

# STF Series

Return Line Filters

Max. 500 l/min - 10 bar



## When safety is an essential requirement

Where the use of aluminium is restricted in applications such as marine and industrial, the STF return line filter series provides an ideal solution to hydraulic system designers and specifiers.



## Contact Information: Product Features:

Parker Hannifin  
**Hydraulic Filter Division Europe**

**European Product  
Information Centre**  
**Freephone: 00800 27 27 5374**  
**(from AT, BE, CH, CZ, DE, EE, ES,  
FI, FR, IE, IT, PT, SE, SK, UK)**  
**[filtrationinfo@parker.com](mailto:filtrationinfo@parker.com)**

[www.parker.com/hfde](http://www.parker.com/hfde)

- 'In-to-out' filtration design means contaminated oil cannot leak back into the system.
- Magnetic pre-filtration.
- Cast iron filter head assembly
- Multiple port configuration.
- Flows up to 500 L/min.
- 10 bar maximum working pressure.
- Optional airtight diffusers.
- *LEIF*® low environmental impact filter elements as standard.

# STF Series

## Return Line Filters

### Features & Benefits

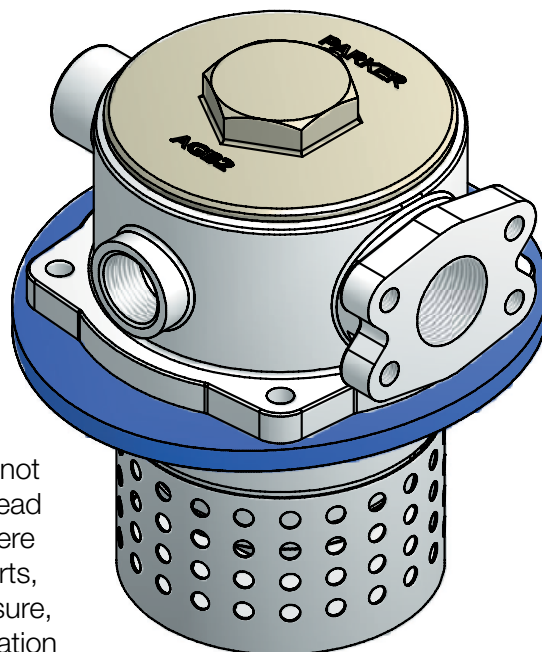
Features	Advantages	Benefits
10 bar rated filter	Can be utilised for severe return line applications	Reduced downtime due to premature filter failures
Cast iron head	Robust design	Convenient and effective solution for applications where aluminium is not allowed
LEIF® elements	Element safeguards the use of genuine parts	Guaranteed quality of filtration Contributes to ISO 14001 certification
Magnetic pre-filtration	Removes ferrous particles, even during bypass conditions	Improved fluid cleanliness levels Extended element life time
In-to-Out filtration	All captured contamination retains inside the element	No recontamination of system during change of elements
High level of customisation	Dedicated system-matched solutions can be easily made available	Improved integration of filter in system combined with lower initial system costs
Quick response bypass with low hysteresis	Reduction of bypass period due to low hysteresis Only a small part of the total flow is bypassing the element	Improved protection of system
Standard or customised funnel	Ensures that oil enters the tank under the oil level	Significant reduction of oil foaming

### Typical Applications

- Marine power pack
- Steel mills
- Mining equipment
- Drilling equipment

### The Parker Filtration STF Series Return Line Filters

STF Tank top mounted return filters feature pre-filtration by means of a magnet column and a bypass with low hysteresis. Thanks to the “In-to-Out” filtration principle, contaminated oil cannot leak back into the system. The STF filter has a casted iron filter head assembly, making it ideal for marine and industrial applications where the use of aluminium is restricted. The filter head with multiple ports, capable of handling flow up to 500 l/min at 10 bar working pressure, represents an easy and effective way of integrating return line filtration with power packs. Optional airtight diffusers are standard to avoid air ingress in the return line.



## Specification

**Operation pressure:**  
Max. 10 bar

**Assembly**  
Tank top mounted

**Connections**  
SAE flange  
Threaded BSP ports

**Filter housing and cover**  
Cast Iron (GGG40)

**Seal material:**  
Nitrile, Fluorelastomer

**Operating temperature:**  
Seal material Nitrile: -40°C to +100°C  
Seal material Fluorelastomer: -20°C to +120°C

**Bypass setting**  
Opening pressure 0,8 / 1,5 / 2,0 bar

**Degree of filtration**  
Determined by multipass test in accordance to ISO16889

**Flow fatigue characteristics**  
Filter media is supported so that the optimum fatigue life is achieved

### Filtration media

Microglass III and Ecoglass III for *LEIF*® elements  
Also available 10 µm cellulose and 40 µm stainless steel mesh

**Element burst pressure**  
10 bar (ISO 2941)

**Pressure indicator options**  
Setting 0,7 and 1,2 bar  
Visual pressure gauge  
Electrical pressure switch

### Options

Diffuser type P (straight pipe, no perforated plate area)  
Diffuser type T (with closed diffuser end cap and with perforated plate area, recommended when oil entry in the reservoir is close to the bottom or to ensure oil enters the reservoir under the oil level)

**Magnetic pack**  
Standard, only not included for STF 400 and 500

### Filter element

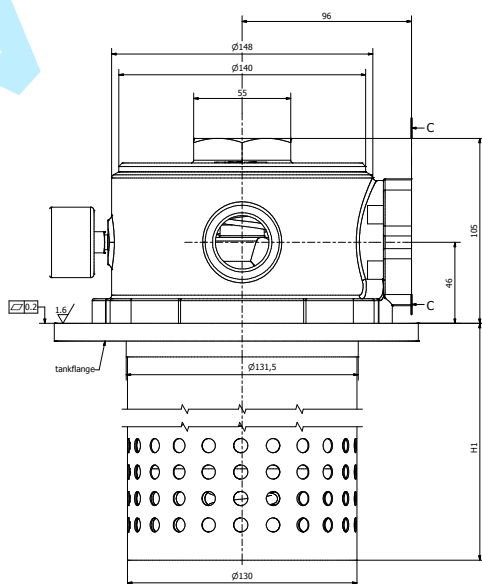
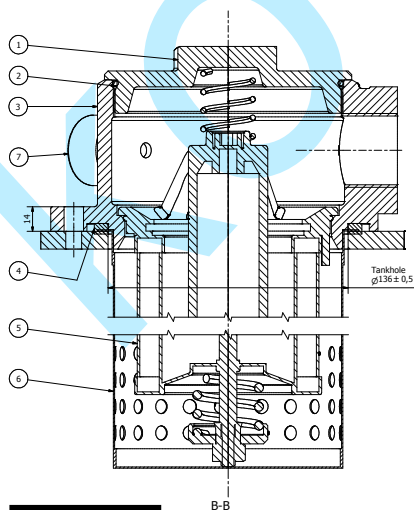
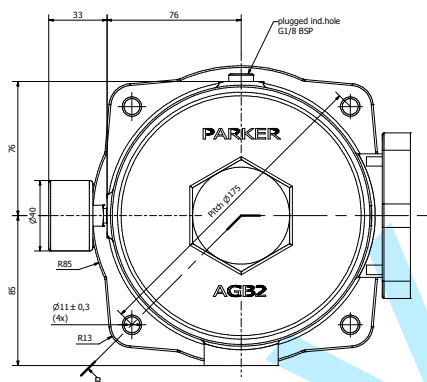
*LEIF*® element with reusable metal element sleeve  
Optional conventional style element with steel end caps  
The *LEIF*® element is patented and safeguards the use of genuine parts.

Note:

*LEIF*® element can be used with mineral and HEES type oils

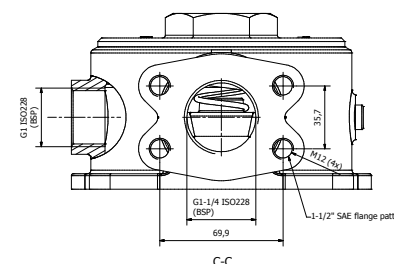
For other fluids consult Parker Filtration

*LEIF*® element contributes to ISO14001 quality standards



STF Without Diffuser		
STF Length	Type	H1
6	STF170	223
7	STF230	303
8	STF300	508
9	STF400	523
10	STF500	563

STF With Diffuser		
STF Length	Type	H1
6	STF170	305
7	STF230	305
8	STF300	510
9	STF400	525
10	STF500	575



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## Return Line Filters

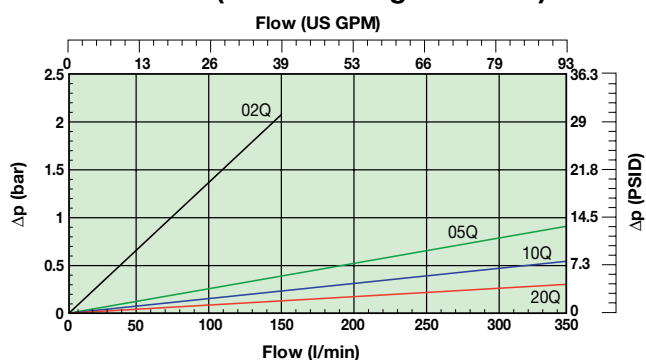
### Pressure Drop Curves

The recommended level of the initial pressure drop for low pressure filters is max 0.5 bar.

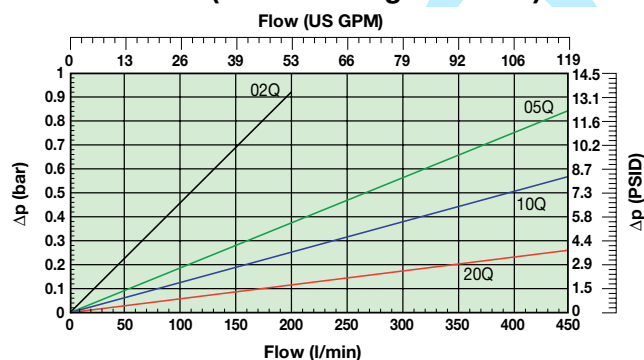
If the medium used has a viscosity different from 32cSt, pressure drop over the filter can be estimated as follows:

$$\Delta p = (\Delta p_{32} \times \text{viscosity of medium used}) / 32\text{cSt}.$$

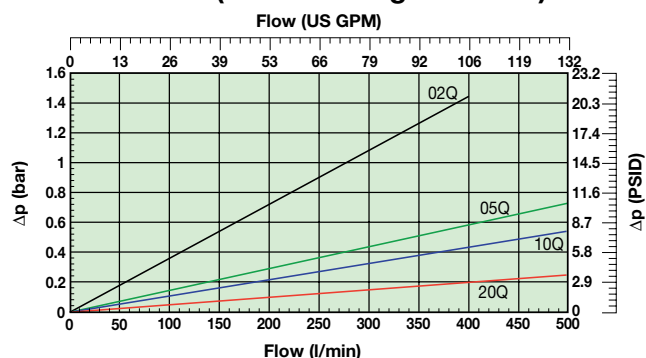
**STF170 (Element length code 6)**



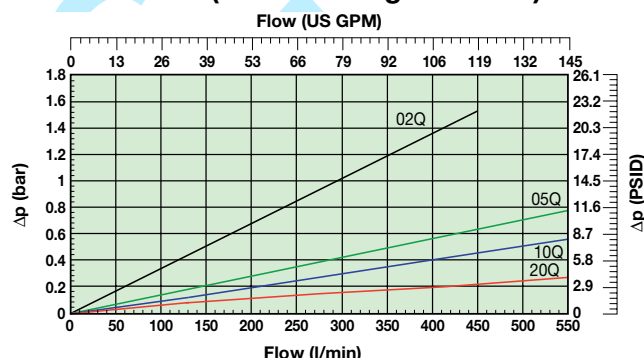
**STF230 (Element length code 7)**



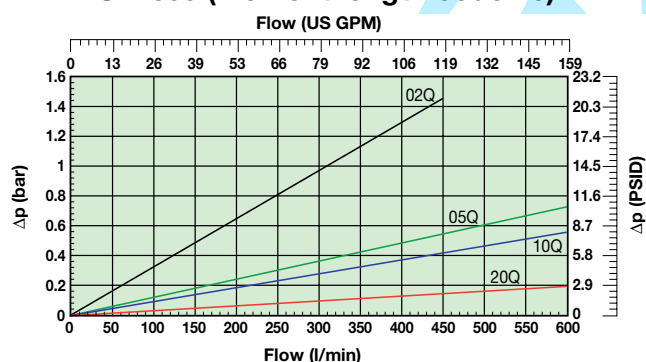
**STF300 (Element length code 8)**



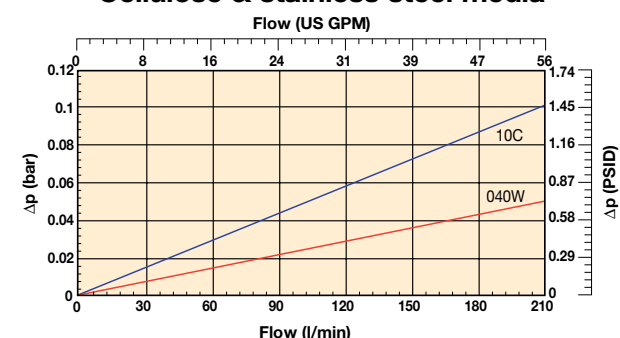
**STF400 (Element length code 9)**



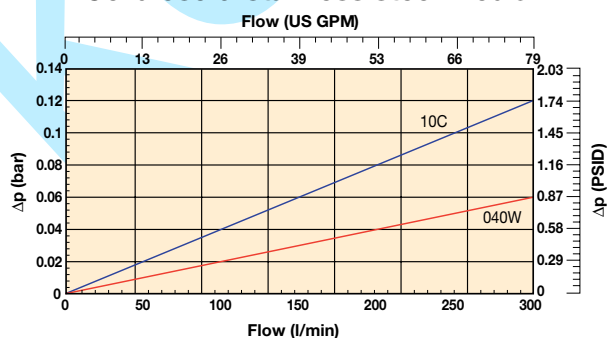
**STF500 (Element length code 10)**



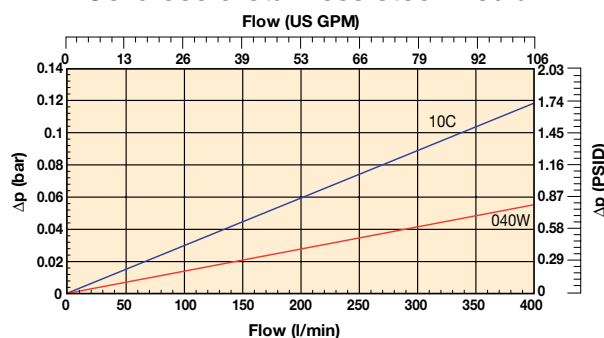
**STF170 (Element length code 6)  
Cellulose & stainless steel media**



**STF230 (Element length code 7)  
Cellulose & stainless steel media**



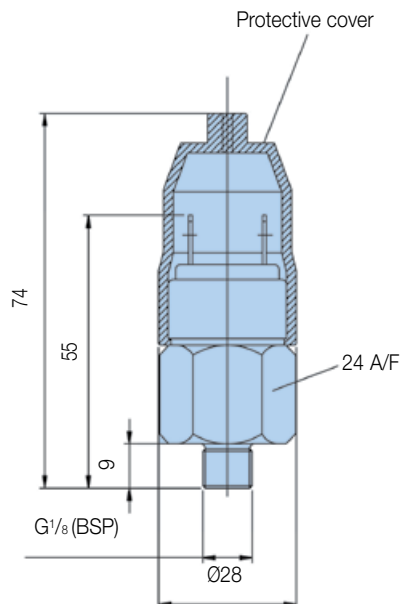
**STF300 (Element length code 8)  
Cellulose & stainless steel media**



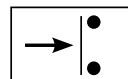
# STF Series

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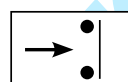
### Indicator PS NO/NC pressure switch



Normally open contacts



Normally closed contacts



Specifications	
Electrical rating	42V / 2A
Thread connection	G1/8"
Electrical connection	AMP terminal 6.3x0.8
Protection	IP65 (terminal IP00)
Switch type	NO or NC
Indicator setting	1.2 bar (0.7 bar on request)
Code	FMUS2EBMG02L (NO type switch) FMUS3EBMG02L (NC type switch)

Visual indicator	Code
1.2 bar	FMUG2EBPG02L

LEIF Spare Element table				
	2 micron	5 micron	10 micron	20 micron
STF170 Part number spare element	937827Q	937848Q	937853Q	937874Q
STF230 Part number spare element	937828Q	937847Q	937854Q	937873Q
STF300 Part number spare element	937829Q	937846Q	937855Q	937872Q
STF400 Part number spare element	937830Q	937845Q	937856Q	937871Q
STF500 Part number spare element	937831Q	937844Q	937857Q	937870Q

Conventional Spare Element table Microglass III Media						
	10 micron cellulose	2µ Microglass III	5µ Microglass III	10µ Microglass III	20µ Microglass III	40 micron stainless steel mesh
STF170 Part number spare element	937725	937747Q	937758Q	937783Q	937794Q	937816
STF230 Part number spare element	937726	937746Q	937759Q	937782Q	937795Q	937815
STF300 Part number spare element	937727	937745Q	937760Q	937781Q	937796Q	937814

## Ordering Information

Standard products table

Part Number	Flow (l/min)	Model Number	Element Length	Media Rating (u)	Seals	Indicator	Bypass Setting	Ports	Included Options	Replacement Elements
STF810QLBP2ELC24G	300	STF300	8	10	Nitrile	Plugged	1.5 Bar	11/2"SAE-flange	Airtight funnel typeT	937855Q
STF820QLBP2ELC24G	300	STF300	8	20	Nitrile	Plugged	1.5 Bar	11/2"SAE-flange	Airtight funnel typeT	937872Q
STF1010QLBP2ELC24G	500	STF500	10	10	Nitrile	Plugged	1.5 Bar	11/2"SAE-flange	Airtight funnel typeT	937857Q
STF1020QLBP2ELC24G	500	STF500	10	20	Nitrile	Plugged	1.5 Bar	11/2"SAE-flange	Airtight funnel typeT	937870Q

### Product configurator

#### Configurator example of a STF Series filter

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
STF	8	05QL	B	S2	E	LC24	G

Box 1	Box 2	Box 3
<b>Code</b>	<b>Filter type</b>	<b>Degree of filtration</b>
STF	<b>Housing</b>	<b>Element media</b>
	<b>Code</b>	Nominal
	STF 2-170	Cellulose
	STF 2-230	LEIF <sup>®</sup>
	STF 2-300	Q3 glassfibre Bx(c) >200
	STF 2-400	10µm
	STF 2-500	10C
		Disposable element
		LEIF <sup>®</sup> element
		Filtration fineness absolute
		Stainless steel mesh
		Q02 (2micron) Q05 (5micron) Q010 (10micron) Q020 (20micron) 40µm
		02Q 05Q 10Q 20Q 040W
		02QL 05QL 10QL 20QL

Box 4	Box 5	Box 6
<b>Seal type</b>	<b>Indicator</b>	<b>Bypass valve</b>
<b>Seal material</b>	<b>Code</b>	<b>Bypass valve</b>
Nitrile	G2	Code
Fluorelastomer	S2	0.8 bar
	S3	1.5 bar
	S4	2.0 bar for STF series
	P2	Blocked bypass
	on request	Other bypass settings
		on request

Box 7	Box 8
<b>Filter connection</b>	<b>Options</b>
<b>Ports</b>	<b>Options</b>
1½" SAE-3000 M (G1¼" inside) + G1 (2nd port)	No diffuser required
G1½" + G1" (2nd port)	Diffuser type T with perforated plate area
	Diffuser type P without perforated plate area
	Airtight diffuser type T with perforated plate area
	Airtight diffuser type P without perforated plate area
	Other combinations
	ATEX certified*
	(Category 2, non-electrical equipment)
	Code
	1
	3
	4
	G
	H
	on request
	EX

Note 1: STF size 2-400 and 2-500 are standard supplied without magnets  
 Note 2\*: For ATEX classified filters add EX after the code.  
 ATEX certified filters with electrical indicator are available on request.  
 Visual indicators are classified as Category 2, non electrical equipment.  
 Filter assemblies with EX code will be supplied with a dedicated name plate.  
 Pls consult Parker Filtration for any questions related to the classification of our products.

Degree of filtration						Media code
Average filtration beta ratio β (ISO 16889) / particle size μm [c]						
βx(c)=2	βx(c)=10	βx(c)=75	βx(c)=100	βx(c)=200	βx(c)=1000	
% efficiency, based on the above beta ratio (βx)						
50.0%	90.0%	98.7%	99.0%	99.5%	99.9%	
N/A	N/A	N/A	N/A	N/A	4.5	
N/A	N/A	4.5	5	6	7	02Q/02QL
N/A	N/A	4.5	5	6	7	05Q/05QL
N/A	6	8.5	9	10	12	10Q/10QL
6	11	17	18	20	22	20Q/20QL

#### Highlights Key (Denotes part number availability)

123	Item is standard
123	Item is standard green option
123	Item is semi standard
123	Item is non standard

STF Series Seal Kit	
Part number	Description
2049010076	NITRILE SEAL KIT STF