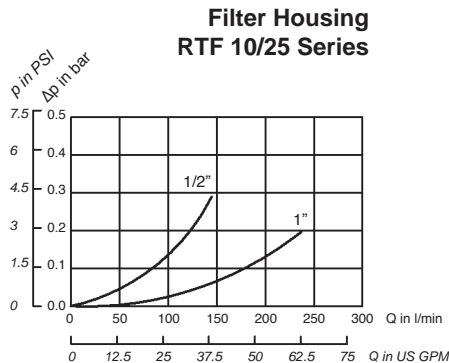
All dimensions in mm (inch)

Filter Size	Thread connection G				Bowl length	h ₁	h ₂	h ₃	h ₄	h ₅	b ₁	b ₂	d ₁	d ₂	d ₃	Weight	
	BSP	NPT	SAE-\"O\" Ring	k _g												lbs	
RTF 10	G 1/2	1/2	N/A	S1	26 (1,02)	21 (0,83)	87 (3,43)	133 (5,24)	8 (0,32)	50 (1,97)	90 (3,54)	66 (2,60)	24 (0,94)	7 (0,28)	0,45	1	
RTF 25	G 1	1	1 ⁵ / ₁₆ -12 UNF	S1	34 (1,34)	29 (1,14)	105 (4,13)	170 (6,69)	10 (0,39)	67 (2,64)	115 (4,65)	86 (3,39)	28 (1,10)	9 (0,35)	0,9	2	
RTF 25	G 1	1	1 ⁵ / ₁₆ -12 UNF	S2	34 (1,34)	29 (1,14)	150 (5,91)	215 (8,46)	10 (0,39)	67 (2,64)	115 (4,65)	86 (3,39)	28 (1,10)	9 (0,35)	1	2,2	



Flow characteristics of return Line Filters RTF 10/25

The following characteristics are valid for mineral oils with a density of 0,85 kg/dm³ and the kinematic viscosity of 30 mm²/s. The characteristics have been determined in accordance to ISO 3968.



Technical Data

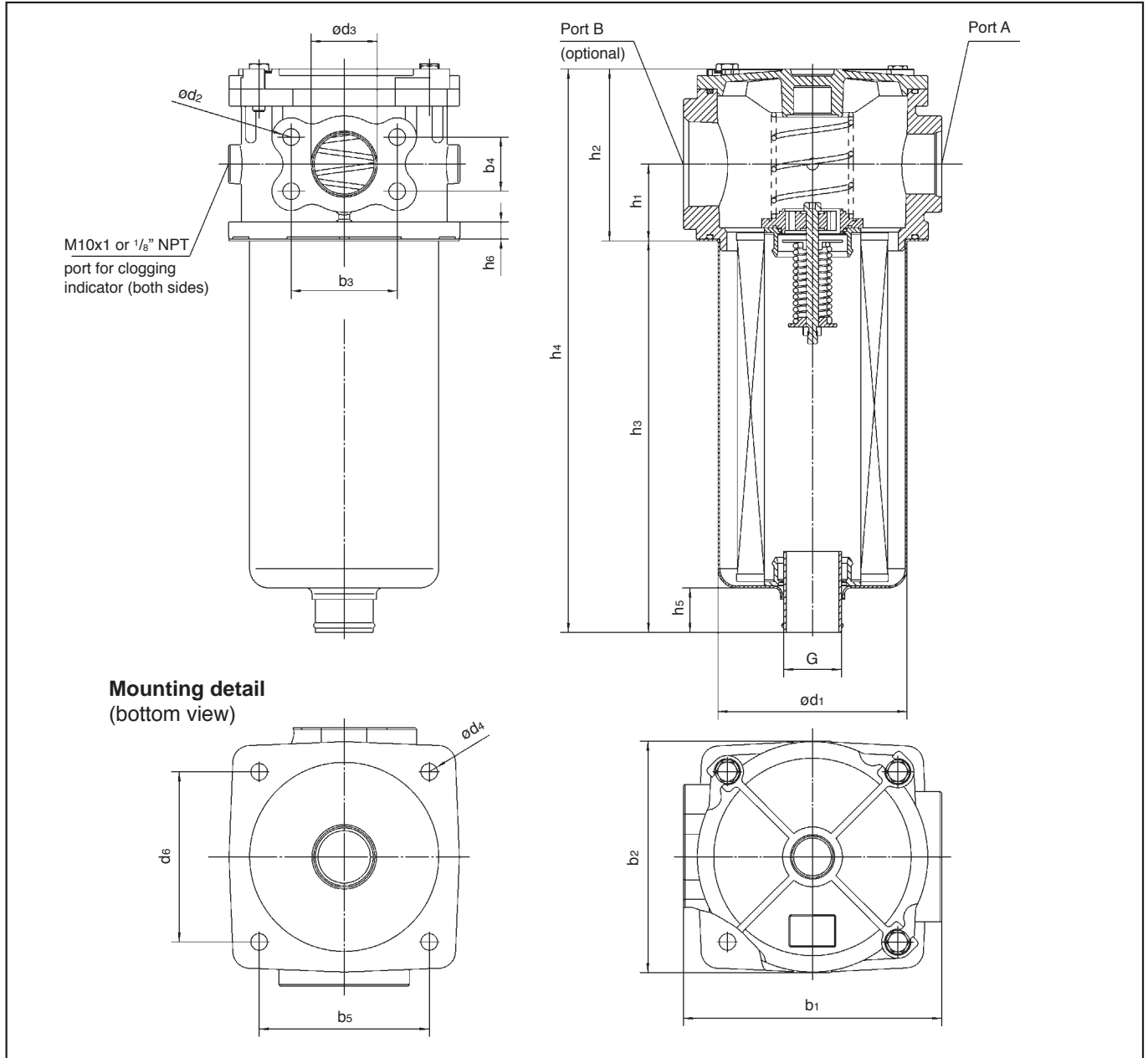
STAUFF RTF 40 series return filters are designed for in-tank hydraulic applications with a maximum operating pressure of 6.9 bar (100 PSI). The filter bowl is designed to return the oil beneath the surface thus preventing entrainment of air. The RTF48 elements interchange with the popular “K” series and the RTF49 elements interchange with the “RTE-409” series elements.



Technical Specification

Construction	Tank top flange mounting	By-pass valve	Allows unfiltered oil to by-pass the contaminated element once the opening pressure has been reached
Filter head	Die cast aluminum	By-pass setting	1.7 bar (25 PSI) (by-pass in element for RTF47, by-pass in head for RTF48 and RTF49)
Element bowl	Bowl length 1, Polyamide Bowl length 2, Steel	Clogging indicators	Gage indicator 0-6.9 bar (0-100 PSI) with coloured segments; electrical, 0,35-2,5 bar (5-35 PSI) adjustable
Seals	“O”-Rings NBR (Buna-N®),	Elements	Flow characteristics see page 9
Port connections	BSP, NPT, SAE-“O”-Ring thread, SAE flange	Media	Mineral oils, other fluids on request
Flow rating	up to 379 l/min (100 US GPM) for 32cSt (150 SUS) fluids		
Operating Pressure	max 6,9 bar (100 PSI)		
Temperature range	-25°C to +95°C (-13°F to 212°F)		

Dimensions



All dimensions in mm (inch)

Dimensions RTF 40 Filters

Bowl Length	h ₁	h ₂	h ₃	h ₄	h ₅	h ₆	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	d ₁	d ₂		d ₃	d ₄	G
														BSP	NPT & SAE			
S1	53 (2,09)	122 (4,80)	263 (10,35)	385 (15,16)	21 (0,83)	11 (0,43)	152 (5,98)	152 (5,98)	69,85 (2,75)	35,56 (1,40)	112 (4,41)	112 (4,41)	122 (4,80)	M12	1/2-13 UN 2B	38,1 (1,50)	11 (0,43)	G1-1/2" or 1-1/2 NPT
S2			475 (18,70)	597 (23,50)	38 (1,50)													

RTF 48 N 25 ... B / S2 / V / X

Filter type	RTF47	RTF48	RTF49
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Connection style		Group	
Code	Connection style	Port A	Port B
B	BSP	G1-1/4 & 1-1/2 SAE flange	None
BB	BSP	G1-1/4 & 1-1/2 SAE flange	G1-1/4
N	NPT	1-1/4 NPT & 1-1/2 SAE flange	None
NN	NPT	1-1/4 NPT & 1-1/2 SAE flange	1-1/4 NPT
M	NPT	1-1/2 NPT	None
MN	NPT	1-1/2 NPT	1-1/2 NPT
MM	NPT	1-1/2 NPT	1-1/2 NPT
S	SAE	1-5/8 -12 UN	None
SS	SAE	1-5/8 -12 UN	1-5/8 -12 UN
ST	SAE	1-5/8 -12 UN	1-7/8 -12 UN
SU	SAE	1-5/8 -12 UN	2-1/2 -12 UN
SO	Combination	1-5/8 -12 UN	2 NPT

Design Code
only for information

Clogging indicator	
N	None
V	Visual
E	Electrical
See page 18 for more details on the indicator options.	

Length	
S1	for bowl length 1 (1 element)
S2	for bowl length 2 (2 elements)
Note: RTF 47 available in S1 bowl only	

Seal material	
B	NBR (Buna®)
other seal material on request	

For complete filters:
 identification filter material
 + micron rating code
 (see ordering code filter elements below)

By-pass valve	
Code	NBR (Buna®)
00	No by-pass
15	1 bar (15 PSI)
25	1,7 bar (24,6 PSI)

RTF 48 D 10 B / X

Group
according to filter housing

Filter material		Micron ratings available
Code	Material	
D	Filter paper	03, 10, 20, 25
G	Inorganic glass fiber	03,10, 25

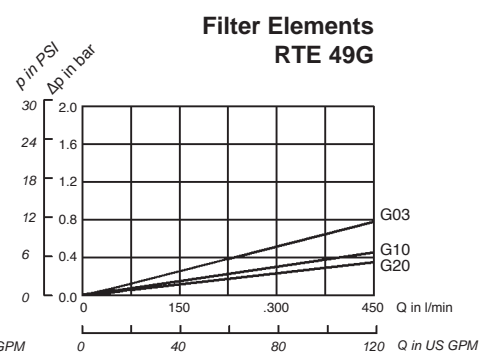
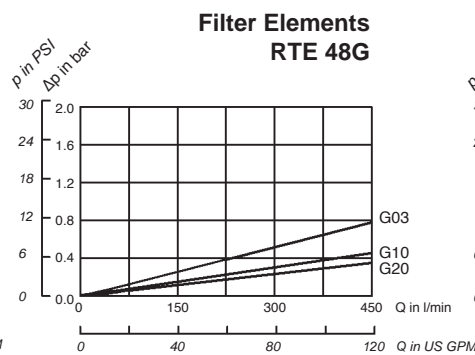
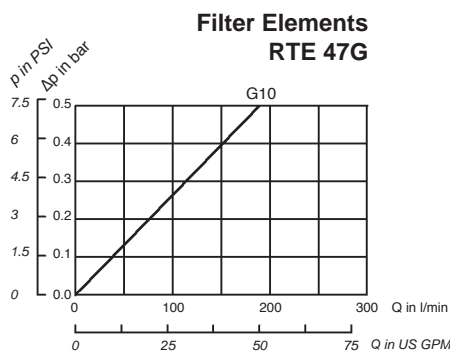
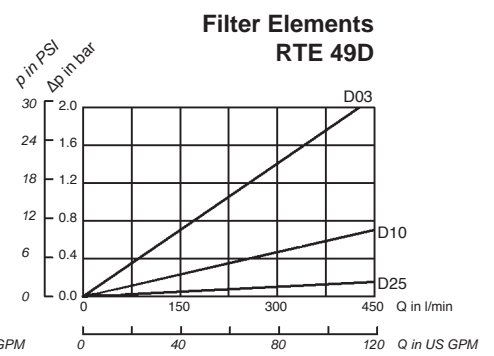
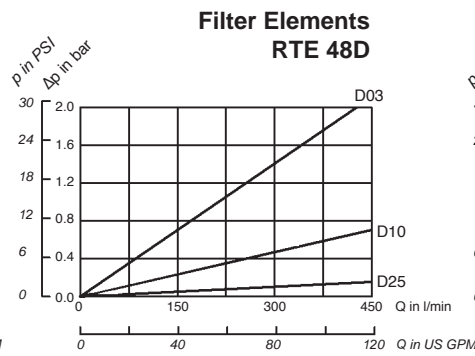
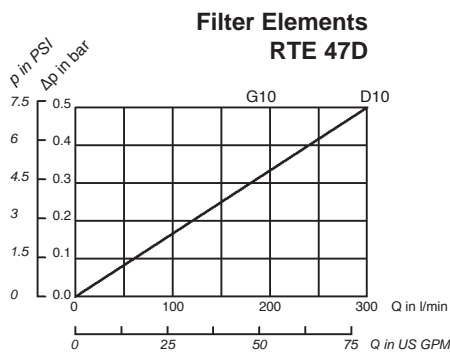
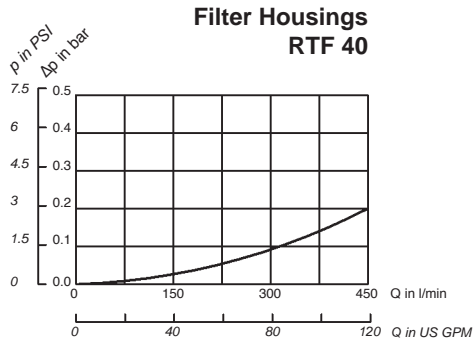
Design Code
only for information

Seal material	
B	NBR (Buna®)
other seal material on request	

Micron rating	
Code	Rating
03	03 µm
10	10 µm
20	20 µm
25	25 µm

Flow Characteristics of Return Line Filters RTF 40

The following characteristics are valid for mineral oils with a density of 0,85 kg/dm³ and the kinematic viscosity of 30 mm²/s. The characteristics have been determined in accordance to ISO 3968.



Technical Data

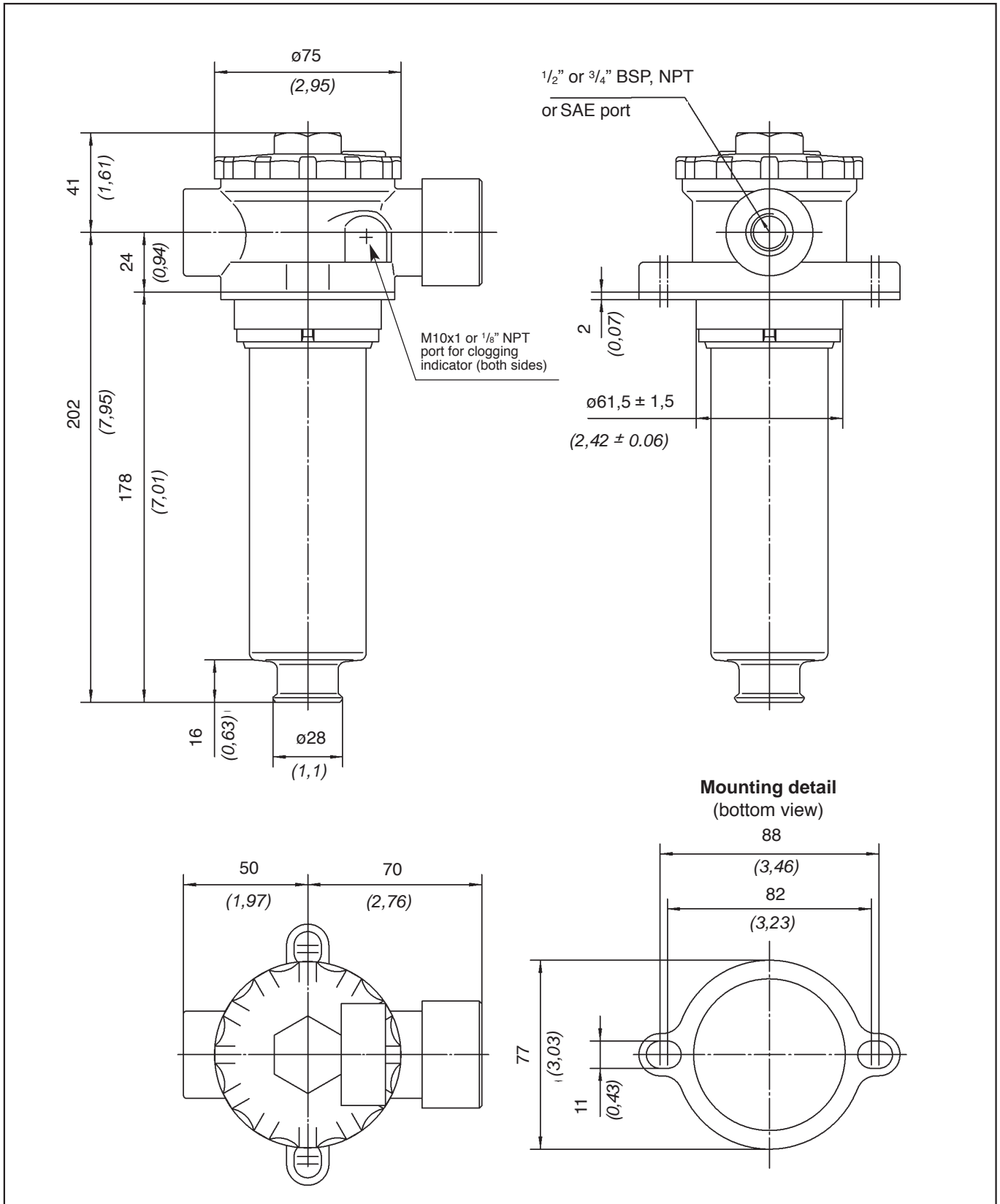
STAUFF RTF20 series return filters are designed for in-tank hydraulic applications with a maximum operating pressure of 10 bar (145 PSI) and flows up to 110 l/min (30 US GPM). The filter bowl is designed to return the oil beneath the surface thus preventing entrainment of air. RTF20 series compact design and integral breather make them ideal for mobile hydraulic applications.



Technical Specification

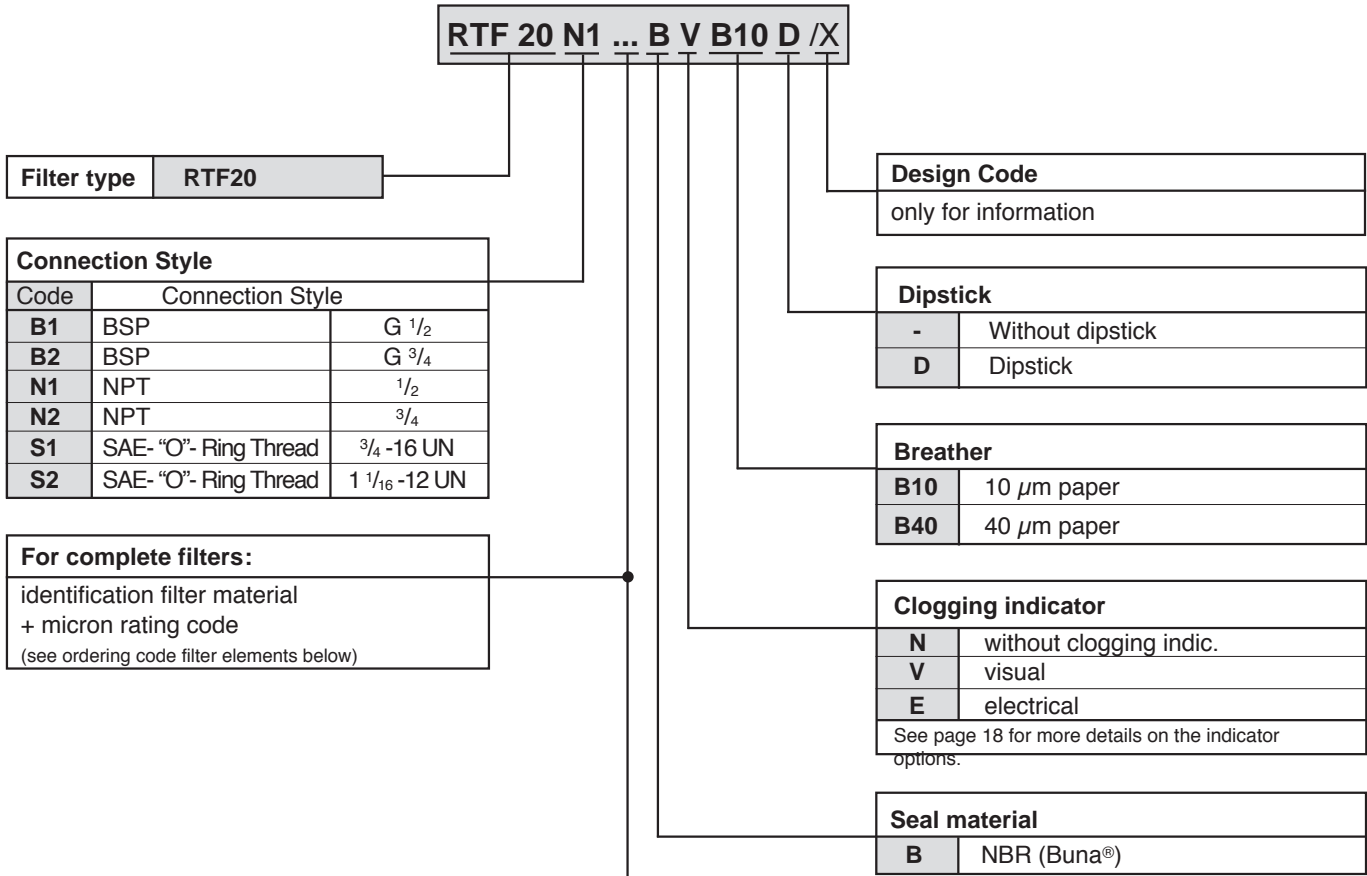
Construction	Tank top flange mounting	Integrated Breather	10 or 40 μm paper media
Filter head	Die cast aluminium	By-pass valve (integrated in the filter element)	Allows unfiltered oil to by-pass the contaminated element once the opening pressure has been reached Opening pressure 1.7 bar (25 PSI)
Element bowl and screw cap	Polyamide	Clogging indicators	Gage indicator 0-6.9 bar (0-100 PSI) with coloured segments Electrical, 0.35 - 2.5 bar (5-35 PSI) adjustable
Seals	"O"-Rings NBR (Buna-N®) FPM (Viton®)	Filter elements	Flow characteristics see page 13
Port connections	BSP, NPT, SAE "O"-Ring thread	Media	Mineral oils, other fluids on request
Flow rating	up to 115 l/min (30 US GPM) for 32 cSt (150 SUS) fluids		
Operating pressure	max 10 bar (145 PSI)		
Test pressure	min 24 bar (350 PSI)		
Temperature range	-25°C to +100°C (-13°F to 212°F)		

Dimensions

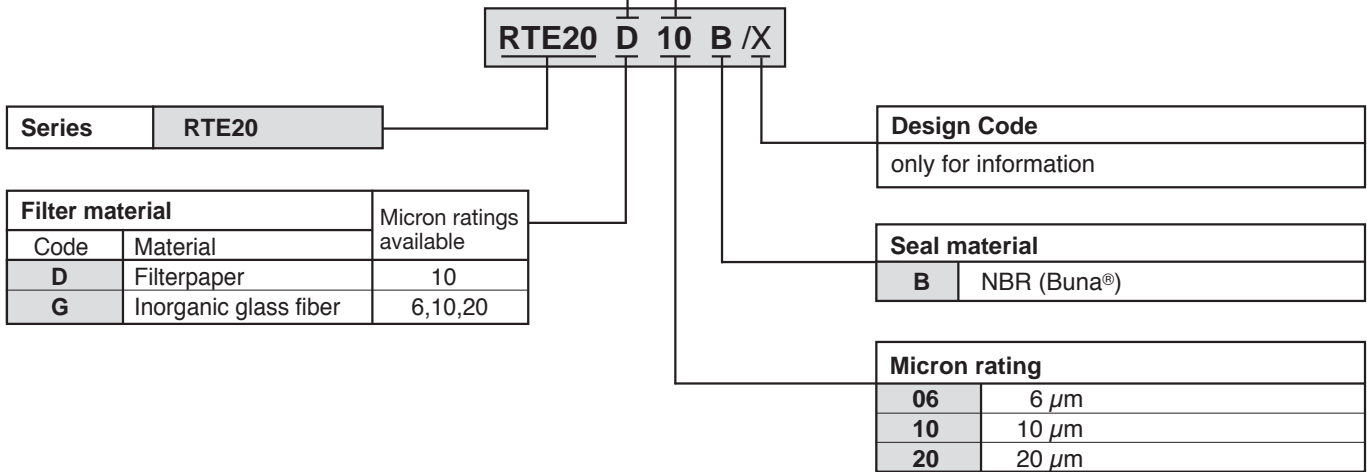


Dimensions in mm (inch)

Ordering Code Filter Housings

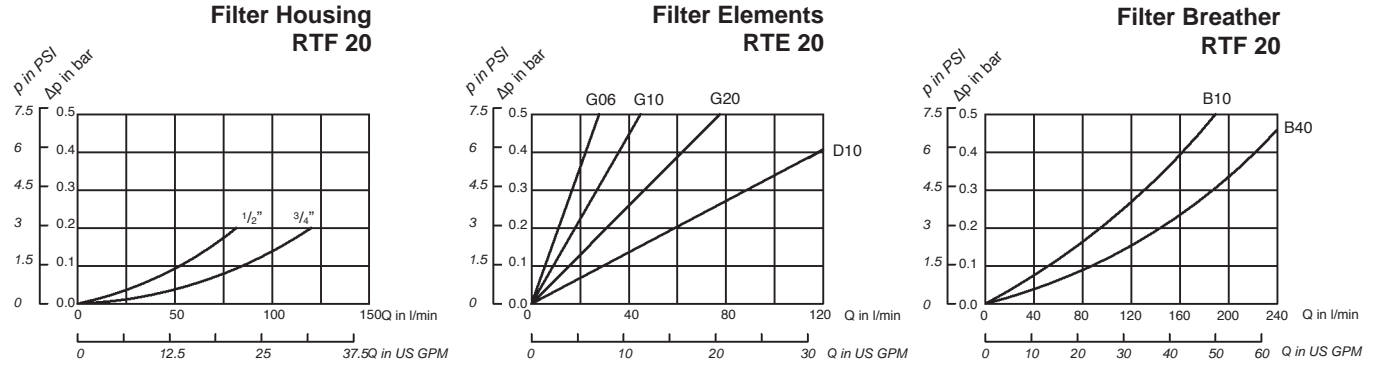


Ordering Code Filter Elements



Flow Characteristics

The following characteristics are valid for mineral based fluids with a density of 0,85 kg/dm³ and the kinematic viscosity of 30 mm²/s. The characteristics have been determined in accordance to ISO 3968.



Technical Data

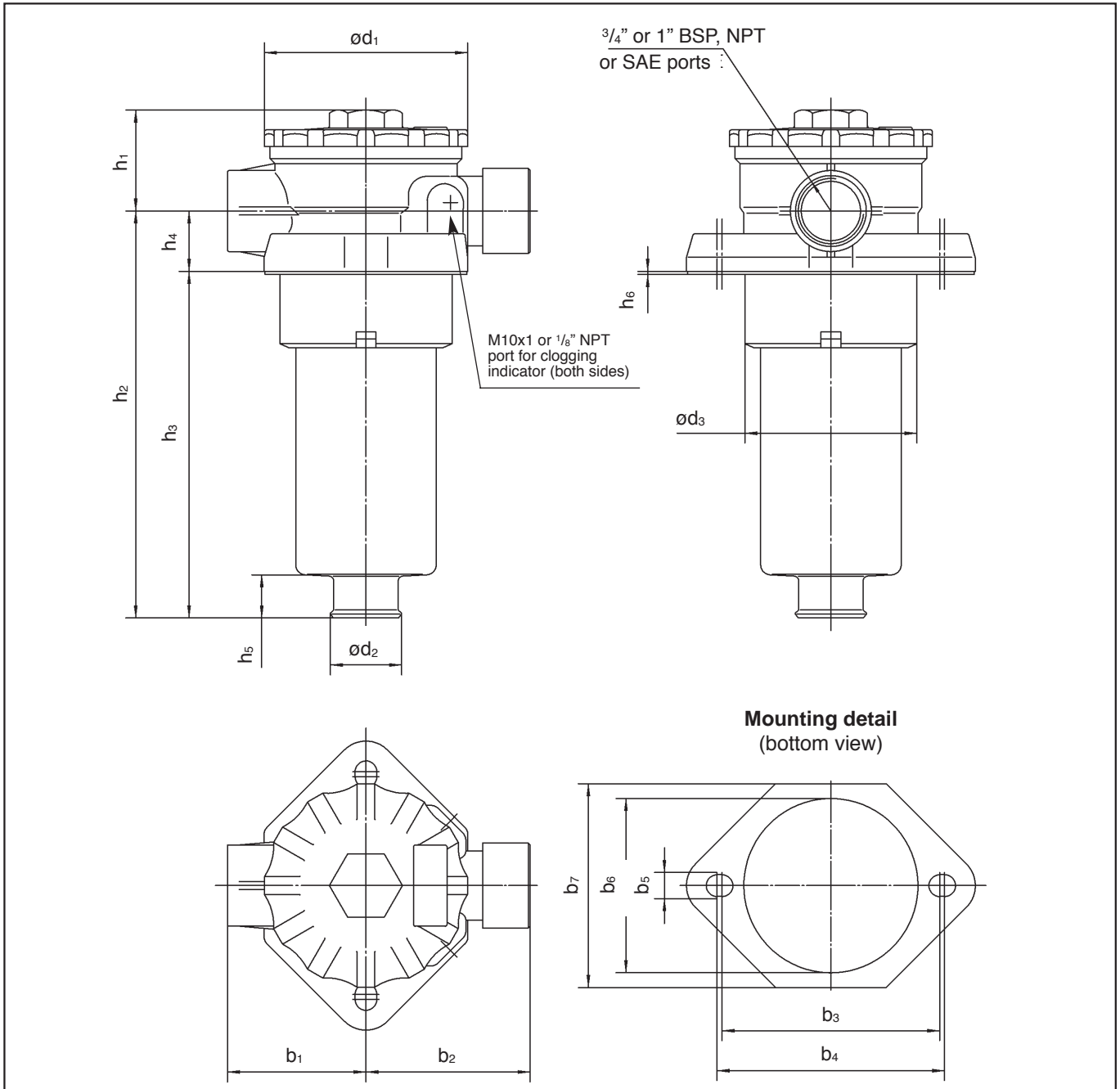
STAUFF RTF30 series return filters are designed for in-tank hydraulic applications with a maximum operating pressure of 10 bar (145 PSI) and flows up to 152 l/min (40 US GPM). The filter bowl is designed to return the oil beneath the surface thus preventing entrainment of air. RTF30 series compact design and integral breather makes them ideal for mobile hydraulic applications.



Technical Specification

Construction	Tank top flange mounting	Integrated Breather	10 or 40 μ m paper media
Filter head	Die cast aluminium	By-pass valve (integrated in the filter element)	Allows unfiltered oil to by-pass the contaminated element once the opening pressure has been reached Opening pressure 1.7 bar (25 PSI)
Element bowl and screw cap	Polyamide	Clogging indicators	Gage indicator 0-6.9 bar (0-100 PSI) with coloured segments; Electrical, 0.35 - 2.5 bar (5-35 PSI) adjustable
Seals	"O"-Rings NBR (Buna-N®) FPM (Viton®)	Filter elements	Flow characteristics see page 17
Port connections	BSP, NPT, SAE "O"-Ring thread	Media	Mineral oils, other fluids on request
Flow rating	up to 152 l/min (40 US GPM) for 32 cSt (150 SUS) fluids		
Operating pressure	max 10 bar (145 PSI)		
Test pressure	min 24 bar (350 PSI)		
Temperature range	-25°C to +100°C (-13°F to 212°F)		

Dimensions



Dimensions in mm (inch)

Filter Size	Dimensions															
	h_1	h_2	h_3	h_4	h_5	h_6	d_1	d_2	d_3	b_1	b_2	b_3	b_4	b_5	b_6	b_7
RTF30		140 (5,51)	110 (4,33)													
RTF31	60 (2,36)	205 (8,07)	175 (6,89)	30 (1,18)	22 (0,87)	1,5 (0,06)	104 (4,09)	36 (1,42)	min 87 max 91 (min 3,43) (max 3,58)	70 (2,76)	83 (3,27)	110 (4,33)	115 (4,53)	11 (0,43)	min 87 max 91 (min 3,43) (max 3,58)	103 (4,06)
RTF32		305 (12,01)	275 (10,83)													

Ordering Code Filter Housings

RTF 31 N1 ... B V B10 D /X

Filter Type	
RTF30	110mm (4,33 in) bowl length
RTF31	175mm (6,89 in) bowl length
RTF32	275mm (10,83 in) bowl length

Connection Style		
Code	Connection Style	
B1	BSP	3/4"
B2	BSP	1"
N1	NPT	3/4"
N2	NPT	1"
S1	SAE O-Ring Thread	1-1/16 -12 UN
S2	SAE O-Ring Thread	1-5/16 -12 UN

For complete filters:
 identification filter material
 + micron rating code
 (see ordering code filter elements below)

Design Code	
only for information	

Dipstick	
-	Without dipstick
D	Dipstick

Breather	
B10	10 µm paper
B40	40 µm paper

Clogging indicator	
N	without clogging indic.
V	visual
E	electrical

See page 18 for more details on the indicator options.

Seal material	
B	NBR (Buna®)

Ordering Code Filter Elements

RTE31 D 10 B /X

Series	RTE
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Group	according to filter housing
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Filter material		Micron ratings available
Code	Material	
D	Filterpaper	10
G	Inorganic glass fiber	6,10,20

Design Code	
only for information	

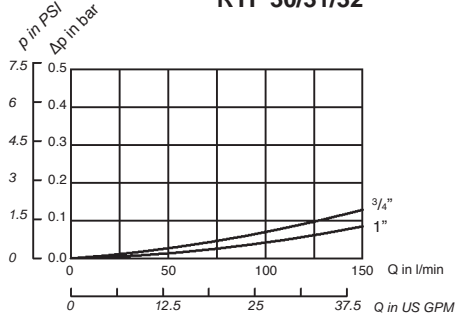
Seal material	
B	NBR (Buna®)

Micron rating	
06	6 µm
10	10 µm
20	20 µm

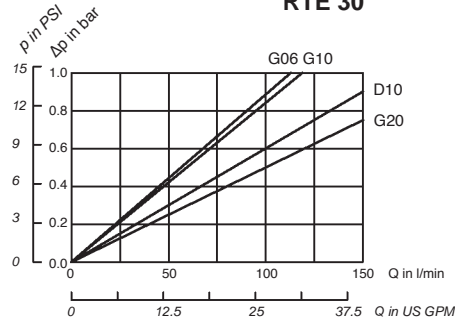
Flow Characteristics

The following characteristics are valid for mineral based fluids with a density of 0,85 kg/dm³ and the kinematic viscosity of 30 mm²/s. The characteristics have been determined in accordance to ISO 3968.

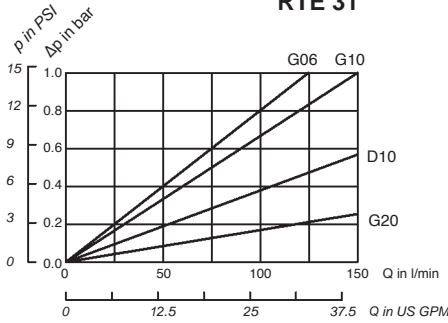
**Filter Housings
RTF 30/31/32**



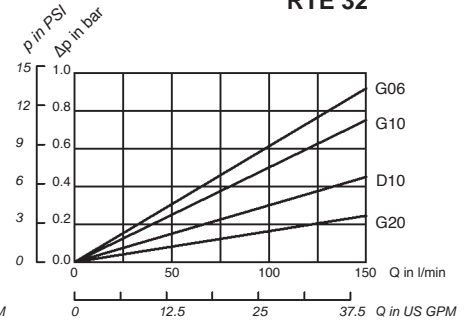
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RTE 30**



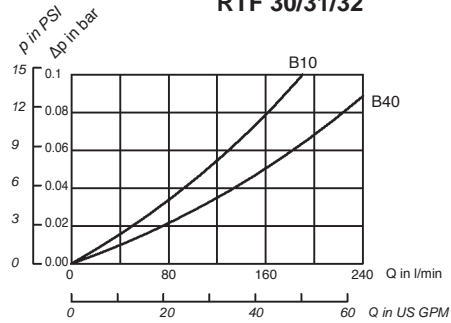
**Filter Elements
RTE 31**



**Filter Elements
RTE 32**



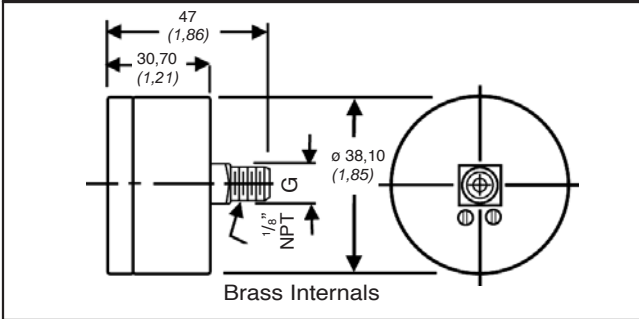
**Filter Breather
RTF 30/31/32**



Visual Indicators



Type	Thread Type G
GV-5B / GV-10B / G-12B / CI-20B	G 1/8
GV-5 / GV-10 / G-12 / CI-20	1/8 NPTF



Vacuum Gauges, Suction Line Applications

GV-5

For use with 3PSI filter by-pass valve
0,2 bar (3 PSI)

GV-10

For use with 5PSI filter by-pass valve
0,35 bar (5 PSI)

Pressure Gauges, Return Line Applications

CI-12

For use with 15PSI filter by-pass valve
1,0 bar (15 PSI)

CI-20

For use with 25PSI filter by-pass valve
1,7 bar (25 PSI)

Electrical Indicator

Type	Thread Type
EPS-1B / EVS 1B	G 1/8
EPS-1 / EVS 1	1/8 NPT

EPS-1

EVS-1

Can Be Field Installed

All dimensions in mm (inch)

	EPS-1 (Pressure)	EVS-1 (Vacuum)
Electrical	7Amp 125/250 VAC	7Amp 125/250 VAC
Protection	DIN 43650 IP65	DIN 43650 PIP65
Temperature Range	-40°C to +80°C (-40°F to 180°F) Ambient & Medium	-40°C to +80°C (-40°F to +180°F) Ambient & Medium
Diaphragm Material	Epichlorohydrin Standard	Epichlorohydrin Standard
Housing Material	Zinc Plated Steel Standard	Aluminum AL2024
MAXIMUM OVER Pressure	25 Bar (350 PSI) 6:1 Safety Factor	25 Bar (350 PSI)
ADJUSTMENT RANGES	0.35/2.5 Bar (5/35 PSI)	150/1000 mBar (5/30 in Hg)
Dead Band	20%	25%
Maximum Pressure	25 Bar (350 PSI)	25 Bar (350 PSI)
Wetted Area Material	Elastomer & Zinc Plated Steel Brass	Elastomer & Anodized Aluminum 316SS Optional
Weight	Steel Housing 0.11 Kg (0.23 lb)	0.25 Kg (0.50 lbs.)
Repeatability	±2% at 20°C (70°F) Ambient Temperature	±2% at 20°C (70°F) Ambient Temperature
Hirschmann Connector With Strain Relief		

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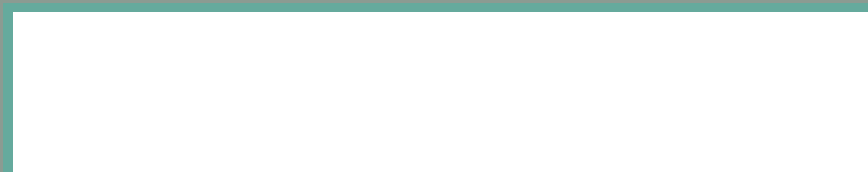


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