

# Suction Return Series

Tanktop Mounted Suction & Return Line  
Filters - Types SR1 & SR2  
Max. 250 l/min - 10 bar



Filters both open  
and closed loop oil  
circuits through one  
filter

## Reduced risk of pump cavitation

SR1 and SR2 are capable of feeding filtered oil under positive pressure to the suction side of the boost pump filtering both open and closed loop oil systems through one filter. Maximum pressure 10 bar. Maximum flow 250 l/min. Use *LEIF*® environmentally friendly elements.



## Contact Information:

Parker Hannifin  
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**European Product  
Information Centre**  
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**[filtrationinfo@parker.com](mailto:filtrationinfo@parker.com)**

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

## Product Features:

- SR capable of feeding filtered oil under positive pressure to the suction side of the boost pump.
- Filters both open and closed loop oil systems through one filter.
- Maximum pressure 10 bar. Maximum flow 250 l/min.
- SR uses patented *LEIF*® elements to safeguard filtration quality.

# Suction Return Series

## Tanktop Mounted Suction & Return Line Filters - Types SR1 & SR2

### Features & Benefits

Features	Advantages	Benefits
Compact design	Less space required to apply SR Series	Improved flexibility during system design
Bypass valve mounted in series with back-pressure valve	Pressurisation of filtered oil for hydrostatic drive ensured during bypass	Lower risk of pump cavitation
LEIF® elements	Element safeguards the use of genuine parts	No direct bypass in the tank reducing the additional risk of oil foaming
Strainer located in filter head	Strainer filters all bypass fluid by using a system-matched degree of filtration	Guaranteed quality of filtration
High level of customisation	Dedicated system-matched solutions can be easily made available	Contributes to ISO 14001 certification
Quick response bypass with low hysteresis	Reduction of bypass period due to low hysteresis	Improved protection of system
	Only a small part of the total flow is bypassing the element	Strainer can be inspected and cleaned during service events
Standard or customised funnel	Ensures that oil enters the tank under the oil level	Improved integration of filter in system combined with lower initial system costs
Multiple ports availability	Flexibility related to suction- and return line hose(s) arrangement	Improved protection of system
		Significant reduction of oil foaming
		More compact solutions can be realised
		The use of manifold blocks can be avoided
		Easy to integrate with cooler circuit

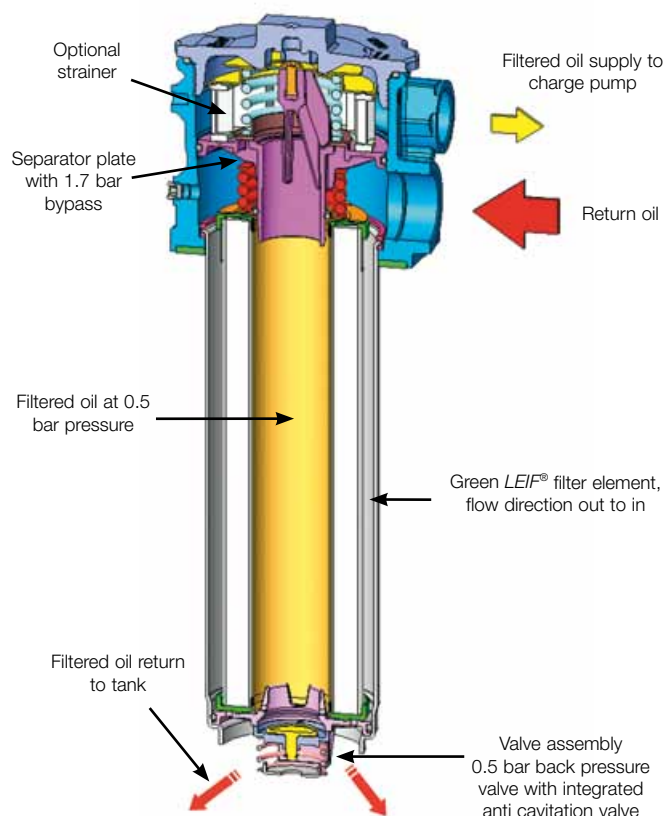
### Typical Applications

Mobile equipment with both open and closed hydraulic circuits. For example:

- Road sweepers
- Road rollers
- Fork lift trucks
- Loading shovels
- Telescopic handlers
- Dump trucks
- Skid steers
- Agricultural harvesting machines
- Mini excavators

### The Parker Filtration Tank Top Mounted Suction & Return Line Filters.

A tank top mounted return filter capable of feeding filtered oil under positive pressure to the suction side of the boost pump, thereby filtering both open and closed loop oil systems through one filter. The Parker SR filters use the LEIF® element for environmental-friendly filtration and offers protection against the use of pirate elements. Several options including integrated suction strainer and dipstick are available.



## Specification

### Pressure ratings:

Max. 10 bar.

### Assembly:

Tank top mounted filters.

### Connections:

Return port G1 (to BS 2779).

Suction port G<sup>3</sup>/<sub>4</sub> (to BS 2779).

} SR1

Return port G1<sup>1</sup>/<sub>4</sub> (ISO 228) or SAE20:

Optional second return port type SR2.

Suction port G1 (ISO 228) or SAE16:

Standard two suction ports.

} SR2

### Seal material:

Type SR1 – Nitrile.

Type SR2 – Nitrile, Fluoroelastomer.

Other seal material on request.

### Operating temperature range:

-30° to +110°C.

### Bypass valve system:

Main system bypass valve.

Type SR1 – 1.7 bar (2.5 bar optional).

Type SR2 – 1.7 bar (2.5 bar optional).

### Degree of filtration:

Determined by multipass test according to ISO 16889.

### Flow fatigue characteristics:

Filter media designed to optimise fatigue life.

### Filtration media:

Type SR1 and SR2 –

Ecoglass III for *LEIF*<sup>®</sup> elements. See 'degree of filtration' table on the Ordering Information page.

- High dirt holding capacity.

- Low pressure drop.

- Extended service life.

### Element collapse rating:

Type SR1 – 10 bar (ISO2941).

Type SR2 – 10 bar (ISO2941).

### Suction line:

Back-pressure valve setting 0.5 bar (nominal).

### Anti-cavitation:

Emergency suction valve fitted as standard.

### Construction:

#### Type SR1 and Type SR2

Filter Housing: Precision pressure die casting

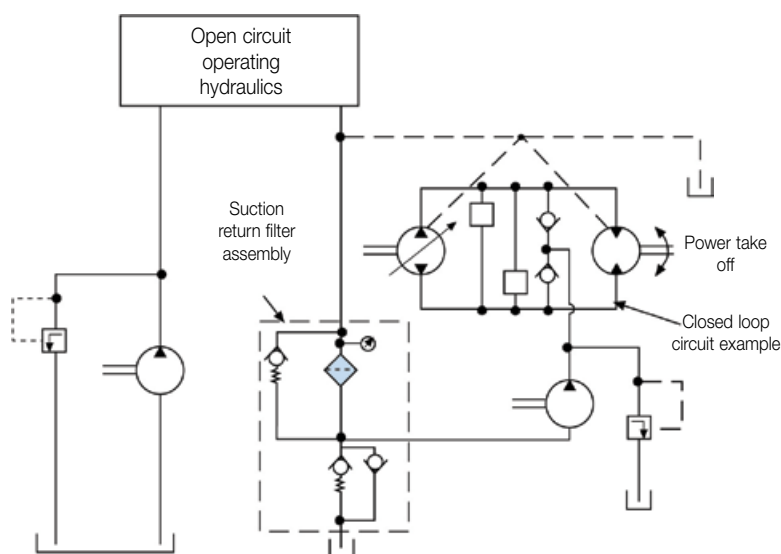
Cover: Glass reinforced nylon (high impact and temperature resistant)

Weight: 1.4Kg 3.3Kg

Filter element: *LEIF*<sup>®</sup> element with reusable metal element sleeve.

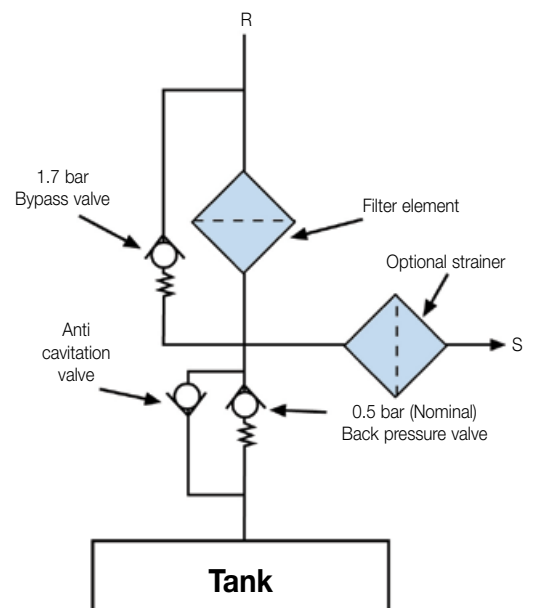
The patented *LEIF*<sup>®</sup> concept contributes to ISO14001 } SR1 and can be applied with mineral and HEES type fluids. } & SR2  
For other fluid types consult Parker Filtration.

## Circuit Application Example



Note: Suction return filter without optional strainer.

## Suction Return Filter: Hydraulic Circuit

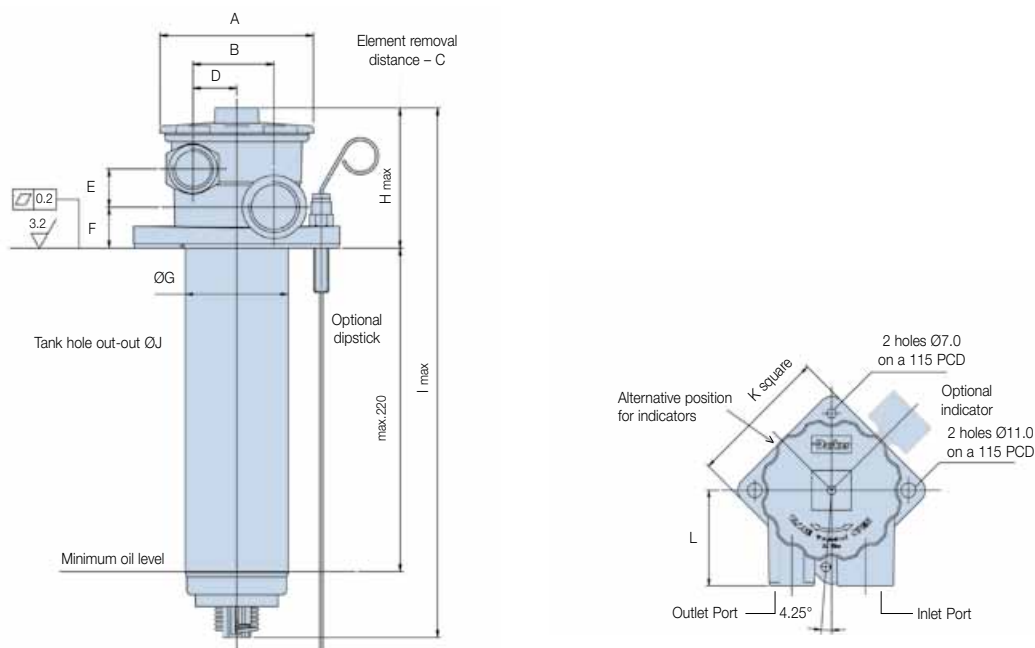


Note: Suction return filter with optional strainer.

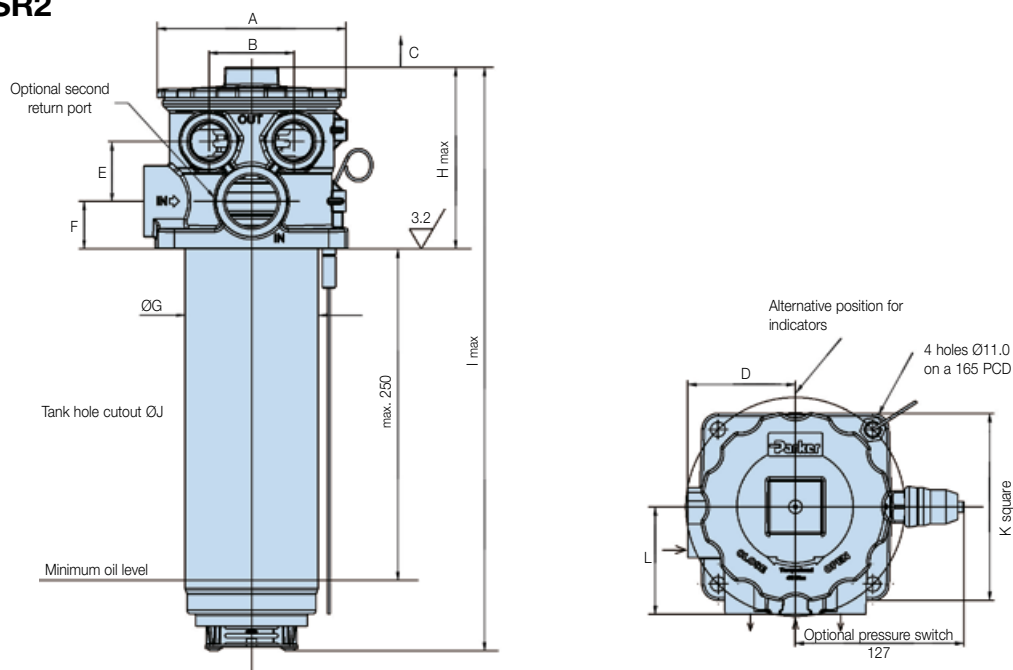
# Suction Return Series

## Tanktop Mounted Suction & Return Line Filters - Types SR1 & SR2

### SR1



### SR2

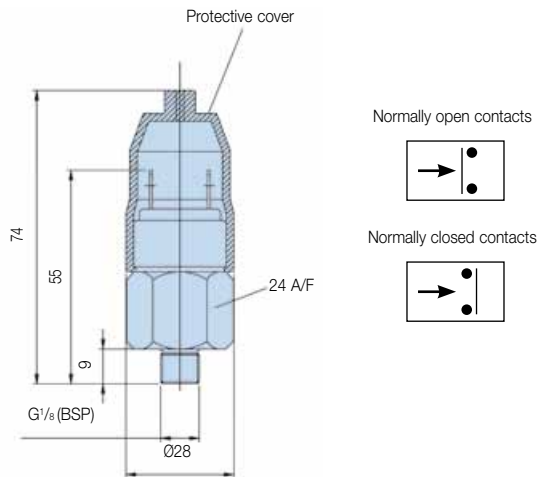


Dimensions mm (inches)	A	B	C	D	E	F	G	H	I	J	K	L
Type SRL1	106 (4.17)	55 (2.17)	280 (11.0)	29.75 (1.17)	26 (1.02)	28 (1.10)	70 (2.76)	96 (3.78)	361 (14.21)	71 to 73 (2.8 to 2.87)	105 (4.13)	72 (2.83)
Type SRL2	142 (5.59)	64 (2.52)	380 (14.96)	81 (3.19)	45 (1.77)	36 (1.42)	100 (3.94)	137 (5.39)	440 (17.32)	101 to 103 (3.98 to 4.06)	145 (5.71)	81 (3.19)

Element removal distance for dimension C.



## Indicator Details



Visual Indicator	
Setting	2 bar
Thread connection	G <sup>1</sup> / <sub>8</sub>
Code	FMUG5HBMG02L

Pressure switch	
Elec.rating	42V / 2A
Thread connection	G <sup>1</sup> / <sub>8</sub>
Elec.connection	AMP terminal 6.3 x 0.8
Protection	IP65 (terminal IP00)
Setting	2 bar
Switch type	NO or NC
Code	FMUS6HBMG02L (NO switch) FMUS7HBMG02L (NC switch)

Note: Vacuum indicators visual or electrical are available on request for filter type SR2 only.

## Principles of Operation

### Suction Return Series filter

This one filter assembly is designed to carry out two specific functions:

- (1) Filter system return line oil.
- (2) Supply filtered oil under positive pressure to the closed loop hydrostatic circuits.

### Principles of operation

- (1) Return oil from both the open and closed circuits\* is fed into the Suction Return Series Filter at port 'R'.
- (2) The filtered oil is maintained at a nominal 0.5 bar by the unique back pressure valve assembly and fed into the closed loop hydrostatic circuit via port 'S'.
- (3) Surplus filtered oil is fed back to the tank via the back pressure valve assembly.
- (4) Emergency suction (anti-cavitation) valve: This valve is fitted as standard to ensure oil is always available to the closed loop system, even on emergency occasions when the return flows do not meet the flow demands of the closed loop circuit.

### Additional installation guidance notes

- (1) Return oil flow should always be greater than the oil flow rate demanded by the closed loop charge pump.
- (2) Oil level at all times should not fall below valve assembly at the base of the filter bowl.

### Benefits

- (1) Only one filter is required to supply filtered oil to both open and closed loop circuits.
- (2) Feeding the closed loop circuit with filtered oil at a nominal pressure of 0.5 bar ensures excellent cold start characteristics, thus reducing the risk of cavitation.
- (3) Four hole mounting with gasket seal.
- (4) Microglass III filter element materials ensure; low pressure drop, high dirt holding capacity and extended service life.
- (5) Type Parker SR filters with patented *LEIF*<sup>®</sup> element, unique drain construction, quick element replacement concept.

### \*CAUTION:

Back pressure in pump and motor drain lines should always be kept at a minimum thus protecting shaft seals etc.

If case drain oils are to be fed through the return line filter please consult the pump/motor manufactures for details on maximum allowable back pressure.

Ensure filter elements are replaced when element condition indicators show that the bypass setting has been reached.

Failure to observe the above operation and guidance notes, or use of non genuine Parker specified filter elements could cause damage to the system. System designers should always ensure that adequate cooling capacity is available.

# Suction Return Series

## Tanktop Mounted Suction & Return Line Filters - Types SR1 & SR2

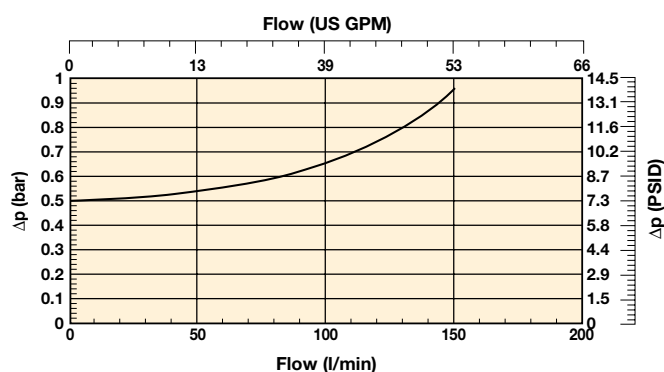
### Pressure Drop Curves (Type SR1)

The recommended level of the initial pressure drop is approximately 1 bar.

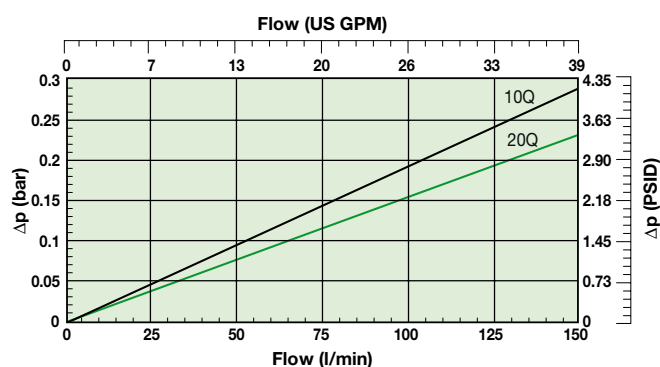
If the medium used has a viscosity different from 32cSt, pressure drop over the filter can be estimated as follows:

The total  $\Delta p$  = Housing  $\Delta p$  + (Element  $\Delta p \times$  working viscosity/32).

**SRL1 Empty Housing (Length Code 2)**



**SRL1 (Element Length Code 2)**



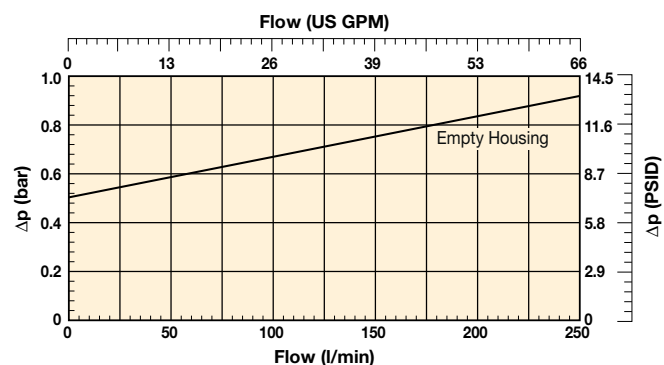
Curves are based on 32cSt fluid viscosity and 0.87 Kg/l density.

Line represents the  $\Delta p$  of the housing including the back pressure valve.

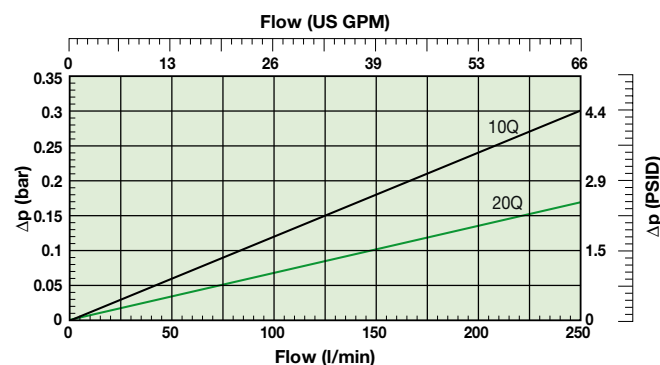
### Pressure Drop Curves (Type SR2)

Curves are based on 32cSt fluid viscosity and 0.87 Kg/l density.

**SRL2 Empty Filter Housing**



**SRL2 Filter Element Length 2**



Line represents the  $\Delta p$  of the housing including the back pressure valve.

# Ordering Information

## Standard products table

Part number	Supersedes	Flow (l/min)	Model number	Element length	Media rating (µ)	Seals	Indicator	Bypass settings	Ports return	Ports suction	Included options	Replacement elements	Supersedes
SRL1210QLBPGG161		130	SRL1	Length 2	10	Nitrile	Plugged	1.7 Bar (25 Psi)	G1	G <sup>1</sup> / <sub>4</sub>	None	<b>937984Q</b>	SRE12Q10
SRL1220QLBPGG161		130	SRL1	Length 2	20	Nitrile	Plugged	1.7 Bar (25 Psi)	G1	G <sup>1</sup> / <sub>4</sub>	None	<b>937985Q</b>	SRE12Q20
SRL2210QLBPGG201	SRL22Q10NP1B10	250	SRL2	Length 2	10	Nitrile	Plugged	1.7 Bar (25 Psi)	G1 <sup>1</sup> / <sub>4</sub>	2xG1	None	<b>937946Q</b>	SRE22Q10
SRL2220QLBPGG201	SRL22Q20NP1B10	250	SRL2	Length 2	20	Nitrile	Plugged	1.7 Bar (25 Psi)	G1 <sup>1</sup> / <sub>4</sub>	2xG1	None	<b>937947Q</b>	SRE22Q20

Note: Filter assemblies ordered from the product configurator below are on extended lead times. Where possible, please make your selection from the table above.

## Product configurator

### Configurator example SR filter

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
<b>SRL2</b>	<b>2</b>	<b>05QL</b>	<b>B</b>	<b>S6</b>	<b>G</b>	<b>2G20</b>	<b>I</b>

Box 1

Code	
Model	Code
SR1 Series with <b>LEIF</b> ® element	<b>SRL1</b>
SR2 Series with <b>LEIF</b> ® element	<b>SRL2</b>

### Highlights Key (Denotes part number availability)

<b>123</b>	Item is standard
<b>123</b>	Item is standard green option
<b>123</b>	Item is semi standard
123	Item is non standard

Box 2

Filter type	
Housing	Code
Reduced length	on request
Standard length	<b>2</b>
Extended length	on request

Box 3

Degree of filtration				
Element	<b>LEIF</b> ®			
	<b>Q3 glassfibre βx(c) &gt;200</b>			
	Code	Code	Code	Code
<b>LEIF</b> ®	<b>02QL</b>	<b>05QL</b>	<b>10QL</b>	<b>20QL</b>

Box 4

Seal type	
Seal material	Code
Nitrile	<b>B</b>
Fluoroelastomer	V

Box 5

Indicator	
	Code
Pressure gauge, setting 2.0 bar, G <sup>1</sup> / <sub>8</sub>	<b>G5</b>
Pressure switch 42V, 2.0 bar setting, NO with G <sup>1</sup> / <sub>8</sub> BSP	<b>S6</b>
Pressure switch 42V, 2.0 bar setting, NC with G <sup>1</sup> / <sub>8</sub> BSP	S7
Pressure switch 250V, NO/NC with G <sup>1</sup> / <sub>8</sub>	on request
No indicator, indicator port L + R plugged	<b>P</b>
Vacuum switch / vacuum gauge	on request
Other settings for indicators / gauges on request	on request

Box 6

Bypass valve	
Bypass valve	Code
1.7 bar	<b>G</b>
2.5 bar	I
Blocked bypass	on request
Other bypass settings	on request

Box 7

Filter connection		
Ports	Code	Note
Return port 1 x G1 (ISO228) + Suction port 1 x G <sup>1</sup> / <sub>4</sub> (ISO228)	<b>G16</b>	<b>SRL1</b>
Return port 1 x G1 <sup>1</sup> / <sub>4</sub> (ISO228) + Suction port 2 x G1 (ISO228)	<b>G20</b>	<b>SRL2</b>
Return port 2 x G1 <sup>1</sup> / <sub>4</sub> (ISO228) + Suction port 2 x G1 (ISO228)	<b>2G20</b>	<b>SRL2</b>
Return port 1 x SAE20 + Suction port 2 x SAE16	S20	<b>SRL2</b>
Return port 2 x SAE20 + Suction port 2 x SAE16	2S20	<b>SRL2</b>

Box 8

Options	
Options	Code
None	<b>1</b>
Strainer 120 micron	<b>G</b>
Dipstick	6
Plugged vent port in cover (on request)	on request
Strainer 120 micron, dipstick and plugged vent port	I
Customized options	on request

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	6	8.5	9	10	12	05Q/05QL
6	11	17	18	20	22	10Q/10QL
						20Q/20QL

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.

Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Spare elements		
Replacement elements	Supersedes	
937942Q	SRR12Q05N	Semi standard
937943Q	SRR12Q10N	Standard
937944Q	SRR12Q20N	Standard
937945Q	SRE22Q05	Semi standard
937946Q	SRE22Q10	Standard
937947Q	SRE22Q20	Standard
937983Q	SRE12Q05	Semi standard
937984Q	SRE12Q10	Standard
937985Q	SRE12Q20	Standard

Suction Return - Series Seal Kits	
Part Number	Description
<b>2049010065</b>	NITRILE SEAL KIT SRL1
<b>2049010061</b>	NITRILE SEAL KIT SRL2



Parker Hannifin  
Hydraulic Filter Division Europe  
FDHB500UK/SR