STAUFF®

FILTRATION TECHNOLOGY

2003

STAUFF

Return Line Filters RF & RFB

Quality and Service Worldwide

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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.

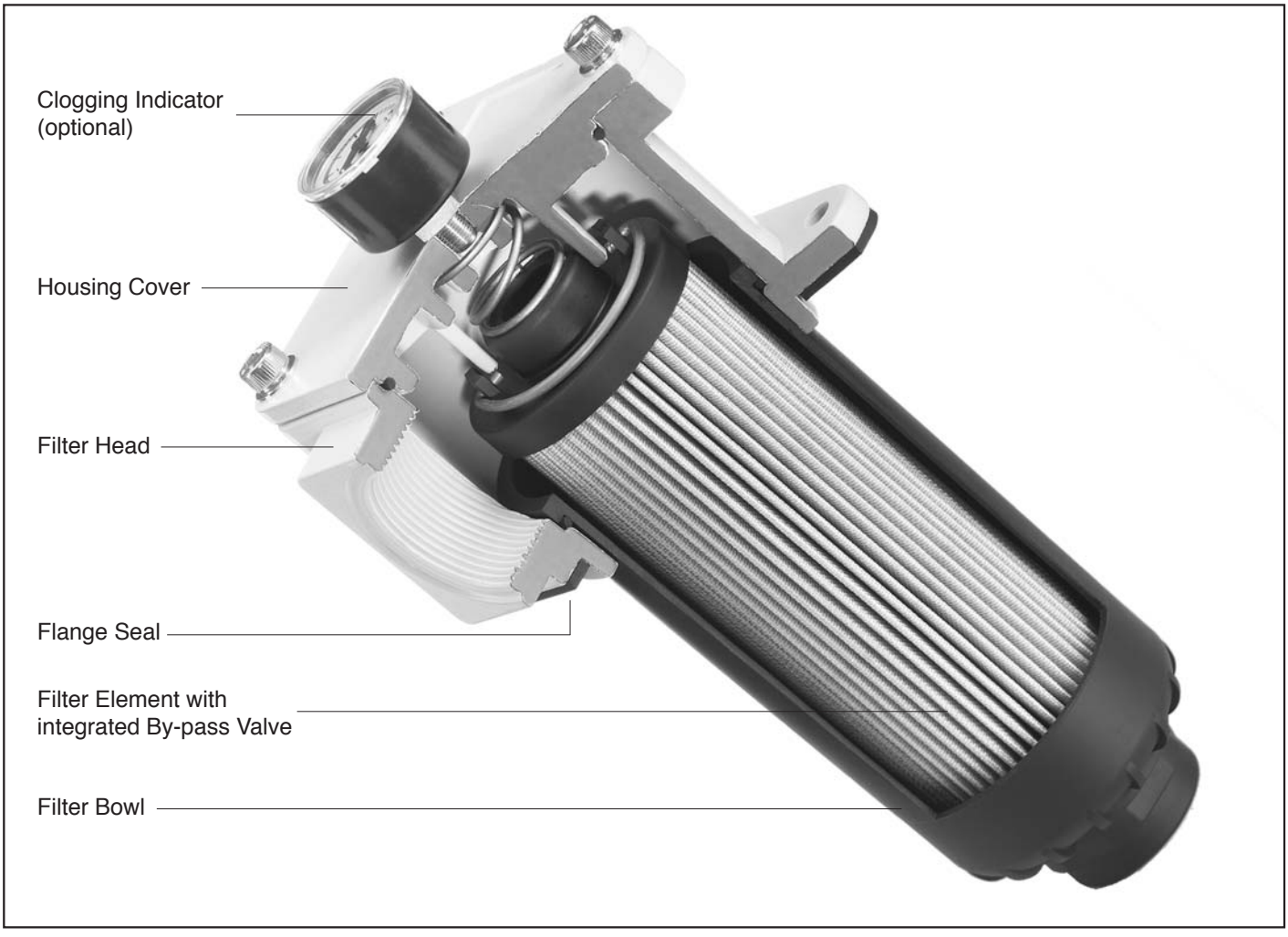
The "Stauff Contamination Control Program" includes the diagnostic services including fluid sampling and laser particle counting products needed to monitor the system contamination level.

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.

Return Line Filter RF 014-130 Technical Data

Technical Data

STAUFF RF 014-130 return line filters are designed as tank top filters. They are mounted directly on the tank top and if 100% of the system oil is filtered, they provide the optimum removal of contaminant from the system. This provides the pump with clean oil thus reducing contaminant generated wear. The filter bowl or funnel is designed to return the oil beneath the surface thus preventing the entraiment of air by the returning oil.



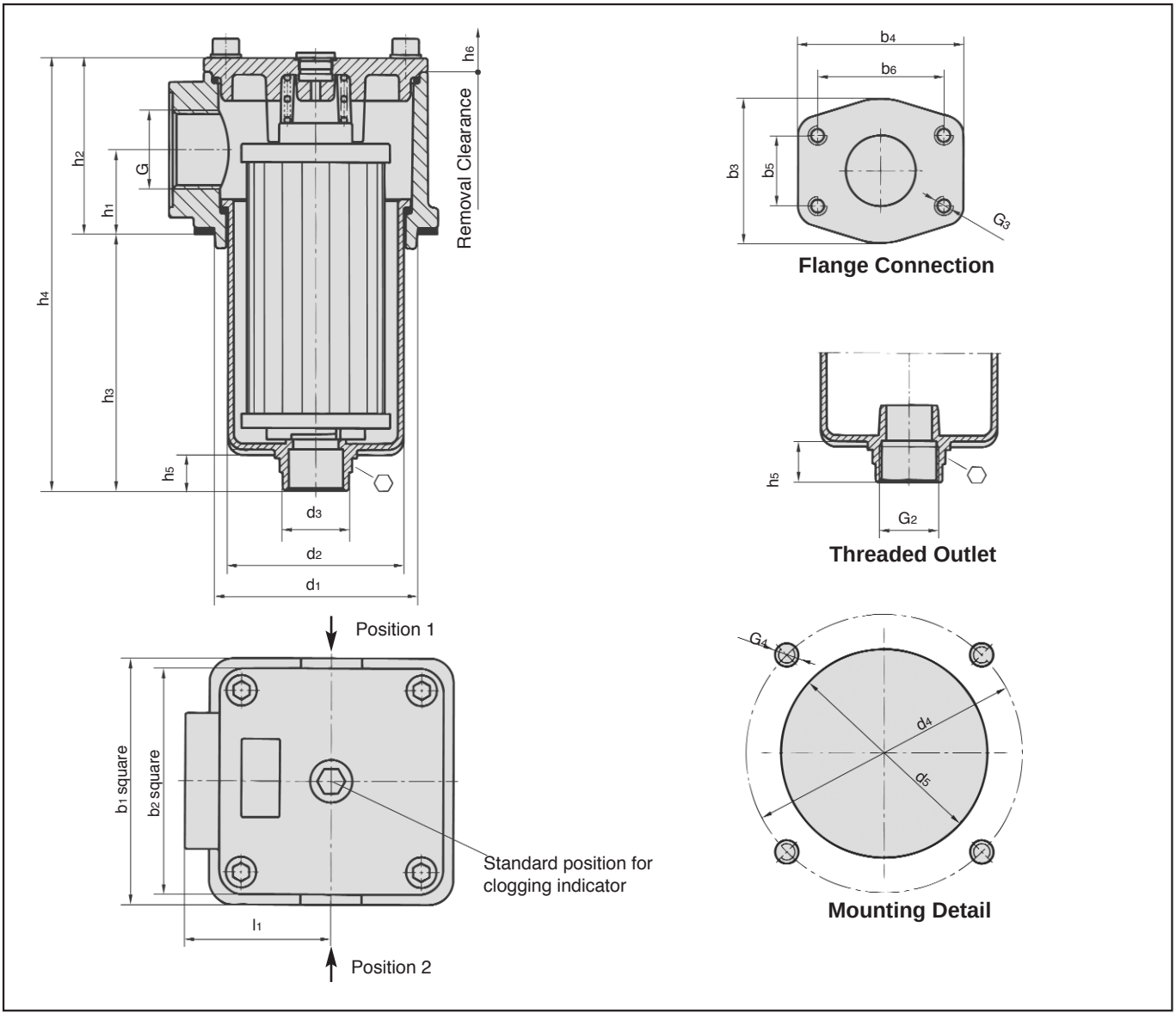
Technical Specification

Construction	Tank Top flange mounting
Filter head	Aluminium
Filter bowl	Glass fiber reinforced polyamide
Seals	NBR (Buna-N®), FPM (Viton®) or EPDM (Ethylene-Propylene)
Threaded connection	BSP, NPT- and SAE-“O“-Ring thread as well as SAE-flange *(3000 PSI)*
Operating pressure	max 16 bar *(232 PSI)*
Proof pressure	24 bar *(350 PSI)*
Temperature Range	-10 to +100°C *(14° to 212ºF)*

By-pass valve (integrated in the filter element)	Opening pressure 3 bar ± 0,3 bar *(43,5 PSI ± 4,35 PSI)* other pressures on request
Clogging indicator	Gauge type indicator 0…4 bar *(0…58 PSI)* coloured segments; Electrical switch, setting 2,5 bar *(36,25 PSI)*
Filter elements	Specification see page 14
Media	Mineral oils, other fluids on request

Return Line Filters RF 014-130 Dimensions

Dimensions RF 014-130



Dimensions Return Line Filters

All dimensions in mm *(inch)*

Filter Size	Thread connection G				Dimensions																					
	BSP	NPT	SAE-"O" Ring Thread	SAE-Flange *3000 PSI*	b_1	b_2	b_3	b_4	b_5	b_6	d_1	d_2	d_3	d_4	d_5	h_1	h_2	h_3	h_4	h_5	h_6	l_1	G_2	G_3	G_4
RF 014	G 3/4	3/4"	1 1/16-12 UN	-	89 (3,504)	80 (3,15)					73 (2,874)	57,5 (2,264)	36 (1,417)	100 (3,937)	78 (3,071)	33 (1,3)	66 (2,598)	91,5 (3,602)	157,5 (6,201)	23,5 (0,925)	140 (5,512)	48 (1,89)	G1 or 1" NPT		M6 or 1/4" UNC
RF 030	G 1	1"	1 5/16-12 UN															159,5 (6,295)	225,5 (8,878)		210 (8,268)				
RF 045	G 1 1/4	1 1/4"	1 5/8-12 UN	-	120 (4,724)	110 (4,331)					100 (3,937)	84 (3,307)	48 (1,89)	135 (5,135)	105 (4,134)	41 (1,614)	86 (3,386)	119 (4,685)	206 (8,11)	24 (0,945)	180 (7,087)	66 (2,598)	G1 1/4 or 1 1/4" NPT		M8 or 5/16" UNC
RF 070	G 1 1/2	1 1/2"	1 7/8-12 UN															180 (7,087)	267 (10,512)		240 (9,449)				
RF 090	G 2	2"	1 7/8-12 UN	2"	150 (5,906)	135 (5,135)	88 (3,465)	102 (4,016)	42,9 (1,689)	77,8 (3,063)	126 (4,961)	112,5 (4,429)	54,5 (2,146)	170 (6,693)	131 (5,158)	47 (1,85)	98 (3,858)	172,5 (6,791)	273,5 (10,768)	27 (1,063)	235 (9,252)	85 (3,347)	G1 1/2 or 1 1/2" NPT	1/2 UNC x15 (x0,591)	M10 or 3/8" UNC
RF 130	G 2	2"	1 7/8-12 UN															252,5 (9,491)	353,5 (13,917)		315 (12,402)				

Return Line Filter RF 014-130 Options

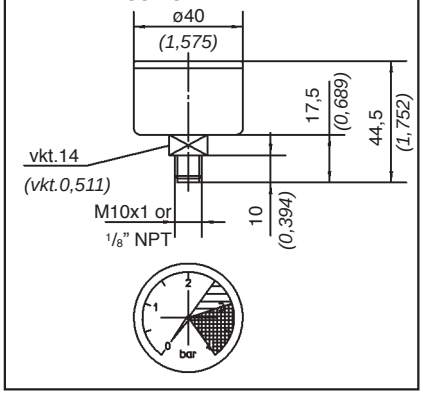
Options RF 014-130

1. Visual clogging indicator

The gauge visually displays the degree of contamination of the element. The coloured segments allow quick visual checking.

green	0...2,5	bar *(0…36,25 PSI)*	Element has service life left
yellow	2,5...3,0	bar *(36,25 ...43,5 PSI)*	Element is contaminated and should be changed
red	>3,0	bar *(>43,5 PSI)*	By-pass valve open, unfiltered oil passing to tank

Visual clogging indicator

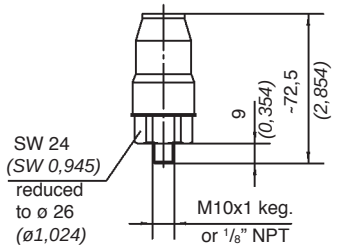


2. Electrical clogging switch

The switch is used where an electrical signal is needed to indicate when the element needs changing. The switch can turn on a light, or shut the machine down, or any further function controlled by an electric signal. The switching pressure is 2,5 bar *(36,25 PSI)* and this allows the element to be changed before the by-pass setting of 3 bar *(43,5 PSI)* is reached.

Maximum Voltage	Switch Type
42 V	G 42
110 V	G 110
220 V	G 220

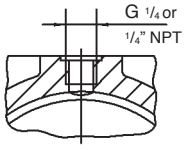
Electrical Clogging Switch



3. Leakage oil connection

Seal or case drain lines can be connected to the filter through either of the clogging indicator ports providing that the leakage oil can accept a pressure of 3 bar *(43,5 PSI).* It ensures that no un-filtered oil can return to the reservoir. It may save the cost of a manifold.

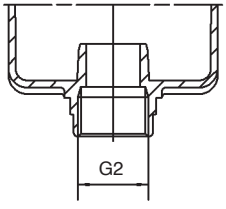
Leakage oil connection



4. Filter bowl with threaded connection

Under some circumstances such as a tall reservoir or one with oil levels which vary greatly during operation, it is necessary to extend the filter bowl so that the returning oil returns beneath the surface and does not entrain air in the process. The optional bowl with a female thread allows an extension to be fitted quite simply.

Threaded outlet

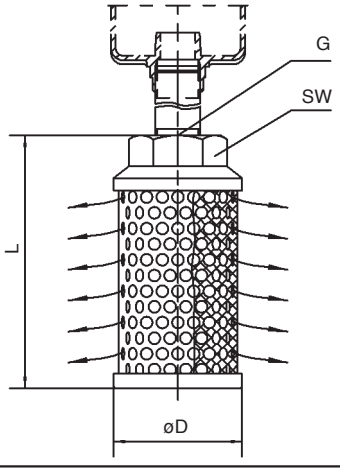


Dimension G2 see table page 4

5. Filter bowl with threaded connection and diffusor

Diffusers mounted to the filter bowl minimize foaming and reduce noise of backstreaming fluids. For further details on STAUFF diffusers please refer to our catalogue “Hydraulic Accessories”.

Threaded outlet with SRV



All dimensions in mm *(inch)*

Size SRV	for Return Line Filter Size	Dimensions ø D	L	Thread G	SW
SRV-114-B16	RF 014/030	60 *(2,362)*	139 *(5,472)*	G1 or 1” NPT	46 *(1,811)*
SRV-200-B20	RF 045/070	82 *(3,228)*	139 *(5,472)*	G1 1/4 or 1 1/4” NPT	60 *(2,362)*
SRV-227-B24	RF 090/130	82 *(3,228)*	200 *(7,874)*	G1 1/2 or 1 1/2” NPT	60 *(2,362)*

Return Line Filter RF 014-130 Ordering Code

Ordering Code Filter Housings

RF 070 ... B / B / M / G / L1 /X

Filter type	RF

Group

Size	Flow	
	l/min	GPM
014	60	14
030	110	30
045	160	45
070	240	70
090	330	90
130	500	130

* Note Exact flow will depend on filter element selected. Consult technical data on page 7 & 8

For complete filters:

identification filter material
+ micron rating code
(see ordering code filter elements below)

Seal material

B	NBR (Buna®)
V	FPM (Viton®)
E	EPDM

other seal material on request

Design Code

only for information

Additional Features		Pos.*	
L	Leakage oil connection	1	2

*) position of leakage oil connection see page 4
without any code: assembly in the middle of the filter cover

Outlet Style

O	Standard outlet (without thread)
G	Filter bowl with threaded outlet

Clogging indicator (see page 5)		Pos.*	
M	Pressure gauge	1	2
G 42	Electrical switch 42 V		
G 110	Electrical switch 110 V		
G 220	Electrical switch 220 V		

*) position of clogging indicator see page 4
without any code: assembly in the middle of the filter cover

Connection style		Group					
Code	Connection style	014	030	045	070	090	130
B	BSP	G 3/4	G1	G 1 1/4	G 1 1/2	G2	G2
B 1	BSP	G 1/2	G 1/2	G 1 1/2	G 1 1/4	G 1 1/4	G 1 1/4
B 2	BSP	G1	G 3/4	–	–	G 1 1/2	G 1 1/2
N	NPT	3/4"	1"	1 1/4"	1 1/2"	2"	2"
N 1	NPT	1"	3/4"	1 1/2"	1 1/4"	1 1/2"	1 1/2"
U	SAE-"O"-Ring thread	1 1/16	1 5/16	1 5/8	1 7/8	1 7/8	1 7/8
U 1	SAE-"O"-Ring thread	1 5/16	1 1/16	1 7/8	1 5/8	1 5/8	1 5/8
F	SAE-flange *(3000 PSI)*	–	–	–	–	2"	2"

Flanges are not supplied.

Ordering Code Filter Elements

RE-014 G 10 V /X

Series	RE

Group

according to filter housing

Filter material			Micron ratings available
Code	Material	max Δp* collapse	
A	Stainless fiber	30 bar *(435 PSI)*	03, 05, 10, 20
N	Filter paper	16 bar *(232 PSI)*	
G	Inorganic glass fiber	30 bar *(435 PSI)*	
B, **S**	Stainless mesh	30 bar *(435 PSI)*	10, 25, 50, 100, 200,500

*collapse / burst resistance as per ISO 2941

Bold type identifies preferred material

Design code

only for information

Seal material

B	NBR (Buna®)
V	FPM (Viton®)
E	EPDM

other seal materials on request

Micron rating

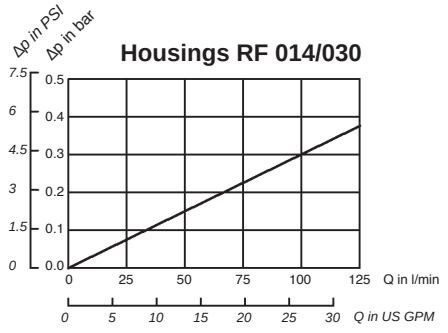
03	3 µm
05	5 µm
10	10 µm
20	20 µm
10	10 µm
25	25 µm
50	50 µm
100	100 µm
200	200 µm
500	500 µm

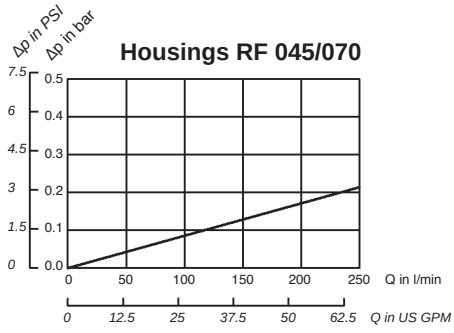
other micron ratings on request

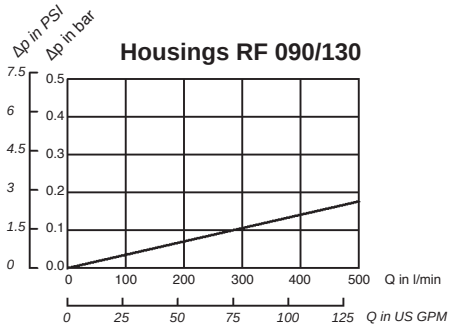
Return Line Filter RF 014-130 Flow Characteristics

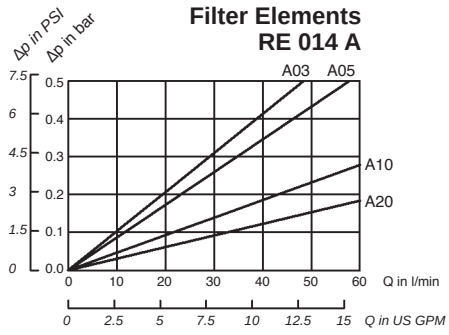
Flow Characteristics of Return Line Filters RF 014-130

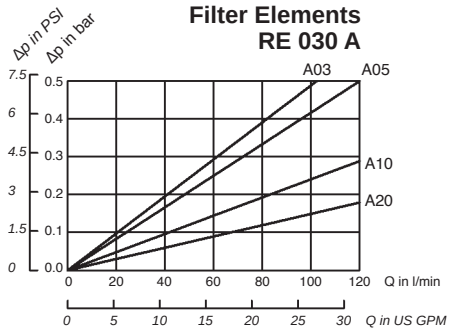
The following characteristics are valid for mineral oils with a density of 0,85 kg/dm³ and the kinematic viscosity of 30 mm²/s. The characteristics have been determined in accordance to ISO 3968.

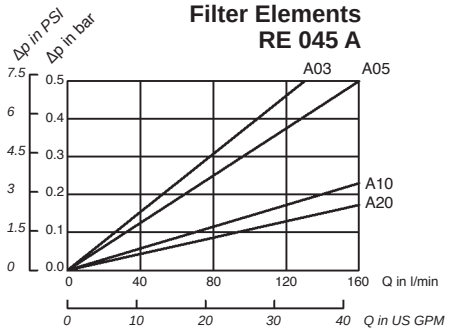


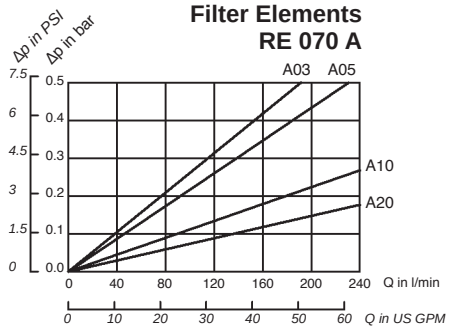


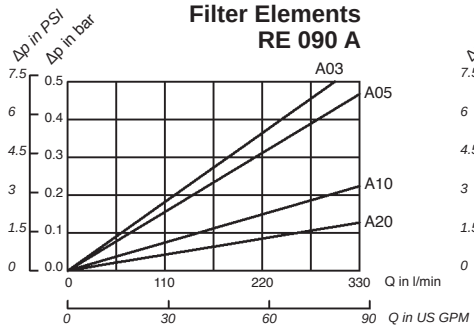


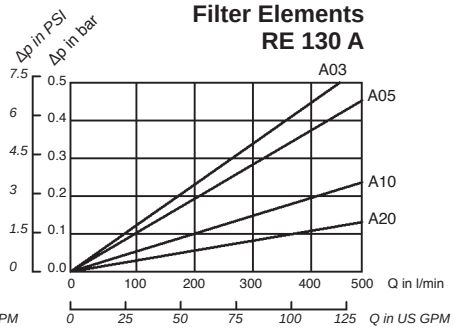


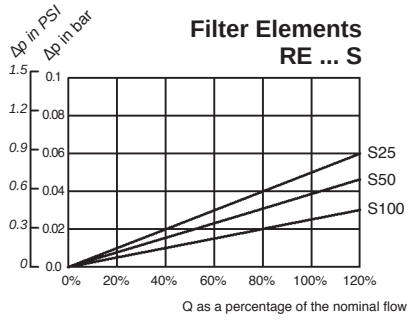


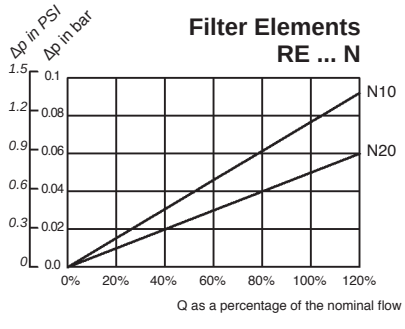








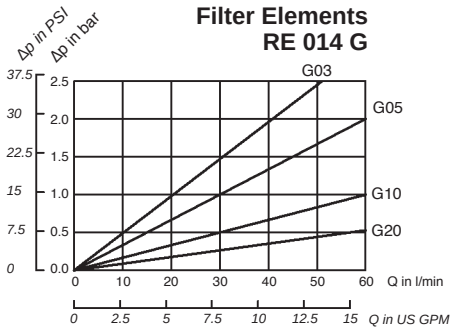


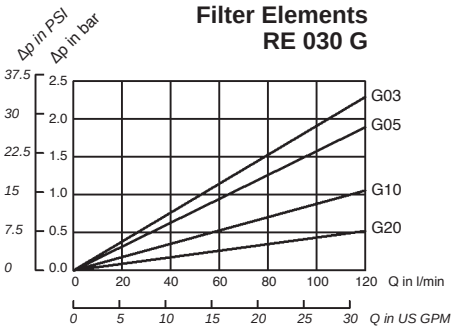


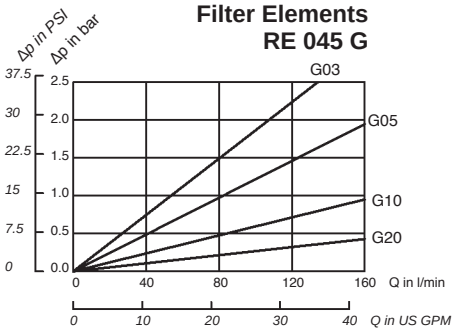
Return Line Filter RF 014-130 Flow Characteristics

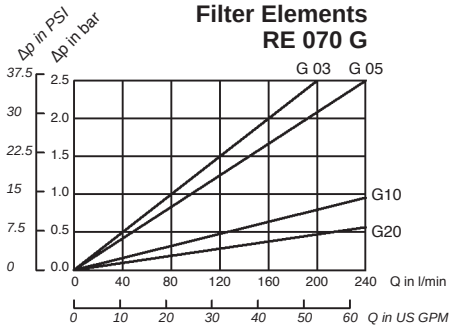
Flow Characteristics of Return Line Filters RF 014-130

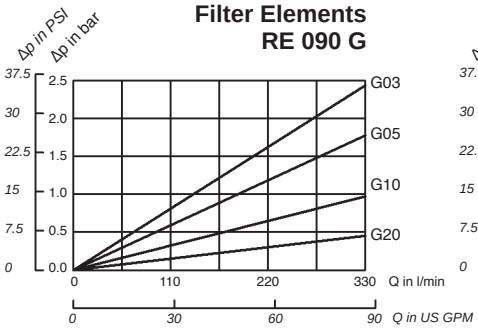
The following characteristics are valid for mineral oils with a density of 0,85 kg/dm³ and the kinematic viscosity of 30mm²/s . The characteristics have been determined in accordance to ISO 3968.

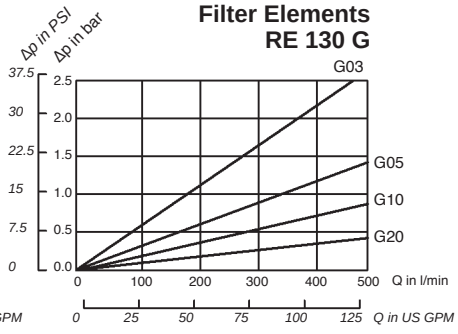












Return Line Filter RFB 022-052 Technical Data

Technical Data

STAUFF RFB return line filters are designed as tank top filters. They are mounted directly on the tank top and if 100% of the system oil is filtered they provide the optimum removal of contaminant from the system. This provides the pump with clean oil thus reducing contaminant generated wear. Because of it's low weight and compact design the STAUFF filters RFB are optimally suitable in mobile hydraulic applications.

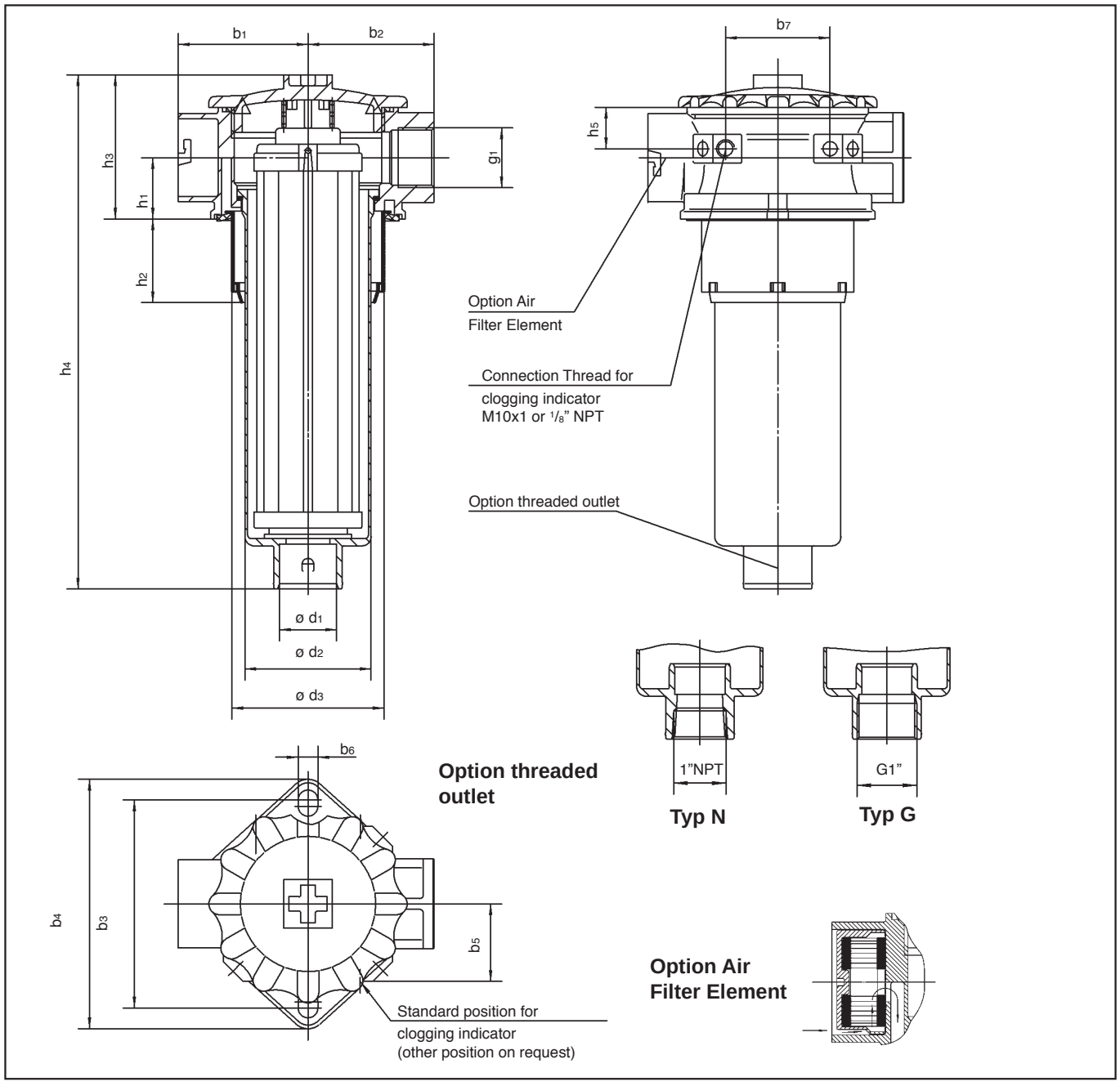
Technical Specification

Construction	Tank Top flange mounting
Filter head	Aluminium
Filter bowl	Glass fiber reinforced polyamide
Seals	NBR (Buna-N®), FPM (Viton®) or EPDM (Ethylene-Propylene)
Threaded connection	BSP, NPT- and SAE-"O"-Ring thread
Operating pressure	max 10 bar *(145 PSI)*
Proof pressure	24 bar *(350 PSI)*
Temperature range	-10° up to +100°C *(14° up to 212°F)*

By-pass valve (integrated in the filter element)	Opening pressure 3 bar ± 0,3 bar *(43,5 PSI ± 4,35 PSI)* other pressures on request
Clogging indicator	Gauge type indicator 0…4 bar *(0…58 PSI)* coloured segments; Electrical switch, setting 2,5 bar *(36,25 PSI)*
Filter elements	Specification see page 14
Media	Mineral oils, other fluids on request

Return Line Filter RFB 022-052 Dimensions

Dimensions RFB 022-052



Dimensions Return Line Filter RFB 022/046/052

All dimensions in mm *(inch)*

Filter Size	Thread connection G			h_1	h_2	h_3	h_4	h_5	d_1	d_2	d_3	b_1	b_2	b_3	b_4	b_5	b_6	b_7
	BSP	NPT	SAE-"O"-Ring thread															
RFB 022	G 3/4	3/4"	1-5/16-12 UN	34 *(1,339)*	46,5 *(1,831)*	80 *(3,15)*	205,5 *(7,933)*	23 *(0,906)*	32 *(1,26)*	70 *(2,756)*	84,5 *(3,327)*	72 *(2,835)*	70 *(2,756)*	115,5 *(4,547)*	138,5 *(5,453)*	43 *(1,693)*	11 *(0,433)*	58 *(2,284)*
	G1	1"																
RFB 046	G 3/4	3/4"					285,5 *(11,24)*											
	G1	1"																
RFB 052	G 3/4	3/4"					351,5 *(13,839)*											
	G1	1"																

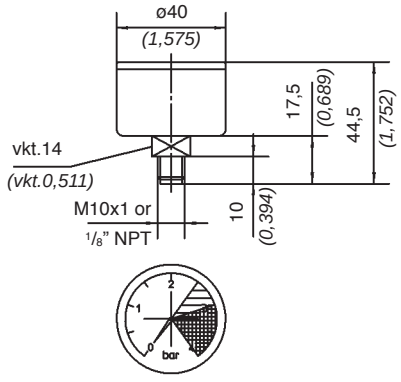
Options

1. Visual clogging indicator

The gauge visually displays the degree of contamination of the element. The coloured segments allow quick visual checking.

green	0...2,5	bar *(0…36,25 PSI)*	Element has service life left
yellow	2,5...3,0	bar *(36,25 ...43,5 PSI)*	Element is contaminated and should be changed
red	>3,0	bar *(43,5 PSI)*	By-pass valve open, unfiltered oil passing to tank

Visual clogging indicator

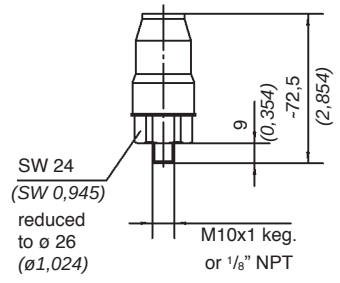


2. Electrical clogging switch

The switch is used where an electrical signal is needed to indicate when the element needs changing. The switch can turn on a light, or shut the machine down, or any further function controlled by an electric signal. The switching pressure is 2,5 bar *(36,25 PSI)* and this allows the element to be changed before the by-pass setting of 3 bar *(43,5 PSI)* is reached.

Maximum Voltage	Switch Type
42 V	G 42
110 V	G 110
220 V	G 220

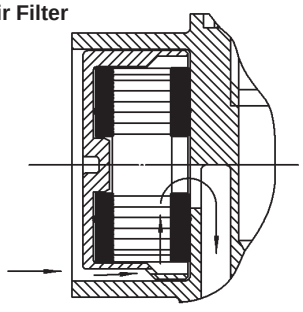
Electrical Clogging Switch



3. Air Filter Element

Allows an effective filtration of the incoming air which avoids the infiltration of dirt particles into the hydraulic system. The standard air filter element is micron filter paper, other materials and micron ratings on request.

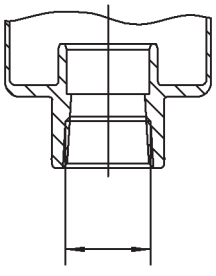
Air Filter



4. Filter bowl with threaded connection

Under some circumstances such as a tall reservoir or one with oil levels which vary greatly during operation, it is necessary to extend the filter bowl so that the returning oil returns beneath the surface and does not entrain air in the process. The optional bowl with a female thread allows an extension to be fitted quite simply.

Outlet



Dimension see page 10

Return Line Filter RFB 022-052 Ordering Code

Ordering Code Filter Housings

RFB 022 ... B / B / M / G / L10 /X

Filter type	RFB

Group

Size	Flow	
	l/min	GPM
022	75	22
046	165	46
052	185	52

Exact flow will depend on filter element selected, consult technical data on page 13

For complete filters:

identification filter material
+ micron rating code
(see ordering code filter elements below)

Seal material

B	NBR (Buna®)
V	FPM (Viton®)
E	EPDM

other seal material on request

Design Code

only for information

Air filter element

	without air filter element
L 10	10 micron filter paper

other materials and micron ratings on request

Outlet

O	without thread (standard)
N	with thread 1" NPT
G	with thread 1" BSP

Clogging indicator

M	Pressure gauge
G 42	Electrical switch 42 V
G 110	Electrical switch 110 V
G 220	Electrical switch 220 V

Connection style		Group		
Code	Connection Style	022	046	052
B	BSP	G 1		
B1	BSP	G 3/4		
N	NPT	1"		
N1	NPT	3/4"		
U	SAE - "O"-Ring Thread	1-5/16-12 UN		

Ordering Code Filter Elements

RE-046 G 10 V /X

Series	RE

Group

according to filter housing

Filter material			Micron ratings available
Code	Material	max Δp* collapse	
A	Stainless fiber	30 bar *(435 PSI)*	03, 05, 10, 20
N	Filter paper	16 bar *(232 PSI)*	
G	Inorganic glass fiber	30 bar *(435 PSI)*	
S	Stainless mesh	30 bar *(435 PSI)*	10, 25, 50, 100, 200,500

*collapse / burst resistance as per ISO 2941

Design Code

only for information

Seal material

B	NBR (Buna®)
V	FPM (Viton®)
E	EPDM

other seal materials on request

Micron rating

03	3 µm
05	5 µm
10	10 µm
20	20 µm
10	10 µm
25	25 µm
50	50 µm
100	100 µm
200	200 µm
500	500 µm

other micron ratings on request

Ordering Code Air Filter Element

REA-046 L 10 B /X

Series	RE

Group

air filter for RFB 022/046/052

Filter material

L	Filter paper

other micron ratings on request

Design Code

only for information

Micron rating

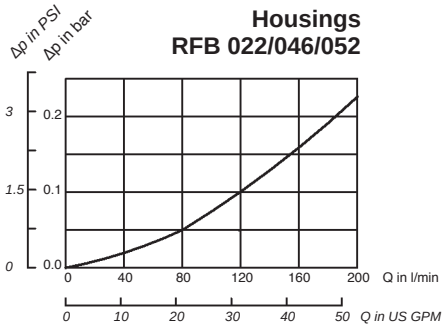
10	10 µm

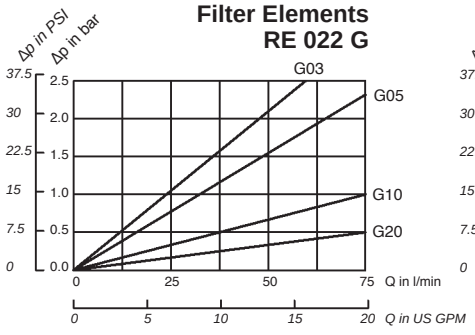
other micron ratings on request

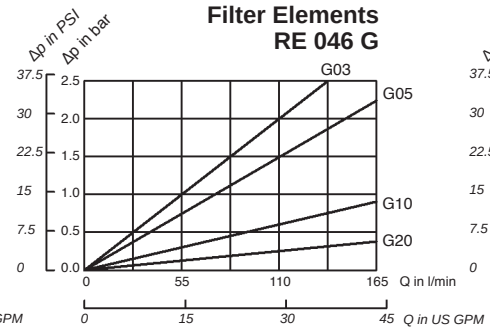
Return Line Filter RFB 022-052 Flow Characteristics

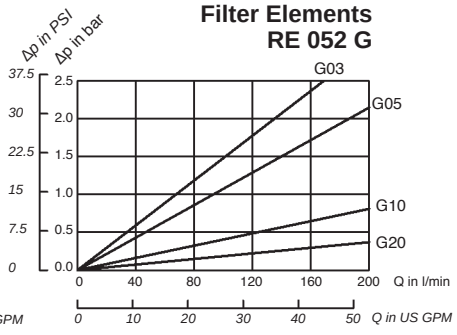
Flow Characteristics of Return Line Filters RFB 022-052

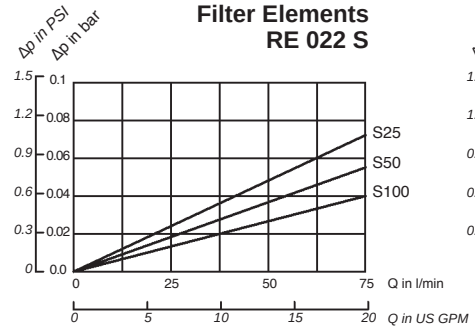
The following characteristics are valid for mineral oils with a density of 0,85 kg/dm³ and the kinematic viscosity of 30 mm²/s. The characteristics have been determined in accordance to ISO 3968.

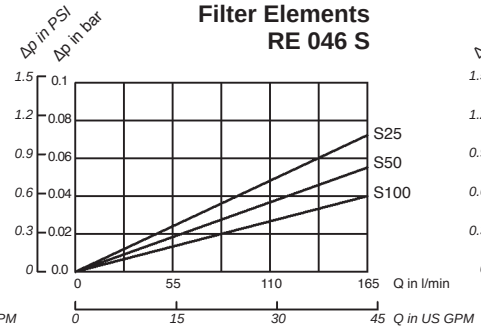


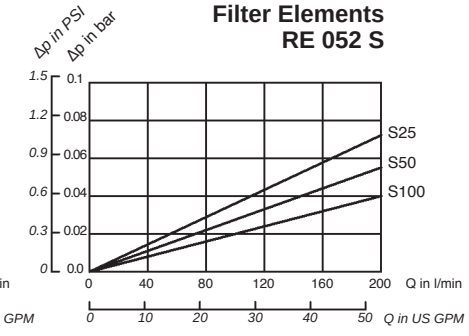


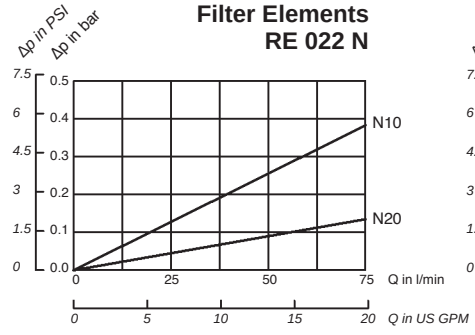


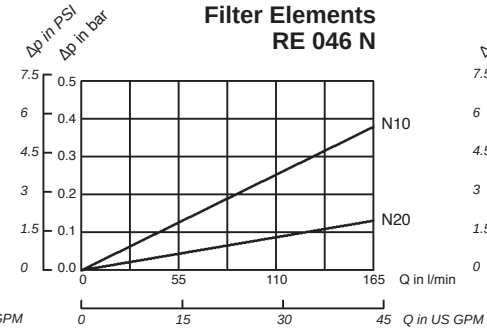


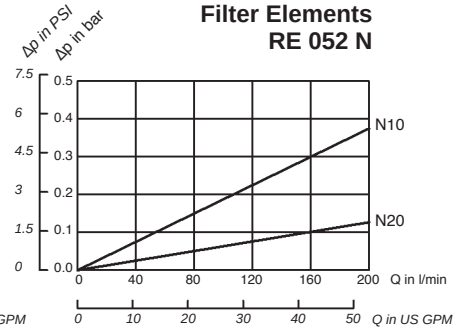












Replacement Filter Elements for RF and RFB series

STAUFF replacement filter elements for RF and RFB series filters are manufactured in the common filter materials such as stainless fiber, stainless mesh, paper and inorganic glass fiber. As standard all replacement elements series RF and RFB have tin plated steel parts for use with aggressive media such as water glycol, other materials available upon request. All STAUFF replacement elements comply with quality specifications in accordance with international standards.

RE-014 G 10 V /X

Series	RE

Group
according to filter housing

Filter material			Micron ratings available
Code	Material	max Δp*$_{collapse}$	
A	Stainless fiber	30 bar *(435 PSI)*	03, 05, 10, 20
N	Filter paper	30 bar *(435 PSI)*	
G	Inorganic glass fiber	30 bar *(435 PSI)*	
B**, S**	Stainless mesh (type B not for RE-022/046/065)	30 bar *(435 PSI)*	10, 25, 50, 100, 200, 500
	*collapse / burst resistance as per ISO 2941		

Bold type identifies preferred material

Design Code
only for information

Seal material	
B	NBR (Buna®)
V	FPM (Viton®)
E	EPDM
other seal materials on request	

Micron rating	
03	3 µm
05	5 µm
10	10 µm
20	20 µm
10	10 µm
25	25 µm
50	50 µm
100	100 µm
200	200 µm
500	500 µm
other micron ratings on request	

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Notes

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