

# 15P/30P Series

High Pressure Filters  
Max 200 l/min - 207 bar



## When it comes to lightweight filter solutions

### Compact aluminium housing and lightweight design

The 15P/30P Series utilizes a compact aluminium housing with 2 head sizes and 2 bowl lengths, large ports and wide flow paths. Maximum pressure 207 bar. Maximum flow 200 l/min. Efficient filtration and maximized element life.



## Contact Information:

Parker Hannifin  
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## Product Features:

- 15P/30P utilizes a compact aluminium housing with 2 head sizes and 2 bowl lengths.
- Microglass III filter media.
- Maximum pressure 207 bar. Maximum flow 200 l/min.
- A quality filter for better control and long component life.

# 15P/30P Series

## High Pressure Filters

### Features & Benefits

Features	Advantages	Benefits
Compact aluminium housing	Light weight but still robust design	Reliable and continuous operation both in mobile and industrial applications
Two head sizes and two bowl lengths	Optimised sizing	Efficient filtration
		Right filter for each application
Large ports and wide flow paths	Low differential pressure across housing and element	Higher flow rates possible
		Less lost energy
Microglass III replacement elements	Multi-layered design produced high capacity and efficiency	Great performance value
		Reliable performance throughout element life
Visual, electrical and electronic indicators available	Wire support reduces pleat bunching, keeps performance consistent	Reduces downtime, maximises element life
	Check element condition at a glance	Optimise element life, prevent bypassing
	Right style for the application	Matches your system electrical connections

### Typical Applications

- Saw mills
- Aircraft ground support equipment
- Asphalt pavers
- Hydraulic fan drives
- Power steering circuits
- Domestic refuse vehicles
- Cement trucks
- Servo control protection
- Logging equipment



### The Parker Filtration 15P/30P Series High Pressure Filters.

These application examples have one thing in common...the need for clean hydraulic fluid.

Modern high pressure hydraulic systems are demanding. Better controls and long component life are expected. To deliver the high standards of performance, hydraulic components are built with tighter tolerances which increases their sensitivity to contamination.

That's where Parker pressure filters come into play. They filter out ingressed contamination before it jams a valve or scores a cylinder. They block pump generated debris before it gets to servo or proportional valves. Parker pressure filters are a key ingredient in meeting today's system demands.

Put your hydraulic systems in the care of Parker Filtration. We are committed to designing and building the best filters available to industry.

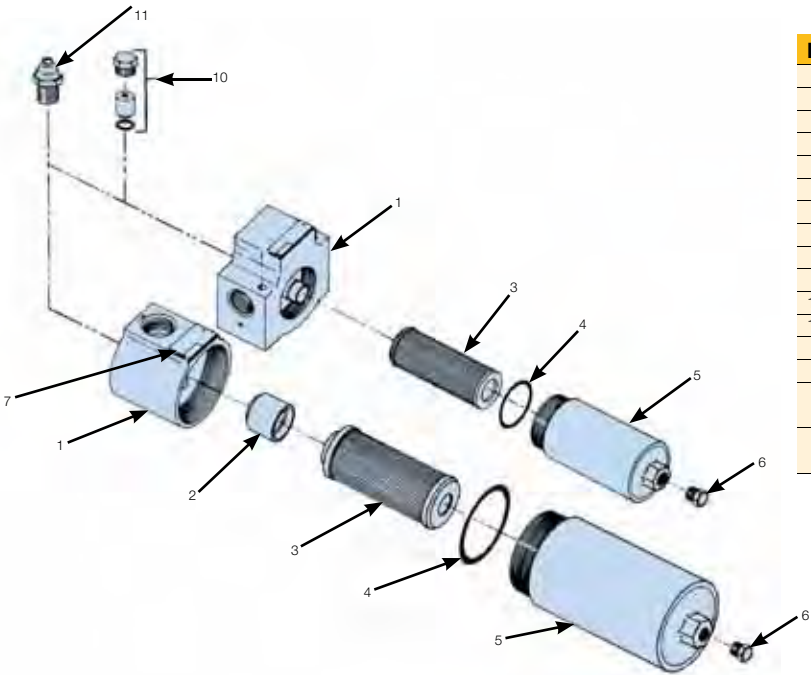
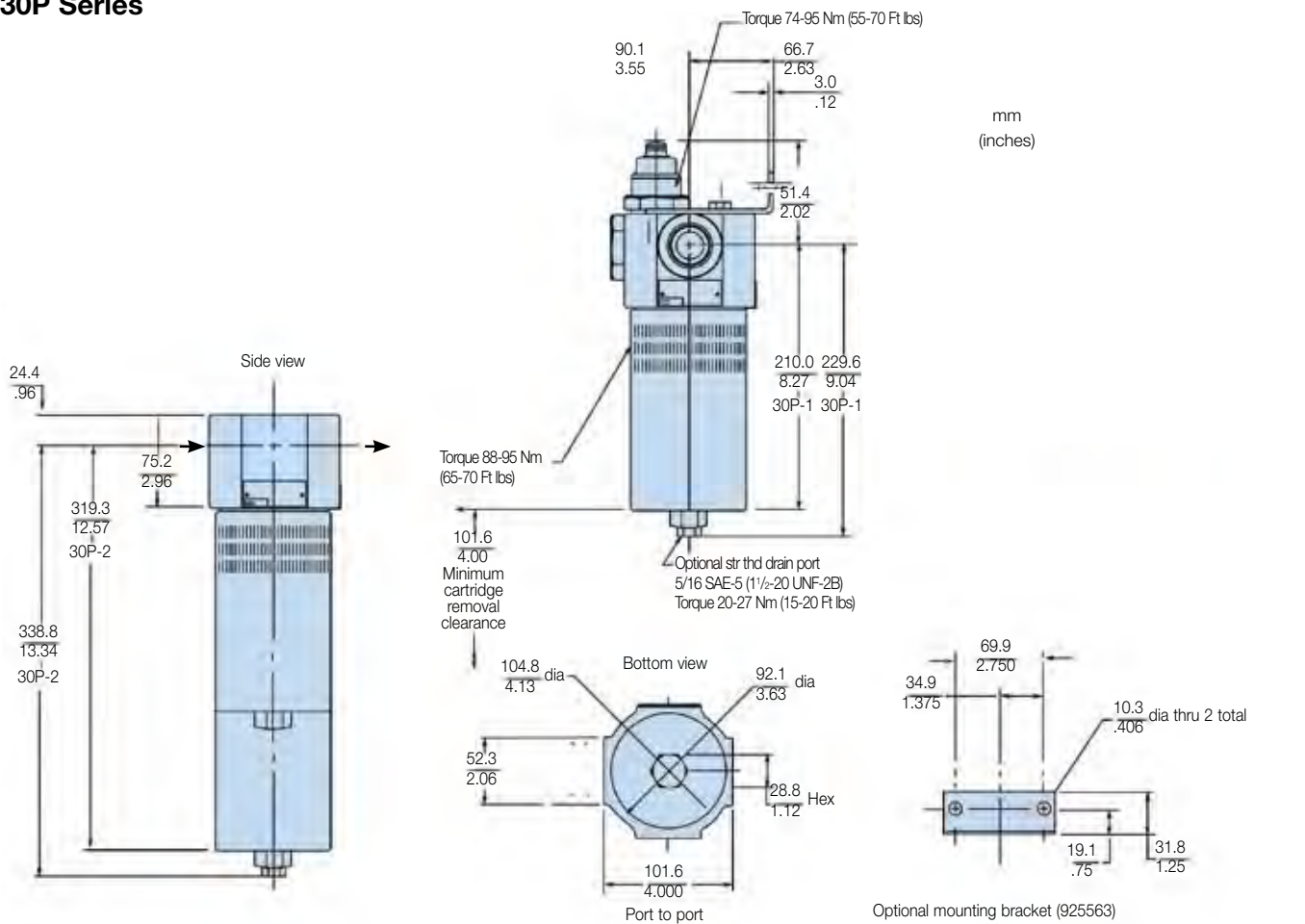


# 15P/30P Series

## High Pressure Filters

### Installation Details (cont.)

#### 30P Series



Index	Description	15P	30P
1	Head		
2	Bypass assembly		
3	Element	See chart in product configurator	
4	Bowl O-ring – Nitrile	OR04074	OR06037
	Bowl O-ring – fluoroelastomer	V92138	V92151
5	Bowl		
6	Drain plug – c/w buna seal		
	Drain plug – c/w Fluoroelastomer seal		
7	Nameplate		
10	Blank indicator kit		
11	Indicators		
	M3 – Visual auto reset indicator	FMUM3KVAU14M	
	T1 – Electrical indicator	FMUT1KVAU14M	
	F1 – Electronic indicator PNP with 4 LED	FMUF1KVAU14M	
	F2 – Electronic indicator NPN with 4 LED	FMUF2KVAU14M	



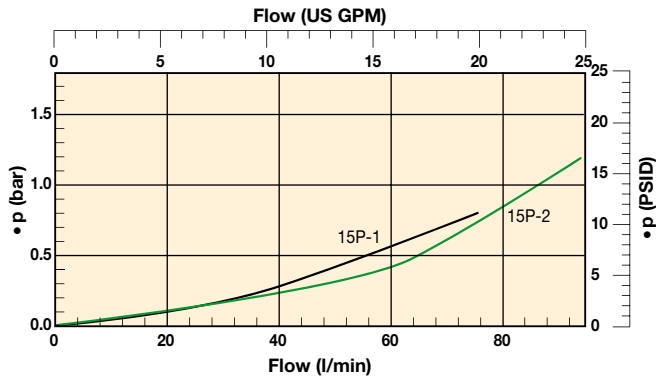
## Pressure Drop Curves

The recommended level of the initial pressure drop is max. 1.2 bar.

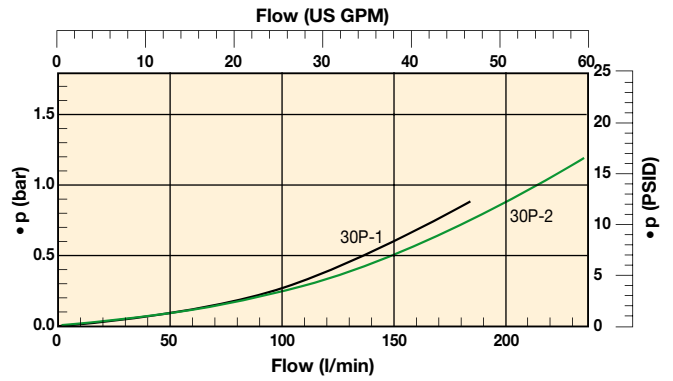
If the medium used has a viscosity different from 30 cSt, pressure drop over the filter can be estimated as follows:

$$\Delta p = (\Delta p_{30} \times \text{viscosity of medium used}) / 30 \text{ cSt.}$$

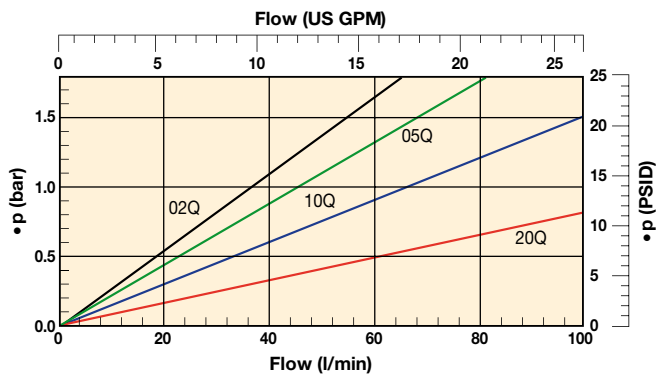
### 15P Empty Housing



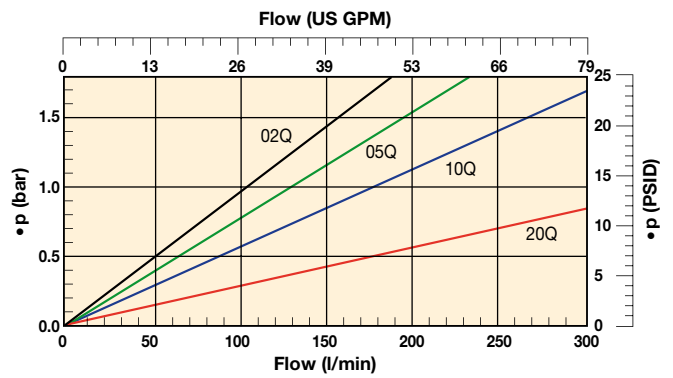
### 30P Empty Housing



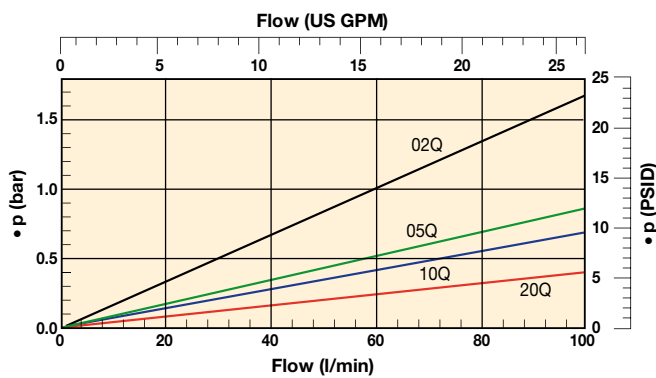
### 15P-1 Elements



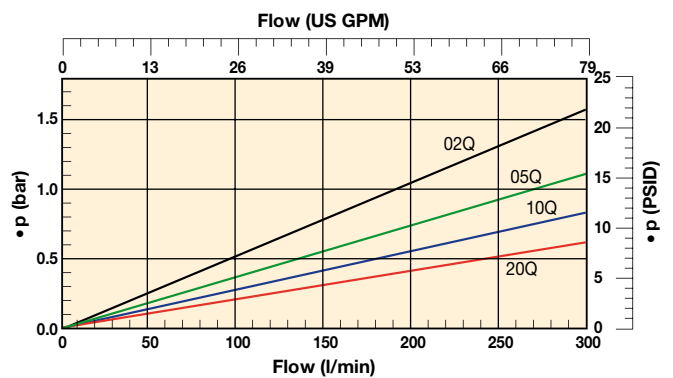
### 30P-1 Elements



### 15P-2 Elements



### 30P-2 Elements



# 15P/30P Series

## High Pressure Filters

### Ordering Information

#### Standard products table

Part number	Supersedes	Flow (l/min)	Model number	Element length	Media rating (µ)	Seals	Indicator	Bypass settings	Ports	Replacement elements
<b>15P110QBM3KG121</b>	15P-1-10Q-M2-50-B2B2-1	45	15P	Length 1	10	Nitrile	Visual	3.5 bar	G <sup>3</sup> / <sub>4</sub> "	<b>939102Q</b>
<b>15P110QBT1KG121</b>	15P-1-10Q-TW3-50-B2B2-1	45	15P	Length 1	10	Nitrile	Electrical	3.5 bar	G <sup>3</sup> / <sub>4</sub> "	<b>939102Q</b>
<b>15P210QBM3KG121</b>	15P-2-10Q-M2-50-B2B2-1	70	15P	Length 2	10	Nitrile	Visual	3.5 bar	G <sup>3</sup> / <sub>4</sub> "	<b>939106Q</b>
<b>15P210QBT1KG121</b>	15P-2-10Q-TW3-50-B2B2-1	70	15P	Length 2	10	Nitrile	Electrical	3.5 bar	G <sup>3</sup> / <sub>4</sub> "	<b>939106Q</b>
<b>30P110QBM3KG161</b>	30P-1-10Q-M2-50-C2C2-1	120	30P	Length 1	10	Nitrile	Visual	3.5 bar	G1"	<b>939110Q</b>
<b>30P110QBT1KG161</b>	30P-1-10Q-TW3-50-C2C2-1	120	30P	Length 1	10	Nitrile	Electrical	3.5 bar	G1"	<b>939110Q</b>
<b>30P210QBM3KG161</b>	30P-2-10Q-M2-50-C2C2-1	170	30P	Length 2	10	Nitrile	Visual	3.5 bar	G1"	<b>939114Q</b>
<b>30P210QBT1KG161</b>	30P-2-10Q-TW3-50-C2C2-1	170	30P	Length 2	10	Nitrile	Electrical	3.5 bar	G1"	<b>939114Q</b>

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

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.

#### Product configurator

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
<b>15P</b>	<b>1</b>	<b>10Q</b>	<b>B</b>	<b>M3</b>	<b>K</b>	<b>G12</b>	<b>1</b>

#### Box 1

Code	
<b>Model</b>	<b>Code</b>
High pressure filter, T-port	<b>15P</b>
High pressure filter, T-port	<b>30P</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

Note: Standard items are in stock, semi standard items are available within four weeks

#### Box 2

Filter type	
<b>Length</b>	<b>Code</b>
Length 1	<b>1</b>
Length 2	<b>2</b>

#### Box 3

Degree of filtration			
Element media	<b>Glass fibre</b>		
	<b>Media code</b>		
Microglass III element	<b>02Q</b>	<b>05Q</b>	<b>10Q</b> <b>20Q</b>

#### Box 4

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

#### Box 5

Indicator	
<b>Code</b>	<b>Code</b>
Plugged with steel plug	<b>P</b>
Visual indicator	<b>M3</b>
Electrical indicator	<b>T1</b>
No indicator port	N
Electronic 4 LED, PNP, N.O.	F1
Electronic 4 LED, NPN, N.O.	F2
Electronic 4 LED, PNP, N.C.	F3
Electronic 4 LED, NPN, N.C.	F4

#### Box 6

Bypass and indicator settings		
<b>Bypass valve</b>	<b>Indicator</b>	<b>Code</b>
3.5 bar	2.5 bar	<b>K</b>

When filter includes a bypass valve but not an indicator, code denotes bypass setting.

#### Box 7

Filter connection	
<b>Connections</b>	<b>Code</b>
15P: Thread G <sup>3</sup> / <sub>4</sub>	<b>G12</b>
Thread M27, ISO 6149	M27
30P: Thread G 1	<b>G16</b>
Thread M33, ISO 6149	M33

#### Box 8

Options	
<b>Options</b>	<b>Code</b>
Standard	<b>1</b>
Drain port on bowl	4

Replacement elements with nitrile seals				
Media	15P-1	15P-2	30P-1	30P-2
02Q	<b>939100Q</b>	<b>939104Q</b>	<b>939108Q</b>	<b>939112Q</b>
05Q	<b>939101Q</b>	<b>939105Q</b>	<b>939109Q</b>	<b>939113Q</b>
10Q	<b>939102Q</b>	<b>939106Q</b>	<b>939110Q</b>	<b>939114Q</b>
20Q	<b>939103Q</b>	<b>939107Q</b>	<b>939111Q</b>	<b>939115Q</b>

#### Nominal flow (l/min) at viscosity 30 cSt

Filter model	02Q	05Q	10Q	20Q
15P-1	25	30	45	70
15P-2	40	60	70	90
30P-1	70	90	120	170
30P-2	120	150	170	200

Degree of filtration						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	Disposable Microglass III	
% efficiency, based on the above beta ratio (βx)							02Q
50.0%	90.0%	98.7%	99.0%	99.5%	99.9%		
N/A	N/A	N/A	N/A	N/A	4.5	05Q	
N/A	N/A	4.5	5	6	7		
N/A	6	8.5	9	10	12	10Q	
6	11	17	18	20	22		



# 100P Series

High Pressure Filters

Max 1000 l/min - 414 bar



When it comes to high flow capacity for high pressure systems

## A high flow rate filter solution

The 100P Series design means on element change only the bowl end-cap has to be removed. Microglass III glassfibre media is standard. Maximum pressure 414 bar. Maximum flow 1000 l/min. An ideal solution where space is at a premium.



## Contact Information:

Parker Hannifin  
Hydraulic Filter Division Europe

European Product  
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FI, FR, IE, IT, PT, SE, SK, UK)  
filtrationinfo@parker.com

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

## Product Features:

- 100P design, only the bowl end-cap is removed on element change.
- Microglass III glassfibre media is standard.
- Maximum pressure 414 bar. Maximum flow 1000 l/min.
- An ideal solution where space is at a premium.

# 100P Series

## High Pressure Filters

### Features & Benefits

Features	Advantages	Benefits
High 414 bar pressure rating	Strong and robust housing for heavy duty applications	Reliable and continuous operation for open and closed loop applications
Flow rates up to 1000 l/min	Pressure filtration possible for high flow rates	Excellent protection of high performance machinery
Optional reverse flow valve	Allows reverse flow and prevents back wash of element	Ideal for applications where back flow is expected
Bottom access bowl	Only bottom of the bowl must be opened for element change	Easy service
Microglass III replacement elements	Multi-layered design produced high capacity and efficiency	Great performance value
		Reliable performance throughout element life
Visual and electrical indicators available	Wire support reduces pleat bunching, keeps performance consistent	Reduces downtime, maximises element life
	Check element condition at a glance	Optimises element life, prevents bypassing
	Right style for the application	Matches your system electrical connections

### Typical Applications

- Drilling rigs
- Power packs
- Oil/gas industry
- Flight simulators
- Test rigs

### The Parker Filtration Model 100P High Pressure Filters.

The 100P Series is designed to meet the growing demand for high-pressure filters with a flow rate capacity of up to 1000 l/min at 414 bar working pressure. For systems where reverse flow can be expected, an optional integrated reverse flow valve avoids back wash of contamination. When changing the element, only the end cap of the bowl has to be removed. The filter is ideal for applications where space is at a premium. The filter media used in the elements is high quality Microglass III glass fibre.



## Specification

### Pressure ratings:

Maximum allowable operating pressure 414 bar.  
Filter housing pressure pulse fatigue tested:  $3 \times 10^6$  pulses 0 - 276 bar.

### Connections:

Inlet and outlet connections are threaded internally or flange faced.  
Threads G1½", G2" (ISO 228/1), SAE 24, SAE 32.  
or flanges 1½" SAE 6000, 2" SAE 6000, 1½" SAE 6000-M, 2" SAE 6000-M.  
\*6000-M is a SAE style with appropriate metric fixing threads.

### Filter housing:

Head material cast iron (GSI).  
Bowl material extruded steel, max torque 200 Nm.

### Seal material:

Nitrile or Fluoroelastomer.

### Operating temperature range:

Seal material Nitrile: - 40 °C to +100 °C.  
Seal material Fluoroelastomer: - 20 °C to +120 °C.

### Bypass valve:

Opening pressure 7.0 bar.

### Options:

Reverse flow valve, which directs back flow from port to port.

### Filter element:

### Degree of filtration:

Determined by Multipass-test according to ISO 16889.

### Flow fatigue characteristics:

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724).

### Microglass III:

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and metal inner core.  
Collapse rating 20 bar (ISO 2941).

### Indicator options:

Indicating differential pressure: 5.0 bar.  
- visual indicator.  
- electrical indicator.

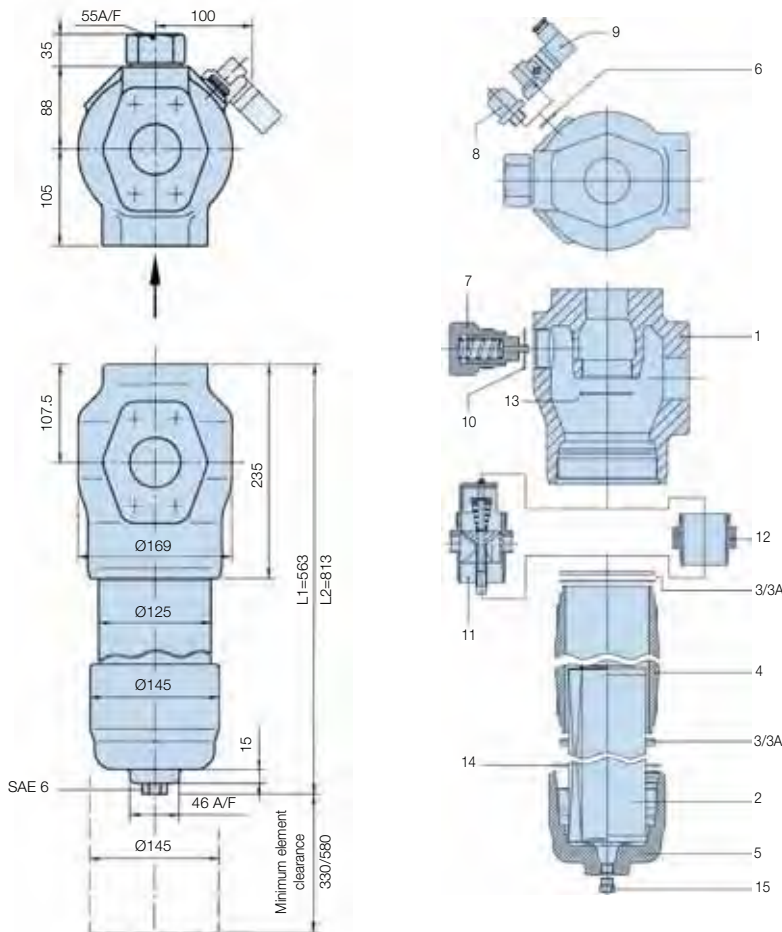
### Weights (kg):

100P-1: 37 kg.  
100P-2: 47 kg.

### Fluid compatibility:

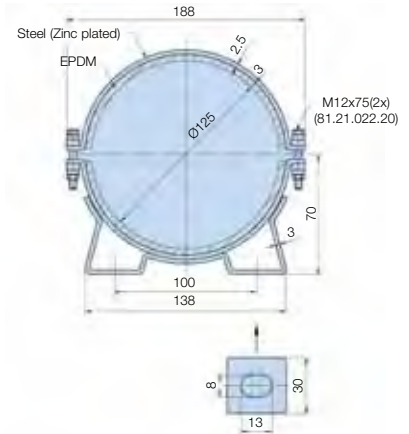
Suitable for use with mineral and vegetable oils, and some synthetic oils. For other fluids, please consult Parker Filtration.

## Installation Details



Note: For installation drawings of the SAE 1½" and 2" flanges, contact Parker.

## Mounting Clamp Item 16



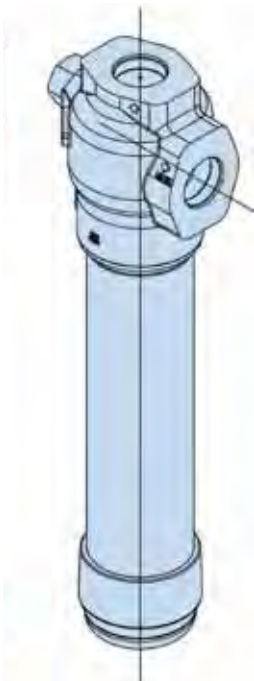
### Type H model 1000

1	Filter head
2	Filter element
3	Bowl seal
3A	Bowl back-up ring
4	Housing
5	Cover
6	Indicator seal
7	Bypass set
8	Visual indicator
9	Electrical indicator
10	Bypass seal
11	Reverse flow set
12	Adaptor
13	Adaptor/reverse flow seal
14	Cover seal
15	Drain plug
16	Mounting clamp

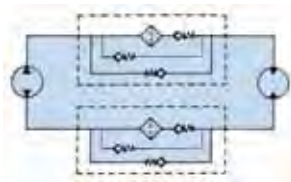
# 100P Series

## High Pressure Filters

### Additional Information

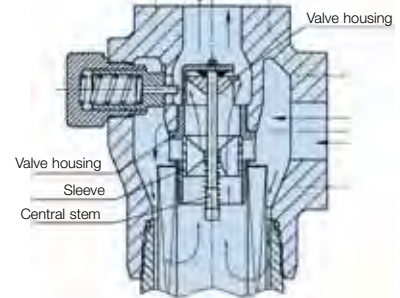


Filter with Reverse Flow Valve

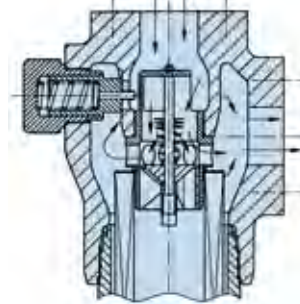


Circuit symbol

Normal Flow Condition



Reverse Flow Condition



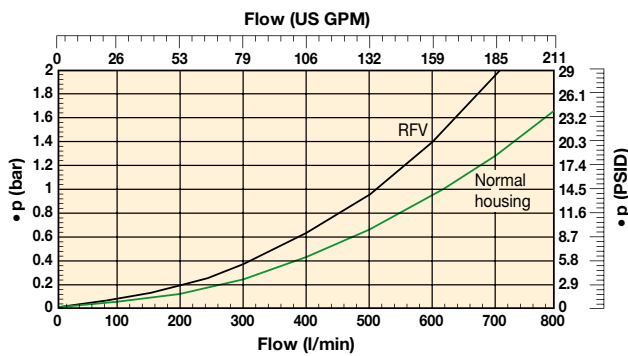
### Pressure Drop Curves

The recommended level of the initial pressure drop is max. 2.3 bar.

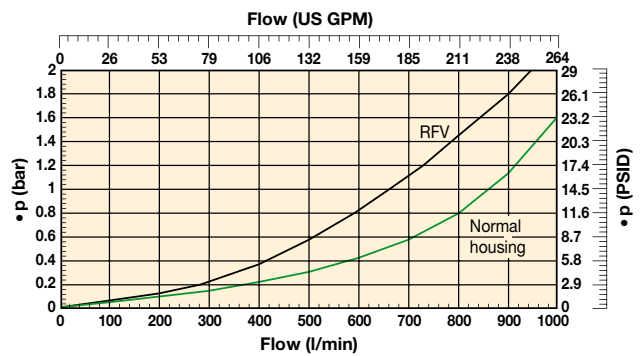
If the medium used has a viscosity different from 30 cSt, pressure drop can be estimated as follows:

The total  $\Delta p = \text{housing } \Delta p + (\text{element } \Delta p_e \times \text{working viscosity}/30)$ .

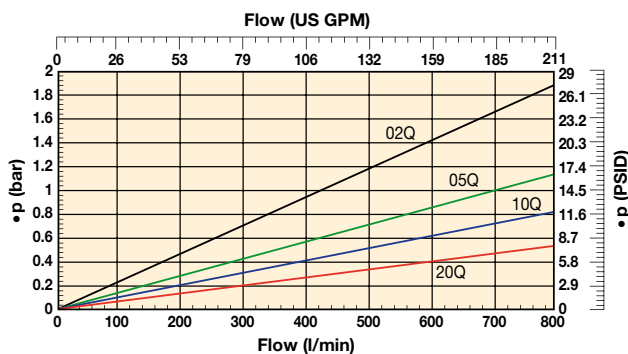
100P-1 Empty Housing (G1½", SAE 24, SAE 1½")



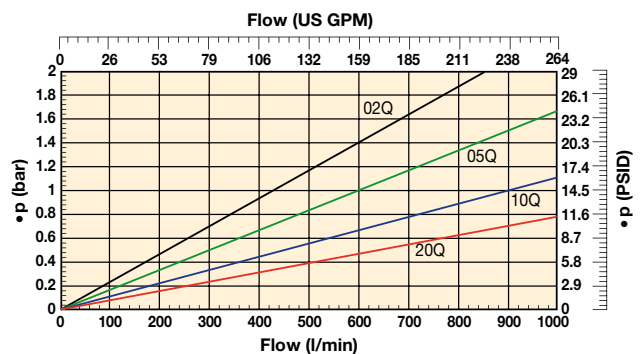
100P-2 Empty Housing (G2", SAE 32, SAE 2")



100P-1 Elements



100P-2 Elements



# Ordering Information

## Standard products table

Part number	Supersedes	Flow (l/min)	Model number	Element length	Media rating (µ)	Seals	Indicator	Bypass settings	Ports	Replacement elements	Supersedes
<b>100P105QBM4MF241</b>	1074A.2HN70.FZ1210	600	100P	Length 1	5	Nitrile	Visual	7.0 bar	SAE flange 1 1/2" 6000	<b>939061Q</b>	1070Z121A
<b>100P110QBM4MF241</b>	1074A.2HN70.FZ1220	700	100P	Length 1	10	Nitrile	Visual	7.0 bar	SAE flange 1 1/2" 6000	<b>939062Q</b>	1070Z122A
<b>100P120QBM4MF241</b>	1074A.2HN70.FZ1230	800	100P	Length 1	20	Nitrile	Visual	7.0 bar	SAE flange 1 1/2" 6000	<b>939063Q</b>	1070Z123A
<b>100P205QBM4MF321</b>	1074A.2HN70.TZ2210	840	100P	Length 2	5	Nitrile	Visual	7.0 bar	SAE flange 2" 6000	<b>939065Q</b>	1070Z221A
<b>100P210QBM4MF321</b>	1074A.2HN70.TZ2220	920	100P	Length 2	10	Nitrile	Visual	7.0 bar	SAE flange 2" 6000	<b>939066Q</b>	1070Z222A
<b>100P220QBM4MF321</b>	1074A.2HN70.TZ2230	1000	100P	Length 2	20	Nitrile	Visual	7.0 bar	SAE flange 2" 6000	<b>939067Q</b>	1070Z223A

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

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
<b>100P</b>	<b>2</b>	<b>10Q</b>	<b>B</b>	<b>M4</b>	<b>M</b>	<b>F32</b>	<b>1</b>

### Box 1

Code	
Model	Code
Large HP filter, L-port	<b>100P</b>

### Box 2

Filter type	
Length	Code
Length 1	<b>1</b>
Length 2	<b>2</b>

### Box 3

Degree of filtration			
Element media		Glass fibre	
		Media code	
Microglass III element	<b>02Q</b>	<b>05Q</b>	<b>10Q</b> <b>20Q</b>

### Box 4

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

### Box 5

Indicator	
	Code
Indicator port plugged	<b>P</b>
Visual indicator	<b>M4</b>
Electrical indicator	<b>T2</b>
Electrical indicator with red lamp 28 Vdc, N.O.	T3
Electrical indicator with red lamp 110 VAC, N.O.	T4
Electrical indicator with red lamp 250 VAC, N.O.	T5

### Box 6

Bypass and indicator settings		
Bypass valve	Indicator	Code
7.0 bar	5.0 bar	<b>M</b>

When filter includes a bypass valve but not an indicator, code denotes bypass setting.

### Box 7

Filter connection	
Connections	Code
Thread G 1 1/2	G24
Thread G 2	G32
Thread SAE 24	S24
Thread SAE 32	S32
SAE flange 1 1/2" 6000	<b>F24</b>
SAE flange 1 1/2" 6000-M	on request
SAE flange 2" 6000	<b>F32</b>
SAE flange 2" 6000-M	on request

### Box 8

Options	
Options	Code
Standard	<b>1</b>
Reverse flow valve	3

Spare Indicators	
Part Number	Option
8060050033	M4
8060070002	T2
8060070007	T3
8060070006	T5

Replacement elements with nitrile seals		
Media	Length 1	Length 2
02Q	<b>939060Q</b>	<b>939064Q</b>
05Q	<b>939061Q</b>	<b>939065Q</b>
10Q	<b>939062Q</b>	<b>939066Q</b>
20Q	<b>939063Q</b>	<b>939067Q</b>

Nominal flow (l/min) at viscosity 30 cSt				
Filter port size	02Q	05Q	10Q	20Q
100P-1, 1 1/2"	540	600	700	800
100P-2, 2"	700	840	920	1000

Note: Refer to Box 5 for options explanation.

Seal Kit and Mounting Clamp	
Options	Code
Seal kit (nitrile)	8069000070
Seal kit (fluoroelastomer)	8069000013
Mounting Clamp	84.47.265.01

## 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

Note: Standard items are in stock, semi standard items are available within four weeks

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.

Degree of filtration						Code
Average filtration beta ratio $\beta$ (ISO 16889) / particle size $\mu\text{m}$ [c]						
$\beta_x(c)=2$	$\beta_x(c)=10$	$\beta_x(c)=75$	$\beta_x(c)=100$	$\beta_x(c)=200$	$\beta_x(c)=1000$	Disposable Microglass III
% efficiency, based on the above beta ratio ( $\beta_x$ )						
50.0%	90.0%	98.7%	99.0%	99.5%	99.9%	<b>02Q</b>
N/A	N/A	N/A	N/A	N/A	4.5	<b>05Q</b>
N/A	N/A	4.5	5	6	7	<b>10Q</b>
N/A	6	8.5	9	10	12	<b>20Q</b>
6	11	17	18	20	22	



# EPF *iprotect*<sup>®</sup> (Ecological Pressure Filter)

High Pressure Filters  
Max 700 l/min - 450 bar



## A compact, cost effective pressure filter solution

### Designed with the *iprotect*<sup>®</sup> patented filtration technology

The Parker EPF *iprotect*<sup>®</sup> (Ecological High Pressure Filter) is designed to provide high quality filtration of hydraulic systems, providing new possibilities to reduce the cost of ownership by improving their productivity and profitability.

A radical, innovative approach was applied with the design of the EPF *iprotect*<sup>®</sup>, suitable for a flow capacity up to 700 l/min at 450 bar working pressure.

A new patented design of the filter element allows integration of the bypass valve and element core as re-usable parts in the filter bowl. This makes the product fool proof as there is no risk of forgetting to re-install re-usable parts.

With less space being available for filters, Parker has taken on board the requirement to provide more compact solutions. A unique feature is the filter element remains inside the filter bowl when changing the filter element. This can save over 500mm of space envelope in comparison with traditional high pressure filters.



## Product Features:

The patented element design guarantees the quality of filtration, which directly impacts the oil cleanliness level as the usage of pirate type after market filters with unknown quality of filter media is excluded. This in-build safety has a direct, positive impact on the productivity and profitability of equipment.

- Guaranteed quality of filtration
- More compact solutions are possible
- Filter element remains in filter bowl during filter service
- Reduce waste of 50%
- No risk of installation mistakes due to a 'foolproof' design
- Unique OEM branding opportunities
- Easy to integrate into hydraulic manifold solutions

Features	Advantages	Benefits
Patented filter element	Avoid use of non-genuine parts	Guaranteed quality of filtration
Filter element remains in filter bowl	Less space needed to change/service filter	More compact solutions are possible Reduce service time for filter over 40%
Environmentally-friendly design	Reduces environmental waste over 50%	Lower disposal cost
Service-friendly product design	No handling of loose re-usable parts	No risk of making mistakes during change of element
Bypass valve integral part of filter bowl	Easy to integrate in manifold systems	More compact and lower cost of manifold (only one cavity is needed)
	Lower pressure lost across filter	Saving energy, improving system efficiency
Wide range of differential pressure indicators	Continuous feedback of condition filter elements	Optimizing filter element life
		Contributes to scheduled maintenance

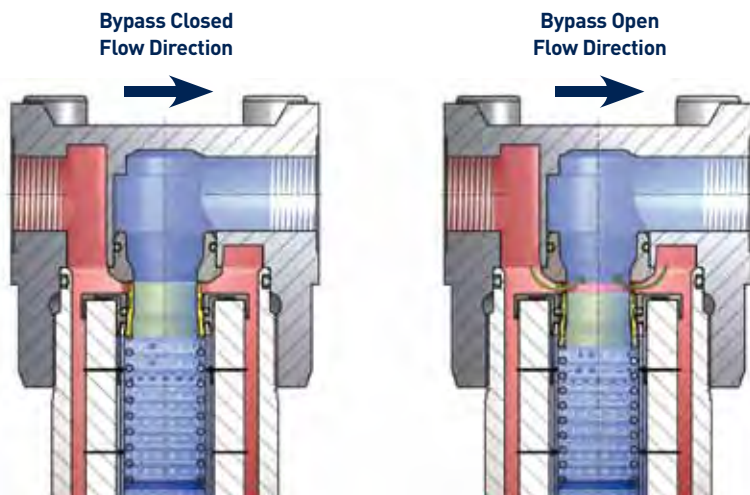
## Typical Applications

- Mobile working hydraulics
- Mobile drive system
- Pilot line filtration
- Servo controls
- Reverse flow valve applications
- Industrial working hydraulics
- Control systems

## The Parker EPF *iprotect*<sup>®</sup> series patented bypass valve technology

Bypass settings are available up to 7 bar or completely blocked in conjunction with patented, high strength filter elements. The principle is

based on differential pressure measurement across the filter element. During bypass only a part of the mainflow is flowing through the bypass valve.



Epf *iprotect*<sup>®</sup> applies the latest generation of Microglass III filter media. The patented element design guarantees the quality of filtration.

# EPF *iprotect*<sup>®</sup>

## High Pressure Filters

### Selecting the right EPF element



## EPF Spare Element Information

### Type QI

EPF Size1 L1 2 micron	944418Q
EPF Size1 L1 5 micron	944419Q
EPF Size1 L1 10 micron	944420Q
EPF Size1 L1 20 micron	944421Q
EPF Size 2 L1 2 micron	944426Q
EPF Size 2 L1 5 micron	944427Q
EPF Size 2 L1 10 micron	944428Q
EPF Size 2 L1 20 micron	944429Q
EPF Size 2 L2 2 micron	944430Q
EPF Size 2 L2 5 micron	944431Q
EPF Size 2 L2 10 micron	944432Q
EPF Size 2 L2 20 micron	944433Q
EPF Size 3 L1 2 micron	944434Q
EPF Size 3 L1 5 micron	944435Q
EPF Size 3 L1 10 micron	944436Q
EPF Size 3 L1 20 micron	944437Q
EPF Size 3 L2 2 micron	944438Q
EPF Size 3 L2 5 micron	944439Q
EPF Size 3 L2 10 micron	944440Q
EPF Size 3 L2 20 micron	944441Q
EPF Size 4 L1 2 micron	944442Q
EPF Size 4 L1 5 micron	944443Q
EPF Size 4 L1 10 micron	944444Q
EPF Size 4 L1 20 micron	944445Q
EPF Size 4 L2 2 micron	944446Q
EPF Size 4 L2 5 micron	944447Q
EPF Size 4 L2 10 micron	944448Q
EPF Size 4 L2 20 micron	944449Q
EPF Size 5 L1 2 micron	944450Q
EPF Size 5 L1 5 micron	944451Q
EPF Size 5 L1 10 micron	944452Q
EPF Size 5 L1 20 micron	944453Q

### Type QIH

EPF High Strength Size1 L1 2 micron	944481Q
EPF High Strength Size1 L1 5 micron	944482Q
EPF High Strength Size1 L1 10 micron	944483Q
EPF High Strength Size1 L1 20 micron	944484Q
EPF High Strength Size1 L2 2 micron	944485Q
EPF High Strength Size1 L2 5 micron	944486Q
EPF High Strength Size1 L2 10 micron	944487Q
EPF High Strength Size1 L2 20 micron	944488Q
EPF High Strength Size 2 L1 2 micron	944489Q
EPF High Strength Size 2 L1 5 micron	944490Q
EPF High Strength Size 2 L1 10 micron	944491Q
EPF High Strength Size 2 L1 20 micron	944492Q
EPF High Strength Size 2 L2 2 micron	944493Q
EPF High Strength Size 2 L2 5 micron	944494Q
EPF High Strength Size 2 L2 10 micron	944495Q
EPF High Strength Size 2 L2 20 micron	944496Q
EPF High Strength Size 3 L1 2 micron	944497Q
EPF High Strength Size 3 L1 5 micron	944498Q
EPF High Strength Size 3 L1 10 micron	944499Q
EPF High Strength Size 3 L1 20 micron	944500Q
EPF High Strength Size 3 L2 2 micron	944501Q
EPF High Strength Size 3 L2 5 micron	944502Q
EPF High Strength Size 3 L2 10 micron	944503Q
EPF High Strength Size 3 L2 20 micron	944504Q
EPF High Strength Size 4 L1 2 micron	944505Q
EPF High Strength Size 4 L1 5 micron	944506Q
EPF High Strength Size 4 L1 10 micron	944507Q
EPF High Strength Size 4 L1 20 micron	944508Q
EPF High Strength Size 4 L2 2 micron	944509Q
EPF High Strength Size 4 L2 5 micron	944510Q
EPF High Strength Size 4 L2 10 micron	944511Q
EPF High Strength Size 4 L2 20 micron	944512Q
EPF High Strength Size 5 L1 2 micron	944513Q
EPF High Strength Size 5 L1 5 micron	944514Q
EPF High Strength Size 5 L1 10 micron	944515Q
EPF High Strength Size 5 L1 20 micron	944516Q

### Type QIR

EPF Size1 L1 2 micron reverse flow	944561Q
EPF Size1 L1 5 micron reverse flow	944562Q
EPF Size1 L1 10 micron reverse flow	944563Q
EPF Size1 L1 20 micron reverse flow	944564Q
EPF Size1 L2 2 micron reverse flow	944565Q
EPF Size1 L2 5 micron reverse flow	944566Q
EPF Size1 L2 10 micron reverse flow	944567Q
EPF Size1 L2 20 micron reverse flow	944568Q
EPF Size 2 L1 2 micron reverse flow	944569Q
EPF Size 2 L1 5 micron reverse flow	944570Q
EPF Size 2 L1 10 micron reverse flow	944571Q
EPF Size 2 L1 20 micron reverse flow	944572Q
EPF Size 2 L2 2 micron reverse flow	944573Q
EPF Size 2 L2 5 micron reverse flow	944574Q
EPF Size 2 L2 10 micron reverse flow	944575Q
EPF Size 2 L2 20 micron reverse flow	944576Q
EPF Size 3 L1 2 micron reverse flow	944577Q
EPF Size 3 L1 5 micron reverse flow	944578Q
EPF Size 3 L1 10 micron reverse flow	944579Q
EPF Size 3 L1 20 micron reverse flow	944580Q
EPF Size 3 L2 2 micron reverse flow	944581Q
EPF Size 3 L2 5 micron reverse flow	944582Q
EPF Size 3 L2 10 micron reverse flow	944583Q
EPF Size 3 L2 20 micron reverse flow	944584Q
EPF Size 4 L1 2 micron reverse flow	944585Q
EPF Size 4 L1 5 micron reverse flow	944586Q
EPF Size 4 L1 10 micron reverse flow	944587Q
EPF Size 4 L1 20 micron reverse flow	944588Q
EPF Size 4 L2 2 micron reverse flow	944589Q
EPF Size 4 L2 5 micron reverse flow	944590Q
EPF Size 4 L2 10 micron reverse flow	944591Q
EPF Size 4 L2 20 micron reverse flow	944592Q
EPF Size 5 L1 2 micron reverse flow	944593Q
EPF Size 5 L1 5 micron reverse flow	944594Q
EPF Size 5 L1 10 micron reverse flow	944595Q
EPF Size 5 L1 20 micron reverse flow	944596Q

# Protecting your system and the environment

## Protect your system performance and profit

The new *iprotect*® generation of filter elements provide high filtration performance combined with Parker technology. The bespoke design prevents the use of pirate type alternatives.



## Less space needed to accommodate the filter

More compact solutions are possible as the filter element remains in the filter bowl during change of filter element. Compared to traditional solutions it does not only save space, it also reduces the required manual handling during the filter change process.



## Saving cost and our environment

What does it take to introduce a new ground-breaking design which saves the environment? Parker's EPF *iprotect*® applies a re-usable element core and bypass, both integral parts of the filter bowl. This solution avoids the handling of re-usable parts during element change and reduces over 50% disposal weight.



## Smart valve technology

Parker hydraulic control valve technology is applied for the reusable bypass valve. This leakage-free valve has a patented interface with the filter element, which ensures that genuine parts are always applied. With bypass settings up to 7 bar filtration during cold start conditions, more compact solutions, can be realised. The valve also optimizes the flow path, reducing the pressure lost across the filter.



## Easier to integrate

Parker has set the trend to integrate filtration into manifolds. With Parker's EPF *iprotect*® we have taken the design one step further. Only one cavity is needed to accommodate the filter instead of two, this is because the re-usable bypass valve is integrated into the filter bowl, reducing space and cost.



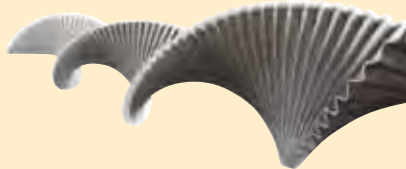
## Customized solutions

Parker's motion & control technologies provide new opportunities for our customers. Customized manifolds or duplex filters, as in this example offer complete automatic change-over. The EPF *iprotect*® contributes to realizing new solutions, improving your productivity and profitability.



## A protective 'gene'

The performance and profitability of systems directly depends upon the filter media.



It goes without saying that Parker's products aim to avoid the use of unknown filter performance, jeopardizing safety and performance. Our Microglass III media is continuously upgraded and acts as a protective 'gene' in the system.

## When going into reverse

Parker's EPF can be equipped with an optional reverse flow. This valve assembly is integrated in the element end cap and isolates the filter medium during reverse flow conditions.



A new design of the filter element allows integration of the bypass valve and element core as re-usable parts in the filter bowl. This results in cost reduction when integrating the high pressure filter in manifold type solutions. But it also reduces the waste when changing the filter element by over 50% as the element core is an integral part of the filter bowl.

The design of the EPF *iprotect*®, is unique, there is no need to re-install any re-usable parts as with some other filters in the market. This makes the product fool proof as there is no risk of forgetting to re-install re-usable parts.



## Replacing the filter element:

- Drain the filter housing using the plugged drain port.
- Thanks to the filter lock the element remains in the bowl.
- Pull out the old element. The re-usable element core and bypass valve are integral parts of the bowl.
- Filtration is from 'Out to In,' the element core is located in the clean oil side.
- Just drop the new element in the bowl.
- Screw the bowl, including element into the filter head.

# EPF *iprotect*®

## Size 1

### Specification EPF *iprotect*® Size 1

#### Specification

Nominal flow 40 l/min

#### Pressure ratings

Maximum allowable operating pressure 450 bar  
Filter housing pressure pulse fatigue tested  
10<sup>6</sup> pulses 0-414 bar

#### Connections

Inlet and outlet connections are threaded internally

#### Connection style

Thread G<sup>1</sup>/<sub>2</sub>  
Threat SAE 8

#### Filter housing

Head material cast iron (GSI)  
Bowl material steel

#### Seal material

Nitrile of Fluorelastomer

#### Operating temperature range

Seal material Nitrile : -40 °C to +100 °C

Seal material Fluorelastomer : -20 °C to +120 °C

#### Bypass valve & Indicator settings

Bypass	Indicator
3.5 bar	2.5 bar
5.0 bar	3.5 bar
7.0 bar	5.0 bar
Blocked	5.0 bar

#### Filter element

Degree of filtration  
Determined by multipass test in accordance to ISO16889

#### Flow fatigue characteristics

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724)

#### Microglass III

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and reusable metal inner core. Collapse pressure 25 bar (ISO 2941)

#### High collapse elements

To be used when bypass blocked option is selected Collapse pressure 210 bar (ISO 2941)

#### Indicator options

Indicating differential pressure:

2.5 +/- 0.3 bar

3.5 +/- 0.3 bar

5.0 +/- 0.3 bar

Visual M3

Electrical T1

Electronic F1 (PNP)

Electronic F2 (NPN)

Atex versions are available on request

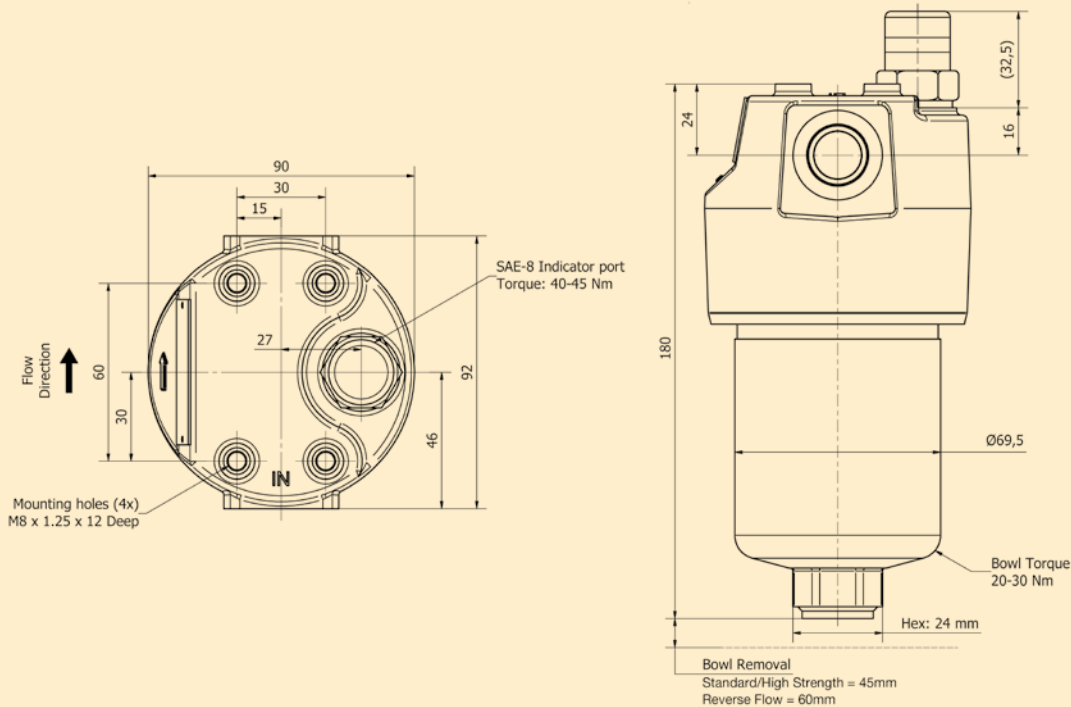
#### Weights (kg)

EPF Size 1: 3

#### Fluid compatibility

- Hydraulic mineral oils H to class HLPD (DIN51524)
- Operating fluids DIN ISO 2943
- Lubrication fluids ISO6743, APJ, DIN 51517, ACEA, ASTM
- Vegetable oils
- 60/40 Water Glycols
- On request - Industrial grade phosphate esters
- Non aggressive synthetic oils
- Non aggressive bio-degradable oils (HETG, HEPG and HEES to VDMA 24568)

### EPF *iprotect*® - Size 1 (Inline)



# EPF *i*protect® Size 1 Pressure Drop Curves

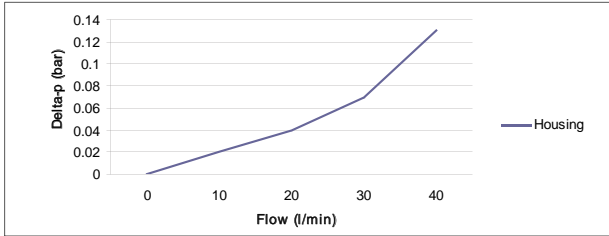
With 3.5 bar bypass the recommended initial pressure drop max is 1.2 bar

With 7.0 bar bypass the recommended initial pressure drop max is 2.3 bar

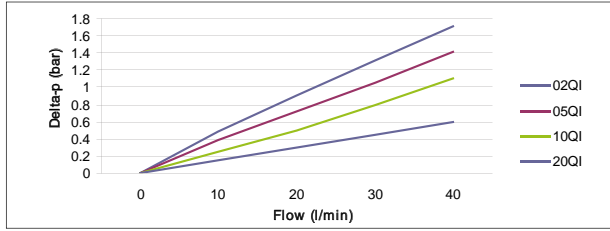
If the medium used has a viscosity different from 30cSt, pressure drop over the filter can be estimated as follows:

The total  $\Delta p = \text{housing } \Delta p_h + (\text{element } \Delta p_e \times \text{working viscosity}/30)$ .

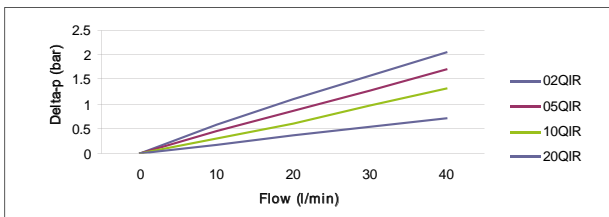
**EPF Size 1 Empty housing**



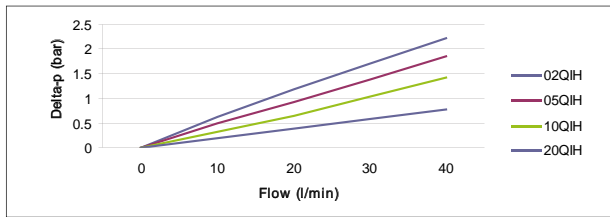
**EPF Size 1 Filter Elements**



**EPF Size 1 Filter Elements with reverse flow valve**



**EPF Size 1 High Strength Filter Elements**



# EPF *iprotect*®

## Size 2

### Specification EPF *iprotect*® Size 2

#### Specification

Nominal flow >100 l/min

#### Pressure ratings

Maximum allowable operating pressure 450 bar

Filter housing pressure pulse fatigue tested  
10<sup>6</sup> pulses 0-414 bar

#### Connections

Inlet and outlet connections are threaded internally

#### Connection style

Thread G $\frac{3}{4}$

Thread SAE 12

Thread M27, ISO 6149

SAE flange  $\frac{3}{4}$  = 6000M

SAE flange  $\frac{3}{4}$  = 6000

Manifold

#### Filter housing

Head material cast iron (GSI)

Bowl material steel

#### Seal material

Nitrile of Fluorelastomer

#### Operating temperature range

Seal material Nitrile : -40 °C to +100 C

Seal material Fluorelastomer : -20 °C to +120 C

#### Bypass valve & Indicator settings

Bypass Indicator

3.5 bar 2.5 bar

5.0 bar 3.5 bar

7.0 bar 5.0 bar

Blocked 5.0 bar

#### Filter element

Degree of filtration

Determined by multipass test in accordance to ISO16889

#### Flow fatigue characteristics

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724)

#### Microglass III

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and reusable metal inner core. Collapse pressure 25 bar (ISO 2941)

#### High collapse elements

To be used when bypass blocked option is selected

Collapse pressure 210 bar (ISO 2941)

#### Indicator options

Indicating differential pressure:

2.5 +/- 0.3 bar

3.5 +/- 0.3 bar

5.0 +/- 0.3 bar

Visual M3

Electrical T1

Electronic F1 (PNP)

Electronic F2 (NPN)

Atex versions are available on request

#### Weights (kg)

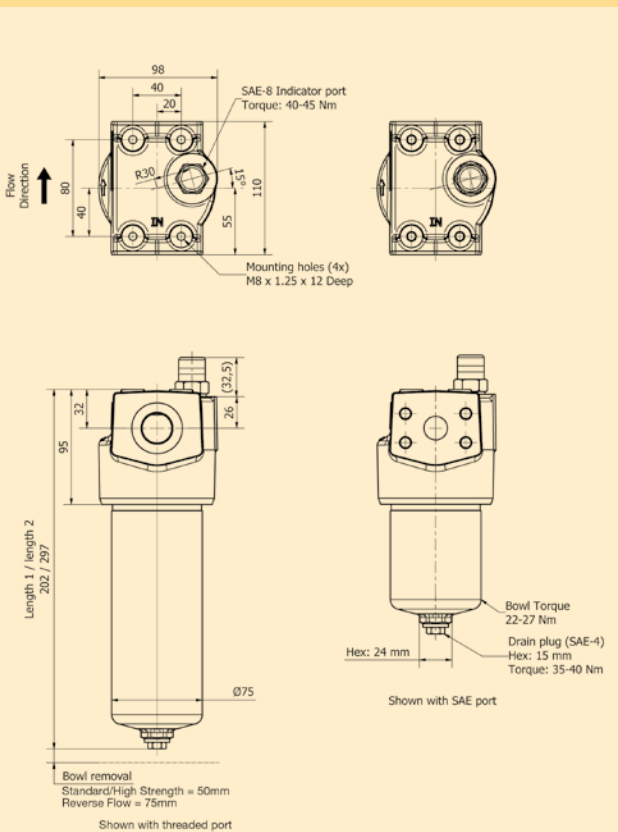
EPF Size 2 length 1: 4,2

EPF Size 2 length 2: 5,7

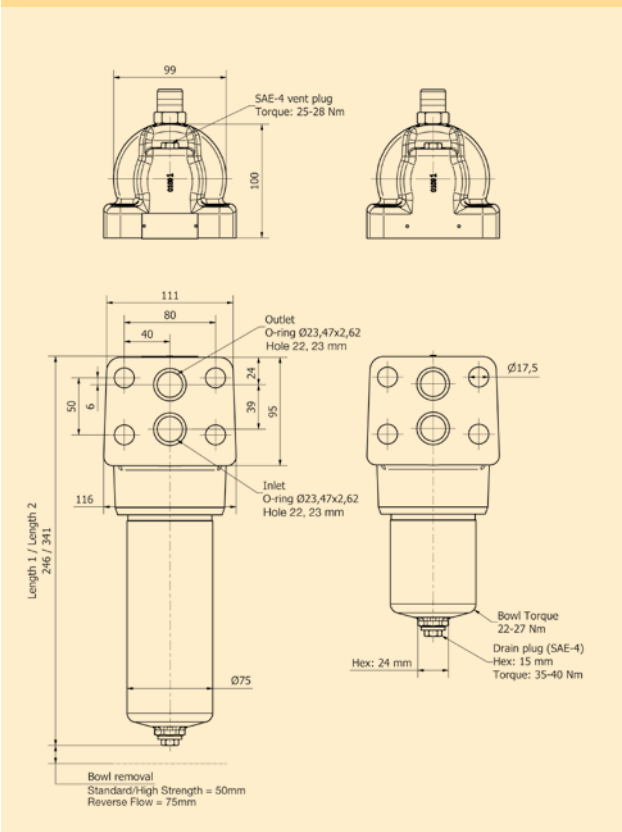
#### Fluid compatibility

- Hydraulic mineral oils H to class HLPD (DIN51524)
- Operating fluids DIN ISO 2943
- Lubrication fluids ISO6743, APJ, DIN 51517, ACEA, ASTM
- Vegetable oils
- 60/40 Water Glycols
- On request - Industrial grade phosphate esters
- Non aggressive synthetic oils
- Non aggressive bio-degradable oils (HETG, HEPG and HEES to VDMA 24568)

### EPF *iprotect*® - Size 2 (Inline)



### EPF *iprotect*® - Size 2 (Manifold)



# EPF *iprotect*® Size 2 Pressure Drop Curves

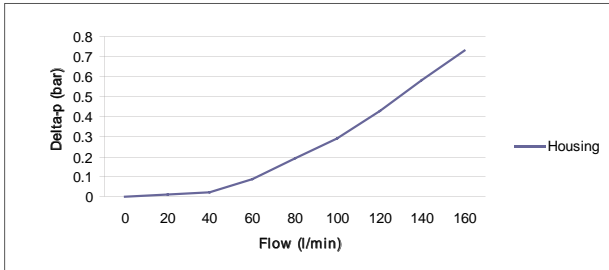
With 3.5 bar bypass the recommended initial pressure drop max is 1.2 bar

With 7.0 bar bypass the recommended initial pressure drop max is 2.3 bar

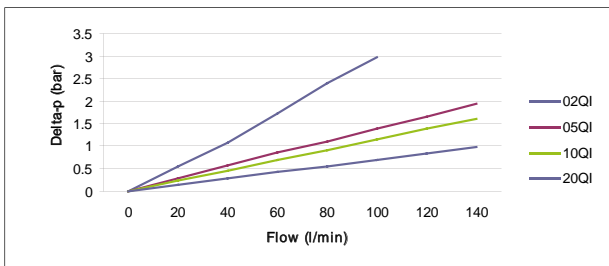
If the medium used has a viscosity different from 30cSt, pressure drop over the filter can be estimated as follows:

The total  $\Delta p = \text{housing } \Delta p_h + (\text{element } \Delta p_e \times \text{working viscosity}/30)$ .

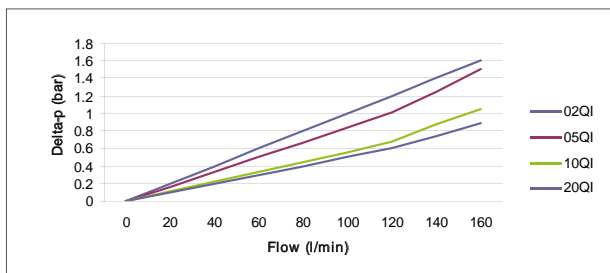
## Empty Housing EPF Size 2



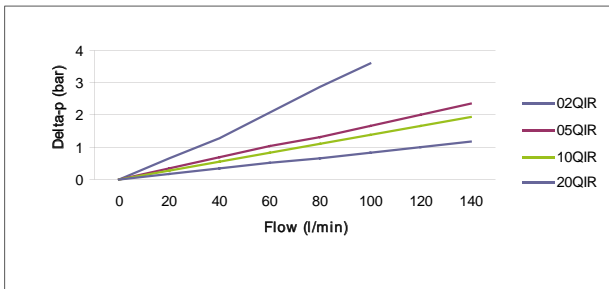
## EPF Size 2 Length 1 Filter Elements



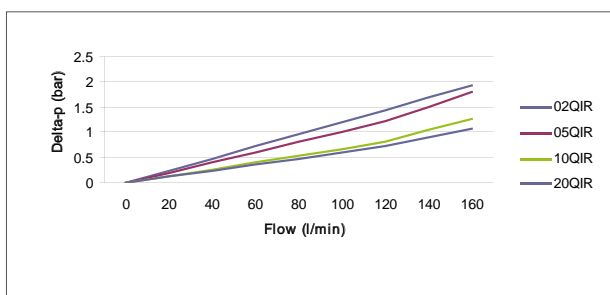
## EPF Size 2 Length 2 Filter Elements



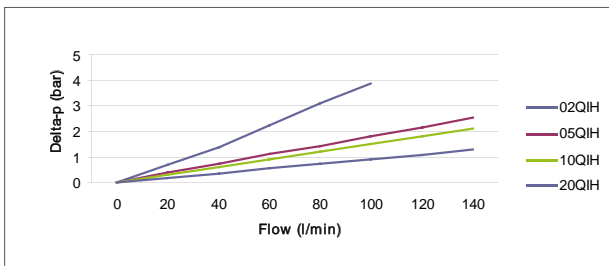
## EPF Size 2 Length 1 Filter Elements with reverse flow valve



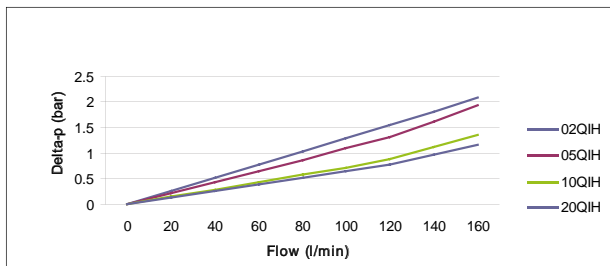
## EPF Size 2 Length 2 Filter Elements with reverse flow valve



## EPF Size 2 Length 1 High Strength Filter Elements



## EPF Size 2 Length 2 High Strength Filter Elements





# EPF *iprotect*® Size 3 Pressure Drop Curves

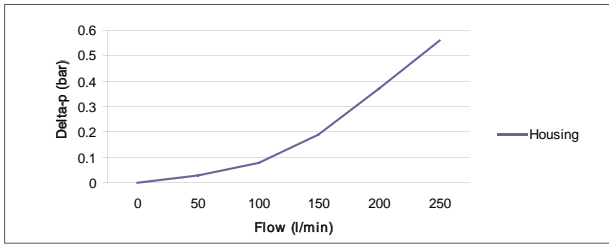
With 3.5 bar bypass the recommended initial pressure drop max is 1.2 bar

With 7.0 bar bypass the recommended initial pressure drop max is 2.3 bar

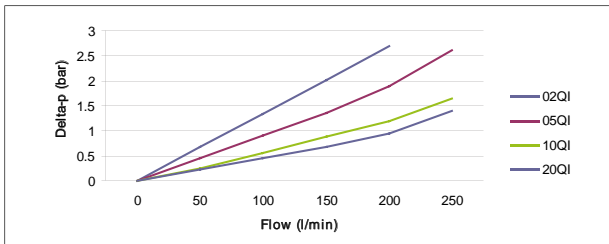
If the medium used has a viscosity different from 30cSt, pressure drop over the filter can be estimated as follows:

The total  $\Delta p = \text{housing } \Delta p_h + (\text{element } \Delta p_e \times \text{working viscosity}/30)$ .

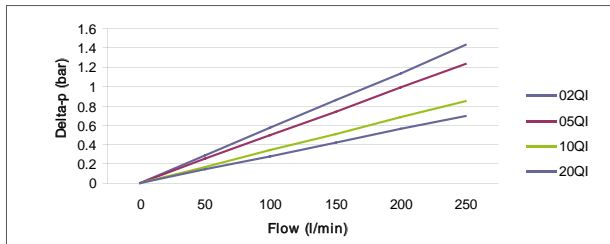
**EPF Size 3 Empty Housing**



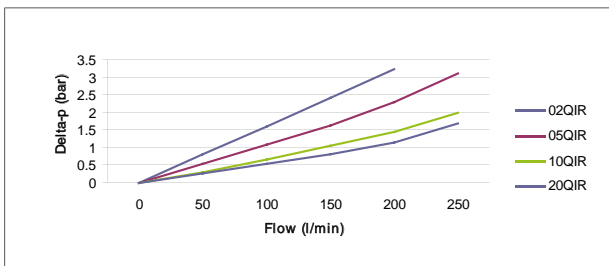
**EPF Size 3 Length 1 Filter Elements**



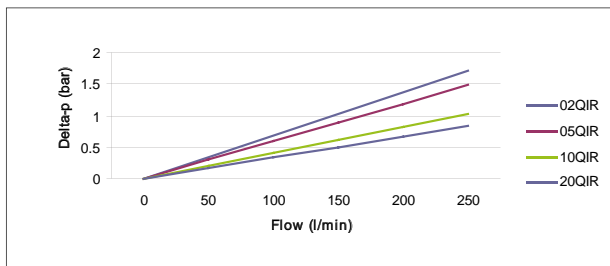
**EPF Size 3 Length 2 Filter Elements**



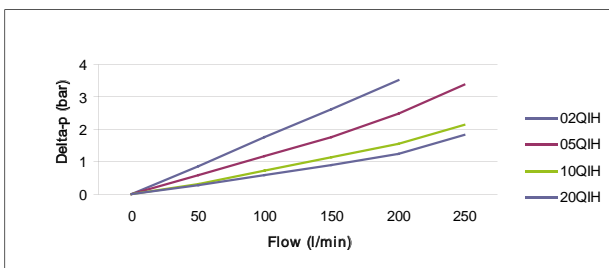
**EPF Size 3 Length 1 Filter Elements with reverse flow valve**



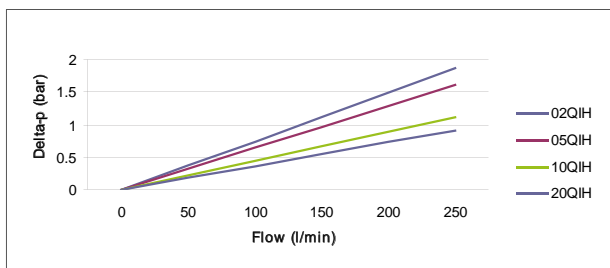
**EPF Size 3 Length 2 Filter Elements with reverse flow valve**



**EPF Size 3 Length 1 High Strength Filter Elements**



**EPF Size 3 Length 2 High Strength Filter Elements**



# EPF *iprotect*®

## Size 4

### Specification EPF *iprotect*® Size 4

#### Specification

Nominal flow >320 l/min

#### Pressure ratings

Maximum allowable operating pressure 450 bar  
Filter housing pressure pulse fatigue tested 10<sup>6</sup> pulses 0-414 bar

#### Connections

Inlet and outlet connections are threaded internally

#### Connection style

Thread G11/4  
Thread G11/2  
Thread SAE 20  
Thread SAE 24  
Thread M42, ISO 6149  
SAE flange 1 1/4 = 6000M  
SAE flange 1 1/4 = 6000  
Manifold

#### Filter housing

Head material cast iron (GSI)  
Bowl material steel  
Seal material  
Nitrile of Fluorelastomer

#### Operating temperature range

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

#### Bypass valve & Indicator settings

Bypass	Indicator
3.5 bar	2.5 bar
5.0 bar	3.5 bar
7.0 bar	5.0 bar
Blocked	7.0 bar

#### Filter element

Degree of filtration  
Determined by multipass test in accordance to ISO16889

#### Flow fatigue characteristics

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724)

#### Microglass III

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and reusable metal inner core. Collapse pressure 25 bar (ISO 2941)

#### High collapse elements

To be used when bypass blocked option is selected  
Collapse pressure 210 bar (ISO 2941)

#### Indicator options

Indicating differential pressure:

2.5 +/- 0.3 bar  
3.5 +/- 0.3 bar  
5.0 +/- 0.3 bar

#### Visual M3

Electrical T1

Electronic F1 (PNP)

Electronic F2 (NPN)

Atex versions are available on request

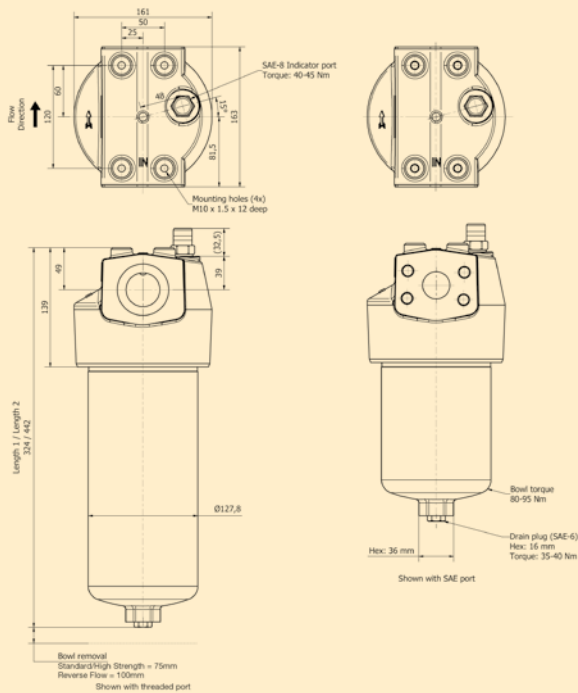
#### Weights (kg)

EPF Size 4 length 1: 15,8  
EPF Size 4 length 2: 20,3

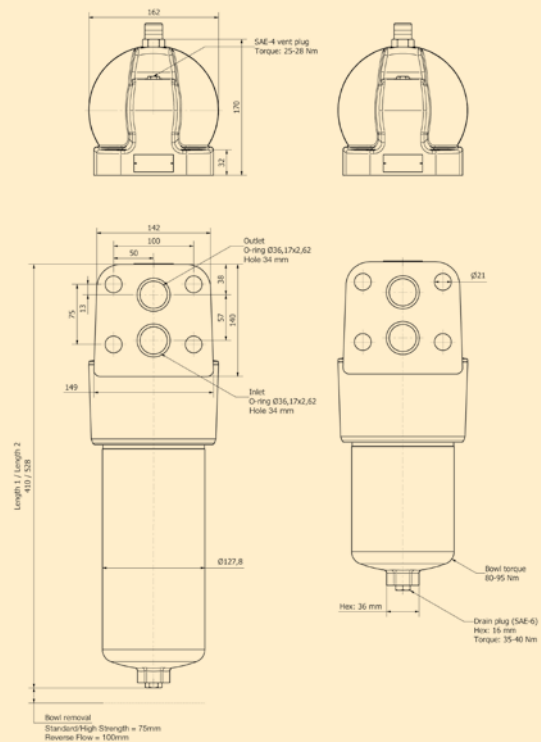
#### Fluid compatibility

- Hydraulic mineral oils H to class HLPD (DIN51524)
- Operating fluids DIN ISO 2943
- Lubrication fluids ISO6743, APJ, DIN 51517, ACEA, ASTM
- Vegetable oils
- 60/40 Water Glycols
- On request - Industrial grade phosphate esters
- Non aggressive synthetic oils
- Non aggressive bio-degradable oils (HETG, HEPG and HEES to VDMA 24568)

### EPF *iprotect*® - Size 4 (Inline)



### EPF *iprotect*® - Size 4 (Manifold)



# EPF *iprotect*® Size 4 Pressure Drop Curves

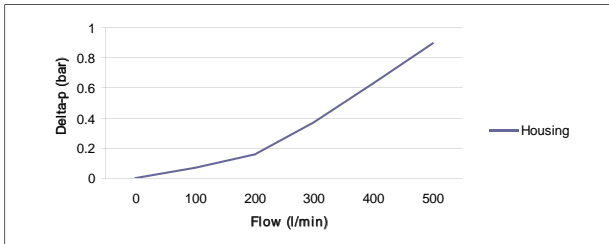
With 3.5 bar bypass the recommended initial pressure drop max is 1.2 bar

With 7.0 bar bypass the recommended initial pressure drop max is 2.3 bar

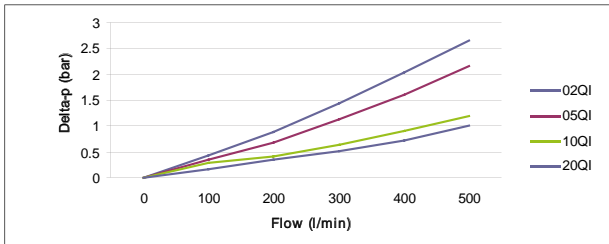
If the medium used has a viscosity different from 30cSt, pressure drop over the filter can be estimated as follows:

The total  $\Delta p = \text{housing } \Delta p_h + (\text{element } \Delta p_e \times \text{working viscosity}/30)$ .

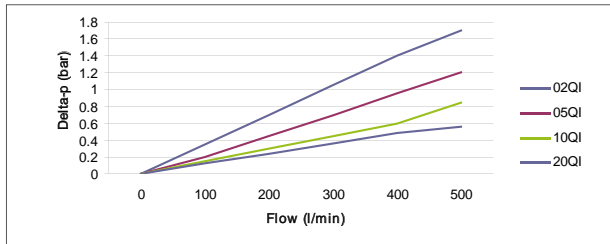
**EPF Size 4 Empty Housing**



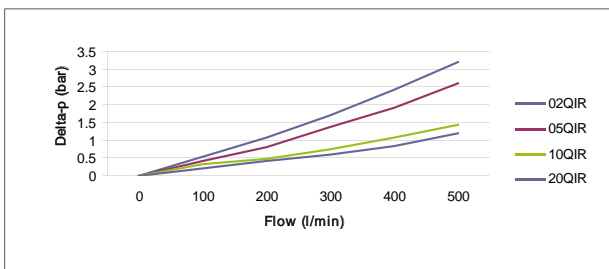
**EPF Size 4 Length 1 Filter Elements**



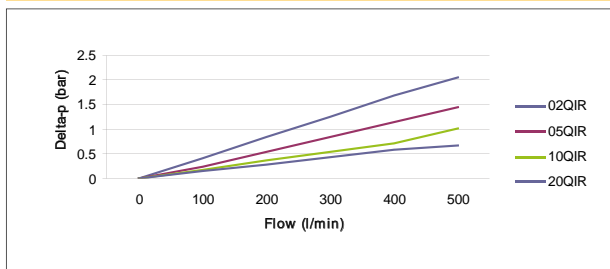
**EPF Size 4 Length 2 Filter Elements**



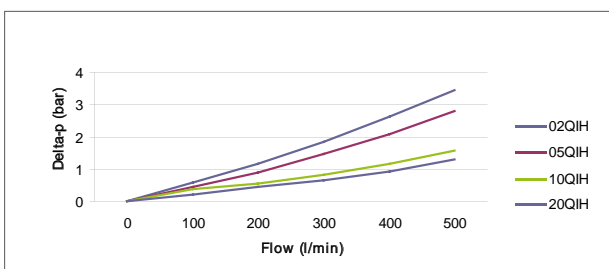
**EPF Size 4 Length 1 Filter Elements with reverse flow valve**



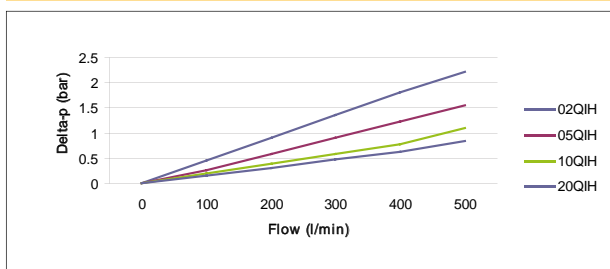
**EPF Size 4 Length 2 Filter Elements with reverse flow valve**



**EPF Size 4 Length 1 High Strength Filter Elements**



**EPF Size 4 Length 2 High Strength Filter Elements**



# EPF *iprotect*®

## Size 5

### Specification EPF *iprotect*® Size 5

#### Specification

Nominal flow >320 l/min

#### Pressure ratings

Maximum allowable operating pressure 450 bar  
Filter housing pressure pulse fatigue tested 10<sup>6</sup> pulses 0-414 bar

#### Connections

Inlet and outlet connections are threaded internally

#### Connection style

Thread G1½  
Thread SAE 24  
Manifold  
SAE flange 1½ - 6000M

#### Filter housing

Head material cast iron (GSI)  
Bowl material steel  
Seal material  
Nitrile of Fluorelastomer

#### Operating temperature range

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

#### Bypass valve & Indicator settings

Bypass	Indicator
3.5 bar	2.5 bar
5.0 bar	3.5 bar
7.0 bar	5.0 bar
Blocked	5.0 bar

#### Filter element

Degree of filtration  
Determined by multipass test in accordance to ISO16889

#### Flow fatigue characteristics

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724)

#### Microglass III

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and reusable metal inner core. Collapse pressure 25 bar (ISO 2941)

#### High collapse elements

To be used when bypass blocked option is selected  
Collapse pressure 210 bar (ISO 2941)

#### Indicator options

Indicating differential pressure:

2.5 +/- 0.3 bar  
3.5 +/- 0.3 bar  
5.0 +/- 0.3 bar

#### Visual M3

Electrical T1

Electronic F1 (PNP)

Electronic F2 (NPN)

Atex versions are available on request

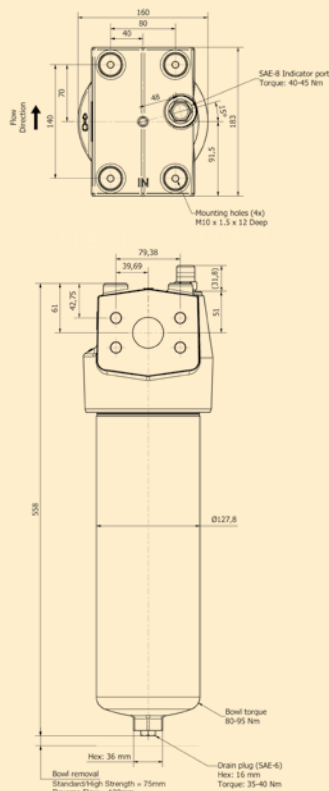
#### Weights (kg)

EPF Size 5 length 1: 31

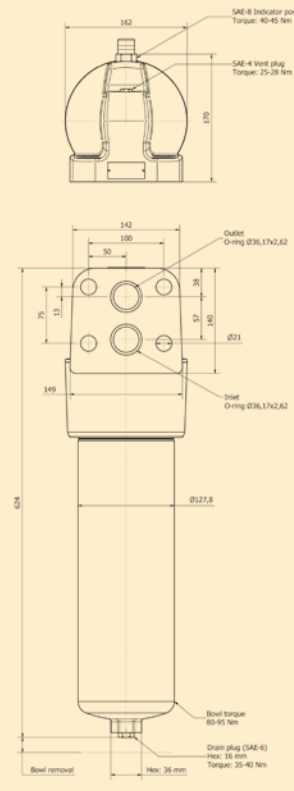
#### Fluid compatibility

- Hydraulic mineral oils H to class HLPD (DIN51524)
- Operating fluids DIN ISO 2943
- Lubrication fluids ISO6743, APJ, DIN 51517, ACEA, ASTM
- Vegetable oils
- 60/40 Water Glycols
- On request - Industrial grade phosphate esters
- Non aggressive synthetic oils
- Non aggressive bio-degradable oils (HETG, HEPG and HEES to VDMA 24568)

EPF *iprotect*® - Size 5 (Inline)



EPF *iprotect*® - Size (Manifold)



## EPF *iprotect*® Size 5 Pressure Drop Curves

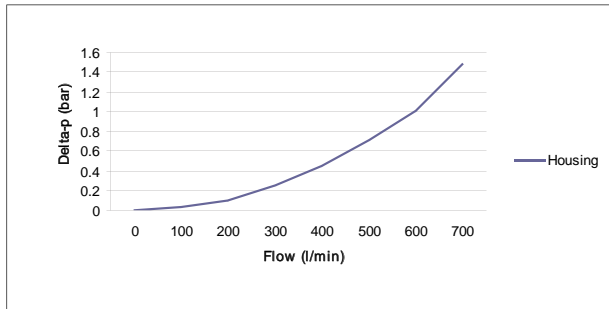
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With 7.0 bar bypass the recommended initial pressure drop max is 2.3 bar

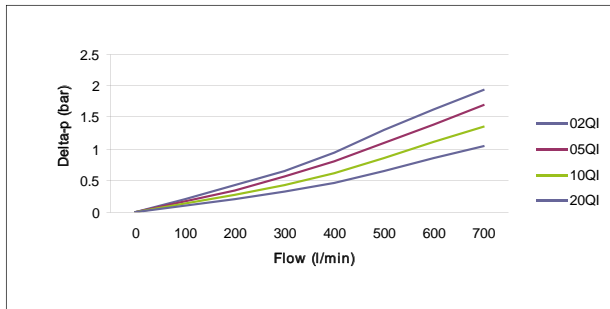
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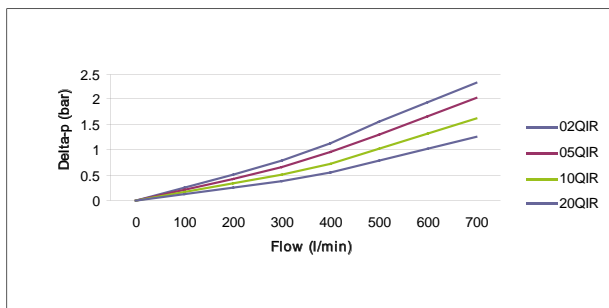
EPF Size 5 Empty Housing



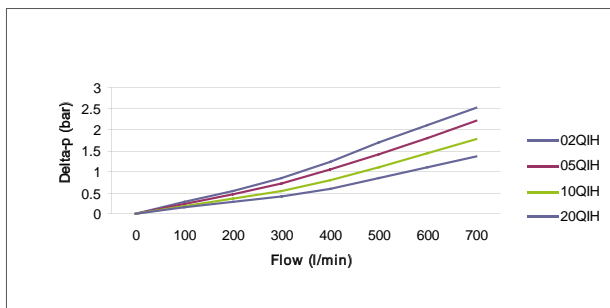
EPF Size 5 Length 1 Filter Elements



EPF Size 5 Length 1 Filter Elements with reverse flow valve



EPF Size 5 Length 1 Filter Elements



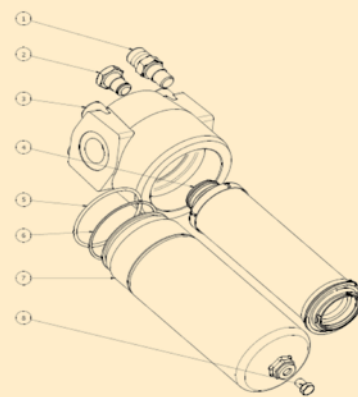
## Parts list

Index	Description	Part number
1	Indicator	On Request
2	Plug	On Request
3	Filter head	On Request
4	Filter element	See element table
5	Back-up ring	In seal kit/spare filter elements
6	O-ring	In seal kit/ spare filter elements
7	Filter bowl	On Request
8	Drain plug	On Request

## Seal kit numbers

Filter	Nitrile	Fluorelastomer
EPF 1	EPFSK001	EPFSK011
EPF 2	EPFSK002	EPFSK012
EPF 3	EPFSK003	EPFSK013
EPF 4	EPFSK004	EPFSK014
EPF 5	EPFSK005	EPFSK015

## Exploded view spare parts drawing



See opposite for parts list and seal kit numbers

# Indicator Options

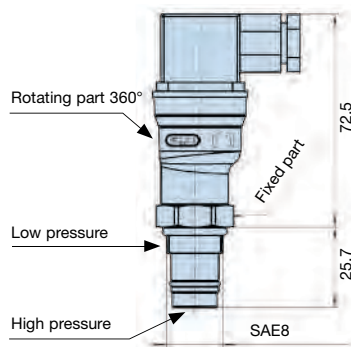
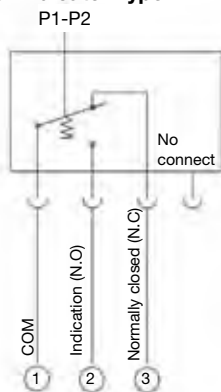
## FMU $\Delta p$ -Indicators and Pressure Indicators

FMUT Electrical

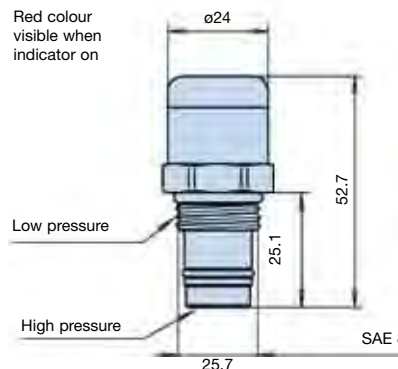
Rated voltage	Non-inductive load (A)				Inductive load (A)				Inrush current (A)	
	Resistive load		Lamp load		Inductive load		Motor load		N.C.	N.O.
	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.		
125VAC	5	1.5	0.7	3	2.5	1.3	20 max.	10 max.		
250VAC	3	1.0	0.5	2	1.5	0.8				
8VDC	5	2	5	4	3					
14VDC	5	2	4	4	3					
30VDC	4	2	3	3	3					
125VDC	0.4	0.05	0.4	0.4	0.05					
250VDC	0.2	0.03	0.2	0.2	0.03					

Enclosure class	IP65
Electrical connector	DIN 43650
Overvoltage category	II (EN61010-1)

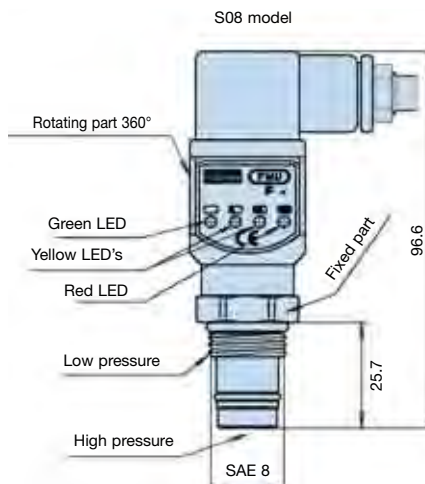
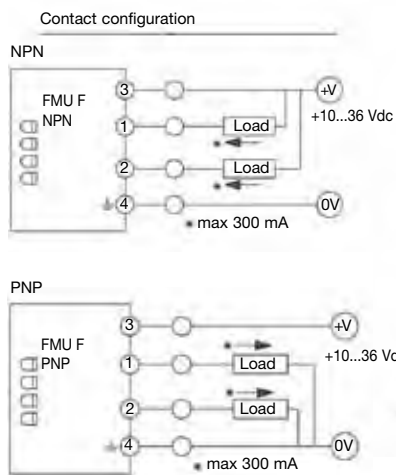
### Contact configuration Electrical Indicator Type T1



### FMUM3 Visual Auto Reset Operation



### FMUF Electronic



### Thermal lock-out (standard setting +20 °C)

- Indicator operates only when temperature is above setting.

Ind. press. setting	LED status				Output
	G	Y1	Y2	R	
< 50 %	⊗				-
50 %	⊗	⊗			-
75 %	⊗	⊗	⊗		2 active
100 %	⊗	⊗	⊗	⊗	1 active

Enclosure class	IP65
Electrical connector	DIN 43650, cable connection PG9 or optionally M12 4-pin
Input supply voltage	+10 to 36 Vdc
*Indication output	max. 300 mA/36 Vdc
Output type:	N.O. or N.C./NPN or PNP

Note: Do not connect output terminals 1 or 2 directly (without load) to power supply terminals, because this will damage the equipment.

## Filter media efficiency

Degree of filtration						Code	
Average filtration beta ratio $\beta$ (ISO 16889) / particle size $\mu\text{m}$ [c]							
$\beta_{x(c)=2}$	$\beta_{x(c)=10}$	$\beta_{x(c)=75}$	$\beta_{x(c)=100}$	$\beta_{x(c)=200}$	$\beta_{x(c)=1000}$	Disposable Microglass III	Element with reverse flow valve
% efficiency, based on the above beta ration ( $\beta_{x}$ )							
50.0%	90.0%	98.7%	99.0%	99.5%	99.9%		
N/A	N/A	N/A	N/A	N/A	4.5%	<b>02QI</b>	<b>02QIR</b>
N/A	N/A	4.5	5	6	7	<b>05QI</b>	<b>05QIR</b>
N/A	6	8.5	9	10	12	<b>10QI</b>	<b>10QIR</b>
6	11	17	18	20	22	<b>20QI</b>	<b>20QIR</b>

## Ordering information. Standard part numbers

Filter Assemblies	Part Number	Flow (l/min)	Model Number	Element length	Media Rating (micron)	Seals	Indicator	Bypass (bar)	Ports	Replacement elements
	EPF1105QIBPMG081	40	EPF1	1	5	Nitrile	Plugged port	7	G1/2"	944419Q
	EPF1110QIBPMG081	40	EPF1	1	10	Nitrile	Plugged port	7	G1/2"	944420Q
	EPF1120QIBPMG081	40	EPF1	1	20	Nitrile	Plugged port	7	G1/2"	944421Q
	EPF2205QIBPMG121	140	EPF2	2	5	Nitrile	Plugged port	7	G3/4"	944431Q
	EPF2220QIBPMG121	140	EPF2	2	10	Nitrile	Plugged port	7	G3/4"	944432Q
	EPF2220QIBPMG121	140	EPF2	2	20	Nitrile	Plugged port	7	G3/4"	944433Q
	EPF3205QIBPMG161	250	EPF3	2	5	Nitrile	Plugged port	7	G1"	944439Q
	EPF3220QIBPMG161	250	EPF3	2	10	Nitrile	Plugged port	7	G1"	944440Q
	EPF3220QIBPMG161	250	EPF3	2	20	Nitrile	Plugged port	7	G1"	944441Q
	EPF4205QIBPMG201	450	EPF4	2	5	Nitrile	Plugged port	7	G1 1/4"	944447Q
	EPF4210QIBPMG201	450	EPF4	2	10	Nitrile	Plugged port	7	G1 1/4"	944448Q
	EPF4220QIBPMG201	450	EPF4	2	20	Nitrile	Plugged port	7	G1 1/4"	944449Q
	EPF5105QIBPMG241	500	EPF5	1	5	Nitrile	Plugged port	7	G1 1/2"	944451Q
	EPF5110QIBPMG241	500	EPF5	1	10	Nitrile	Plugged port	7	G1 1/2"	944452Q
	EPF5120QIBPMG241	500	EPF5	1	20	Nitrile	Plugged port	7	G1 1/2"	944453Q

Visual Indicators	Part Number	Setting (bar)
	FMUM3MVMS08	5

For spare element see page 130.

Electrical Indicators	Part Number	Setting (bar)	Switch Type	Additional
	FMUT1MVMS08	5	NO/NC	
	FMUF1MVMS08	5	NO	Electronic 4 LED, PNP
	FMUF2MVMS08	5	NO	Electronic 4 LED, NPN
	FMUF3MVMS08	5	NC	Electronic 4 LED, PNP
	FMUF4MVMS08	5	NC	Electronic 4 LED, NPN

# EPF *iprotect*<sup>®</sup>

## High Pressure Filter

### Ordering Information

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
<b>EPF3</b>	<b>2</b>	<b>02QI</b>	<b>B</b>	<b>P</b>	<b>M</b>	<b>G16</b>	<b>1</b>

Box 1

Capacity	
Model	Code
Size 1 (40 l/min)	<b>EPF1</b>
Size 2 (replaces 18P)	<b>EPF2</b>
Size 3 (replaces 28P)	<b>EPF3</b>
Size 4 (replaces 38P)	<b>EPF4</b>
Size 5	<b>EPF5</b>

Box 2

Filter Length	
	Code
Length 1	<b>1</b>
Length 2 (not for Size 1 and Size 5)	<b>2</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 3

Degree of filtration				
	Media code			
<i>iprotect</i> <sup>®</sup> Glassfibre element	<b>02QI</b>	<b>05QI</b>	<b>10QI</b>	<b>20QI</b>
<i>iprotect</i> <sup>®</sup> with reverse flow valve(*)	02QIR	05QIR	10QIR	20QIR
<i>iprotect</i> <sup>®</sup> High Strength element	02QIH	05QIH	10QIH	20QIH

(\*Note: Only in combination with 3.5 bar bypass)

Box 4

Seal Material	
	Code
Nitrile	<b>B</b>
Fluorelastomer	V

Box 5

Indicator	
	Code
Visual Indicator	<b>M3</b>
Electrical Indicator	<b>T1</b>
Electronic 4 LED, PNP, NO	F1
Electronic 4 LED, NPN, NO	F2
Electronic 4 LED, PNP, NC	F3
Electronic 4 LED, NPN, NC	F4
Plugged with Steel plug	<b>P</b>
No indicator port	N

Other versions like ATEX on request  
All electrical indicators are CE-certified

Box 6

Bypass Setting		
	Indicator Setting	Code
3.5 bar	2.5 bar	K
5.0 bar	3.5 bar	L
7.0 bar	5.0 bar	<b>M</b>
No bypass	5.0 bar	<b>M</b>
No bypass	No indicator	X

Important notes: When no bypass is selected Parker strongly advises the usage of high strength elements

Box 8

Options		
		Code
Standard		<b>1</b>
No bypass		2
Reverse flow valve	Safeguard valve only in combination with 3.5 bar bypass	RFV

For non-bypass please select High strength element type QIH

Box 7

Filter Connection		
	Connection type & size	Code
Size 1	Thread G $\frac{1}{2}$	<b>G08</b>
	Thread SAE 8	S08
Size 2	Thread G $\frac{1}{2}$	G08
	Thread G $\frac{3}{4}$	<b>G12</b>
	Thread SAE 12	S12
	Thread M27, ISO 6149	M27
	SAE flange $\frac{3}{4}$ - 6000M	H12
	SAE flange $\frac{3}{4}$ - 6000	F12
Size 3	Thread G1	<b>G16</b>
	Thread SAE 16	S16
	Thread M33, ISO 6149	M33
	SAE flange 1 - 6000M	H16
	SAE flange 1 - 6000	F16
	Manifold	X12
Size 4	Thread G1 $\frac{1}{4}$	<b>G20</b>
	Thread G1 $\frac{1}{2}$	G24
	Thread SAE20	S20
	Thread SAE24	S24
	Thread M42, ISO 6149	M42
	SAE flange 1 $\frac{1}{4}$ - 6000M	H20
	SAE flange 1 $\frac{1}{4}$ - 6000	F20
	Manifold	X20
Size 5	Thread G1 $\frac{1}{2}$	<b>G24</b>
	Thread SAE 24	S24
	SAE flange 1 $\frac{1}{2}$ - 6000M	H24
	Manifold	X20



# EMDPF *iprotect*<sup>®</sup>

(Manually Operated High Pressure Duplex Filter)

High Pressure Filters  
Max. 300 l/min - 420 bar



## A compact, cost effective pressure filter solution

Designed with the *iprotect*<sup>®</sup> patented filtration technology

The Parker EMDPF *iprotect*<sup>®</sup> duplex filter is designed to provide high quality filtration of hydraulic and lubrication type systems, providing new possibilities to reduce the cost of ownership by improving productivity and profitability.

A radical, innovative approach was applied with the design of the EMDPF duplex family. The standard range covers a flow capacity up to 300 l/min at 420 bar working pressure.

A new patented design of the filter element allows integration of the bypass valve and element core as re-usable parts in the filter bowl. This makes the product foolproof as there is no risk of forgetting to re-install re-usable parts.

Because the filter element remains in the bowl during service events, less space is needed to change the filter element.

The EMDPF features various safety functions such as integrated pressure equalizing line, pressure peak protection of the element indicator and low torque for switching the ball valve. High quality seal technology makes the change of the filter element possible with the system able to continue operating.



## Product Features:

The Parker element design guarantees the quality of filtration, which directly impacts on the oil cleanliness level as the usage of pirate type after market filters with unknown quality of filter media is excluded. This in-build safety has a direct, positive impact on the productivity of equipment.

- Guaranteed quality of filtration
- Filter element remains in-bowl during service
- Maximum use of re-usable parts
- Integrated safety functions
- Unique OEM branding opportunities
- No risk of installation mistakes due to a foolproof design

# EMDPF *iprotect*®

## High Pressure Filters

Features	Advantages	Benefits
Patented filter element	Avoid use of non-genuine parts	Guaranteed quality of filtration
Filter element remains in filter bowl	Less space needed to change/service filter	More compact solutions are possible Reduce service time for filter by over 40%
Environmentally-friendly design	Reduces environmental waste over 50%	Lower disposal cost
Service-friendly product design	No handling of loose re-usable parts	No risk of making mistakes during change of element
Bypass valve integral part of filter bowl	Easy to integrate in manifold systems	More compact and lower cost of manifold (only one cavity is needed)
	Lower pressure loss across filter	Saving energy, improving system efficiency
Wide range of differential pressure indicators	Continuous feedback of filter element condition	Optimizing filter element life
		Contributes to scheduled maintenance

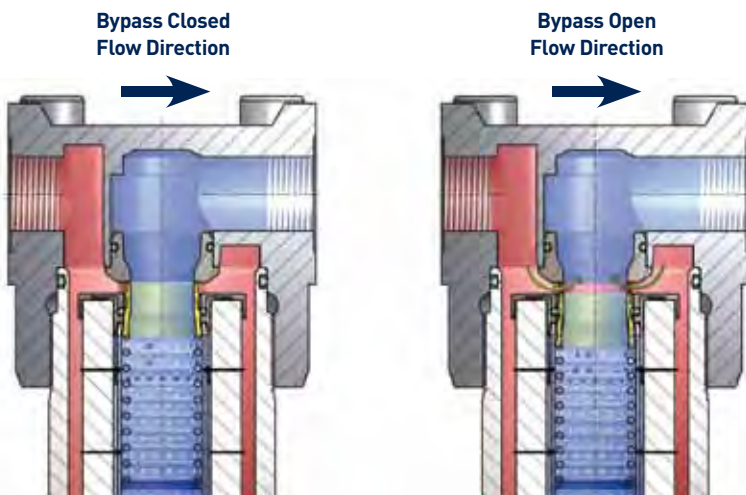
### Typical Applications

- Servo controls
- Industrial working hydraulics
- Control systems

### The Parker EMDPF *iprotect*® series patented bypass valve technology

Bypass settings are available up to 7 bar or completely blocked in conjunction with patented, high strength filter elements. The principle is

based on differential pressure measurement across the filter element. During bypass only a part of the main flow is flowing through the bypass valve.



EMDPF *iprotect*® applies the latest generation of Microglass III filter media. The patented element design guarantees the quality of filtration.

# Protecting your system and the environment

## Protect your system performance and profit

The new *i*protect® generation of filter elements provide high filtration performance combined with Parker technology. The bespoke design prevents the use of pirate type alternatives.



## Less space needed to accommodate the filter

More compact solutions are possible as the filter element remains in the filter bowl during change of filter element. Compared to traditional solutions it does not only save space, it also reduces the required manual handling during the filter change process.



## Saving cost and our environment

What does it take to introduce a new ground-breaking design which saves the environment? Parker's EMDPF *i*protect® applies a re-usable element core and bypass, both integral parts of the filter bowl. This solution avoids the handling of re-usable parts during element change and reduces over 50% disposal weight.



## Smart valve technology

Parker hydraulic control valve technology is applied for the reusable bypass valve. This leakage-free valve



has a patented interface with the filter element, which ensures that genuine parts are always applied. With bypass settings up to 7 bar filtration during cold start conditions, more compact solutions, can be realised. The valve also optimizes the flow path, reducing the pressure lost across the filter.

## Easier to integrate

Parker has set the trend to integrate filtration into manifolds. With Parker's EMDPF *i*protect® we have taken the design one step further.



Only one cavity is needed to accommodate the filter instead of two, this is because the re-usable bypass valve is integrated into the filter bowl, reducing space and cost.

## Customized solutions

Parker's motion & control technologies provide new opportunities for our customers. Customized manifolds or duplex filters, as in this example offer complete automatic change-over. The EMDPF *i*protect® contributes to realizing new solutions, improving your productivity and profitability.



## A protective 'gene'

The performance and profitability of systems directly depends upon the filter media.



It goes without saying that Parker's products aim to avoid the use of unknown filter performance, jeopardizing safety and performance. Our Microglass III media is continuously upgraded and acts as a protective 'gene' in the system.

## When going into reverse

Parker's EMDPF can be equipped with an optional reverse flow. This valve assembly is integrated in the element end cap and isolates the filter medium during reverse flow conditions.



A new design of the filter element allows integration of the bypass valve and element core as re-usable parts in the filter bowl. This results in cost reduction when integrating the high pressure filter in manifold type solutions. But it also reduces the waste when changing the filter element by over 50% as the element core is an integral part of the filter bowl.

The design of the EMDPF *i*protect®, is unique, there is no need to re-install any re-usable parts as with some other filters in the market. This makes the product fool proof as there is no risk of forgetting to re-install re-usable parts.



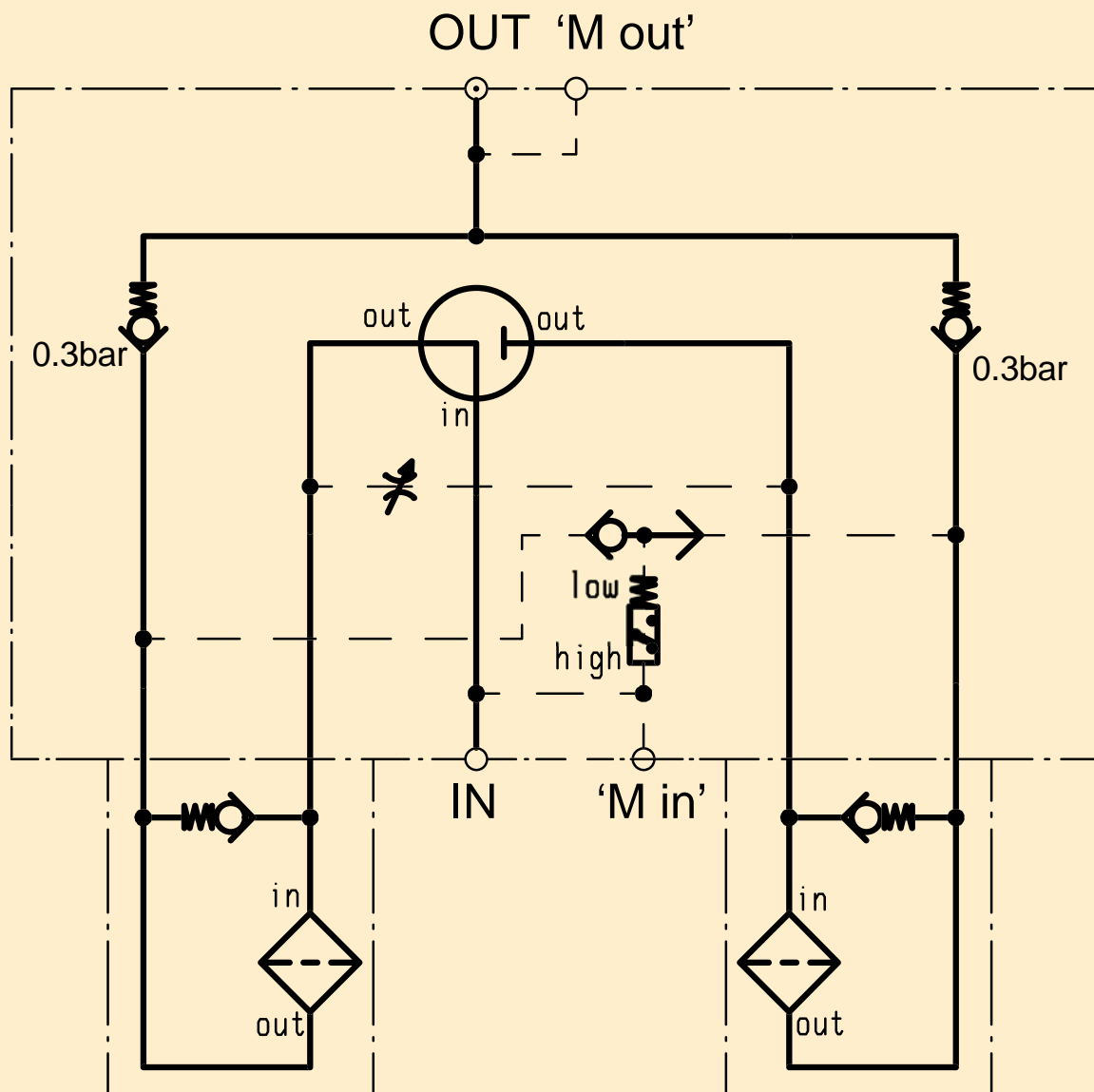
## Replacing the filter element:

- Drain the filter housing using the plugged drain port.
- Thanks to the filter lock the element remains in the bowl.
- Pull out the old element. The re-usable element core and bypass valve are integral parts of the bowl.
- Filtration is from 'Out to In,' the element core is located in the clean oil side.
- Just drop the new element in the bowl.
- Screw the bowl, including element into the filter head.

# EMDPF *iprotect*®

## Circuit diagram

EMDPF *iprotect*®



### Principle of Operation

The EMDPF *iprotect*® features a 3/2-way ball valve to control the main flow through the filter. This 3/2-way ball valve is manual operated.

To avoid excessive pressure peaks during the change-over process, Parker's EMDPF features an integrated equalizing line. Using a needle valve this equalizing line is opened before changing-over the main 3/2-way ball valve. After change-over this equalizing line needs to be closed.

Two one-way flow valves are integrated in the filter to avoid unwanted reverse flow of oil through the filter element.

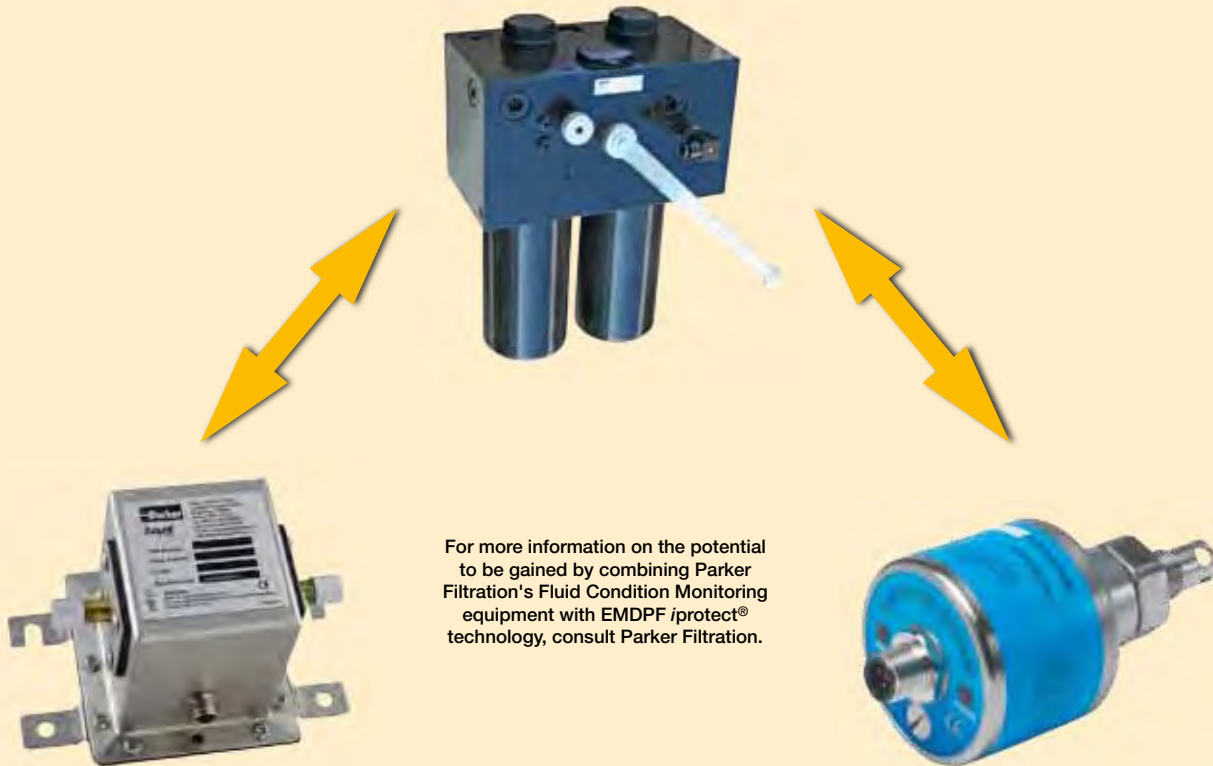
Parker recommends applying a differential pressure indicator to obtain information about the condition of the filter element. A wide range of visual, electrical and electronic type indicators are available.

The differential pressure indicator is protected against excessive pressure peaks by using an integrated shutter valve in the sensing lines. Min and Mout are plugged measurement connection points.

# Applying Innovation

## EMDPF iprotect and the icount Condition Monitoring Family

### EMDPF iprotect® and icount Particle Detection



### Parker's worldwide experience in Fluid Condition Monitoring and Contamination Control

Parker's ability to provide engineered solutions is embedded in the modular product architecture when it comes to filtration and condition monitoring solutions.

Besides protecting the system against contamination by applying quality filtration, the importance of having real-time information about the system cleanliness level or oil condition is becoming more important.

Based on customized manifolds, unique opportunities are present to combine or integrate condition monitoring sensors with our filters.

#### icount Particle Detection

The icount PD Particle Detector from Parker represents the most up to date technology in particle detection. The robust design of

the housing allows operation in heavy duty environments.

The on-board laser based technology provides direct information about the fluid cleanliness level.

By implementing particle detection, important information about the system contamination trends can be obtained. Integrated LED or digital displays provide indication of low, medium and high contamination levels.

#### Moisture measurement

Moisture is the second largest source of contamination after solid type contamination. Both account for over 80% of failures of hydraulic systems.

High moisture levels accelerate the process of oil degradation, having direct negative impact on the fluid's performance. Hydraulic fluids are engineered to provide high performance lubrication, protection against corrosion and energy transfer. Oil degradation reduces the fluid life time and as a consequence, the life time of components when efficient lubrication is no longer provided.

By measuring the fluid's moisture level, adequate maintenance can be scheduled in time before system breakdowns or excessive wear & tear to system components occur.

The MS moisture sensor range can be integrated in customized manifold blocks.

The icount particle detector family can also be equipped with an optional moisture sensor.

# EMDPF *iprotect*®

## Size 3

### Specification EMDPF *iprotect*®

#### Specification

Nominal flow 150 l/min

#### Pressure ratings

Maximum allowable working pressure 420 bar

#### Connections

Integrated in block

#### Connection style

Thread G1"

SAE-flange 1¼" SAE-6000M

'M in' / 'M out': G1¼"

#### Filter housing

EMDPF Head material: steel

Bowl material: steel

#### Seal material

Nitrile or Fluorelastomer

#### Operating temperature range

Seal material Nitrile : -40 °C to +100 °C

Seal material Fluorelastomer : -20 °C to +120 °C

#### Bypass valve & Indicator settings

Bypass	Indicator
3.5 bar	2.5 bar
5.0 bar	3.5 bar
7.0 bar	5.0 bar
Blocked	5.0 bar

#### Filter element

Degree of filtration

Determined by multipass test in accordance with ISO16889

#### Flow fatigue characteristics

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724)

#### Microglass III

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and reusable metal inner core. Collapse pressure 25 bar (ISO 2941)

#### High collapse elements

To be used when bypass blocked option is selected

Collapse pressure 210 bar (ISO 2941)

#### Indicator options

Indicating differential pressure:

2.5 +/- 0.3 bar

3.5 +/- 0.3 bar

5.0 +/- 0.3 bar

Visual M3

Electrical T1

Electronic F1 (PNP)

Electronic F2 (NPN)

ATEX versions are available on request

#### Weights

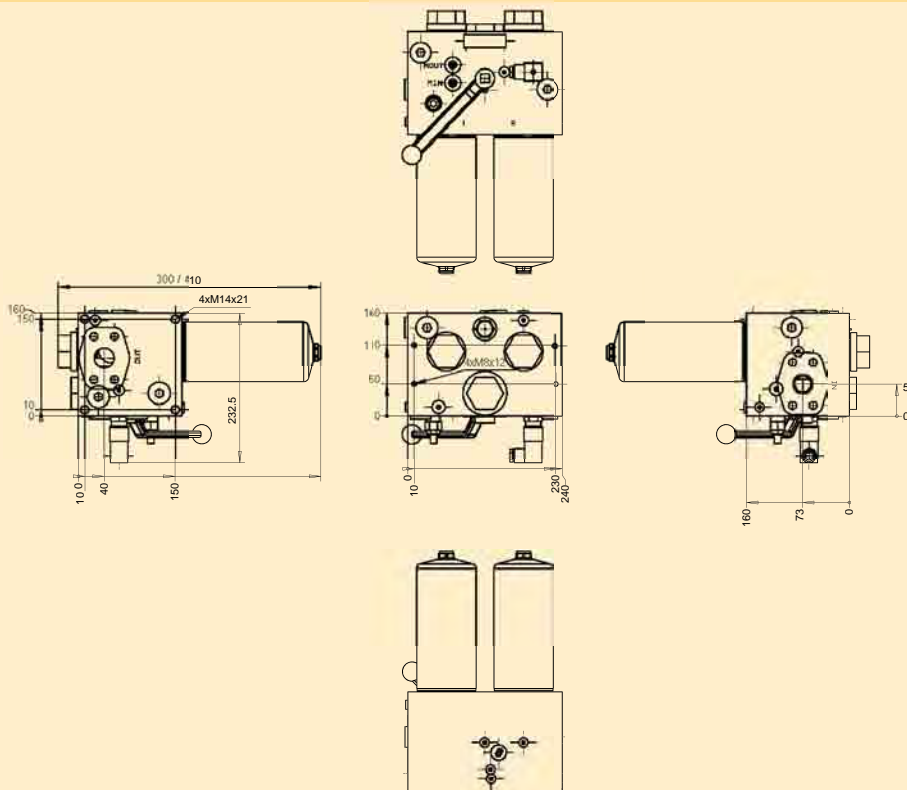
EMDPF Size 3 length 1: 55 kg

EMDPF Size 3 length 2: 57 kg

#### Fluid compatibility

- Hydraulic mineral oils H to class HLPD (DIN51524)
- Operating fluids DIN ISO 2943
- Lubrication fluids ISO6743, APJ, DIN 51517, ACEA, ASTM
- Vegetable oils
- 60/40 Water Glycols
- On request - Industrial grade phosphate esters
- Non aggressive synthetic oils
- Non aggressive bio-degradable oils (HETG, HEPG and HEES to VDMA 24568)

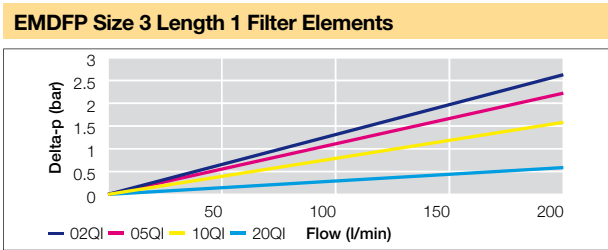
### EMDPF *iprotect*® - Size 3 Duplex



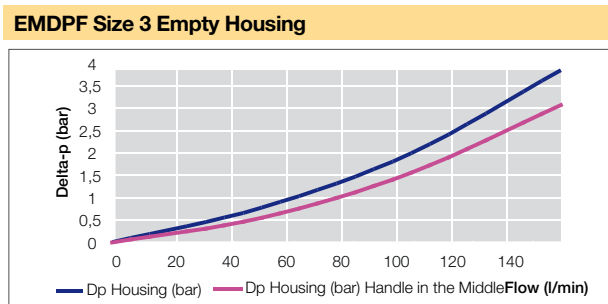
## EMDPF *i*protect® Size 3 Pressure Drop Curves

If the media used has a viscosity different from 30cSt, pressure drop over the filter can be estimated as follows:  
 The total  $\Delta p = \text{housing } \Delta p_h + (\text{element } \Delta p_e \times \text{working viscosity}/30)$ .

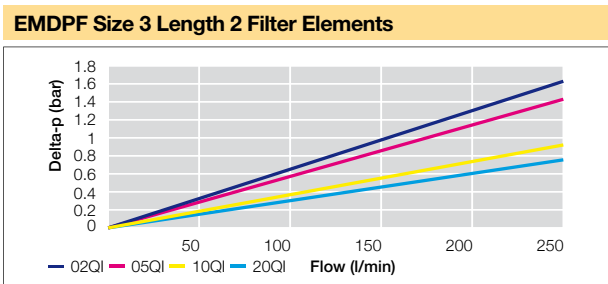
Size 3 L1	EMDPF Size 3 Length 1 Dp Elements (bar)			
Flow (l/min)	02QI	05QI	10QI	20QI
0	0	0	0	0
50	0.65	0.43	0.26	0.16
100	1.29	0.87	0.53	0.32
150	1.94	1.30	0.79	0.47
200	2.58	1.73	1.05	0.63



Size 3	Empty Housing (bar)	
Flow (l/min)	Dp Housing (bar)	Dp Housing (bar) Handle in the Middle
0	0	0
50	0,77	0,55
100	1,99	1,56
150	3,84	3,07



Size 3 L2	EMDPF Size 3 Length 2 Dp Elements (bar)			
Flow (l/min)	02QI	05QI	10QI	20QI
0	0	0	0	0
50	0.32	0.28	0.18	0.15
100	0.64	0.56	0.37	0.30
150	0.97	0.85	0.55	0.45
200	1.29	1.13	0.74	0.60
250	1.61	1.41	0.92	0.75



# EMDPF *iprotect*®

## Size 4

### Specification EMDPF *iprotect*®

#### Specification

Nominal flow 300 l/min

#### Pressure ratings

Maximum allowable working pressure 420 bar

#### Connections

Integrated in block

#### Connection style

Thread G1½"

SAE-flange 1½" SAE-6000M

MIN/MOUT : G¾"

#### Filter housing

EMDPF Head material: steel

Bowl material: steel

#### Seal material

Nitrile or Fluorelastomer

#### Operating temperature range

Seal material Nitrile : -40 °C to +100 °C

Seal material Fluorelastomer : -20 °C to +120 °C

#### Bypass valve & Indicator settings

Bypass	Indicator
3.5 bar	2.5 bar
5.0 bar	3.5 bar
7.0 bar	5.0 bar
Blocked	7.0 bar

#### Filter element

Degree of filtration

Determined by multipass test in accordance with ISO16889

#### Flow fatigue characteristics

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724)

#### Microglass III

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and reusable metal inner core. Collapse pressure 25 bar (ISO 2941)

#### High collapse elements

To be used when bypass blocked option is selected

Collapse pressure 210 bar (ISO 2941)

#### Indicator options

Indicating differential pressure:

2.5 +/- 0.3 bar

3.5 +/- 0.3 bar

5.0 +/- 0.3 bar

Visual M3

Electrical T1

Electronic F1 (PNP)

Electronic F2 (NPN)

ATEX versions are available on request

#### Weights

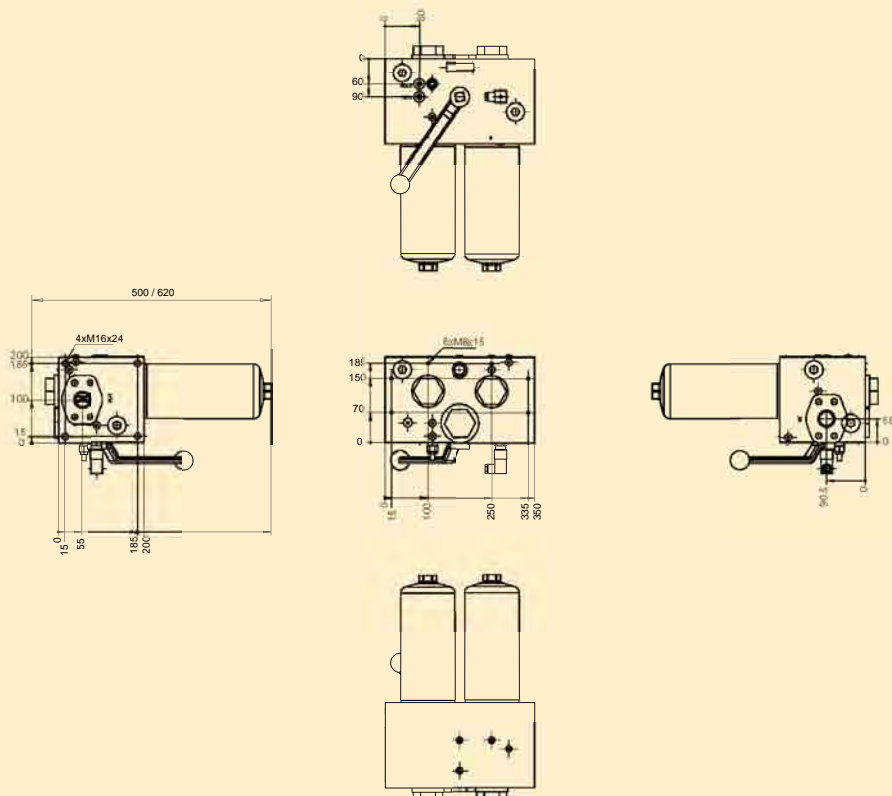
EMDPF Size 4 length 1: 111 kg

EMDPF Size 4 length 2: 116 kg

#### Fluid compatibility

- Hydraulic mineral oils H to class HLPD (DIN51524)
- Operating fluids DIN ISO 2943
- Lubrication fluids ISO6743, APJ, DIN 51517, ACEA, ASTM
- Vegetable oils
- 60/40 Water Glycols
- On request - Industrial grade phosphate esters
- Non aggressive synthetic oils
- Non aggressive bio-degradable oils (HETG, HEPG and HEES to VDMA 24568)

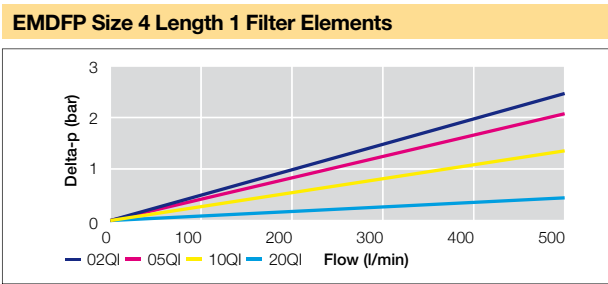
### EMDPF *iprotect*® - Size 4 Duplex



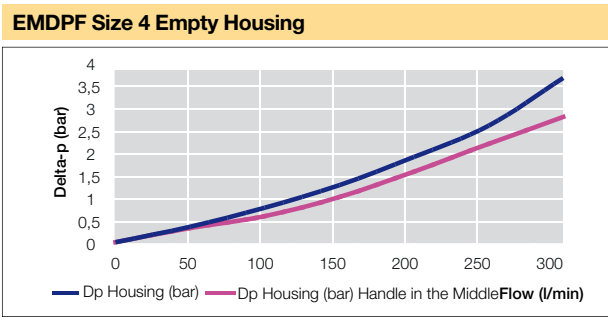
## EMDPF *iprotect*® Size 4 Pressure Drop Curves

If the media used has a viscosity different from 30cSt, pressure drop over the filter can be estimated as follows:  
 The total  $\Delta p = \text{housing } \Delta p_h + (\text{element } \Delta p_e \times \text{working viscosity}/30)$ .

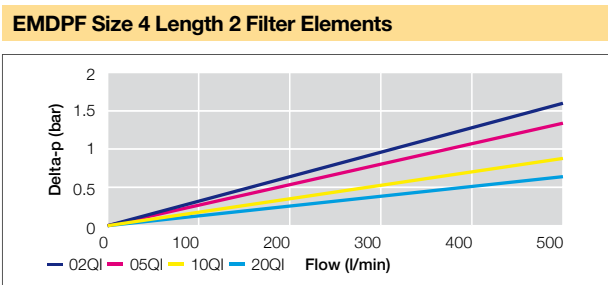
Size 4 L1	EMDPF Size 4 Length 1 Filter Elements			
Flow (l/min)	02QI	05QI	10QI	20QI
0	0	0	0	0
100	0.48	0.4	0.26	0.2
200	0.96	0.8	0.52	0.4
300	1.44	1.2	0.78	0.6
400	1.92	1.6	1.04	0.8
500	2.4	2	1.3	1



Size 4	EMDPF Size 4 Empty Housing (bar)	
Flow (l/min)	Dp Housing (bar)	Dp Housing (bar) Handle in the Middle
0	0	0
50	0,36	0,33
100	0,8	0,6
150	1,32	1,05
200	1,97	1,63
250	2,7	2,28
300	3,8	2,9



Size 4 L2	EMDPF Size 4 Length 2 Filter Elements (bar)			
Flow (l/min)	02QI	05QI	10QI	20QI
0	0	0	0	0
100	0.31	0.26	0.176	0.132
200	0.62	0.52	0.352	0.26
300	0.94	0.78	0.528	0.40
400	1.25	1.04	0.704	0.528
500	1.56	1.3	0.88	0.66



# Indicator Options

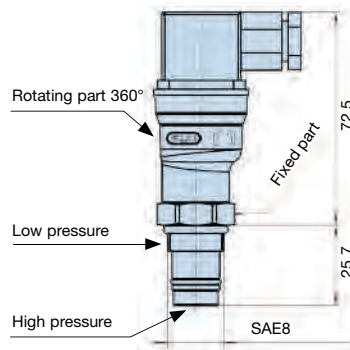
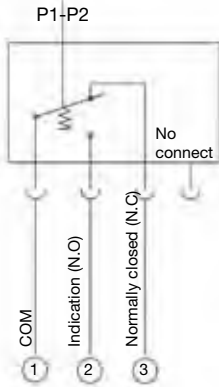
## FMU Δp-Indicators and Pressure Indicators

### FMUT Electrical

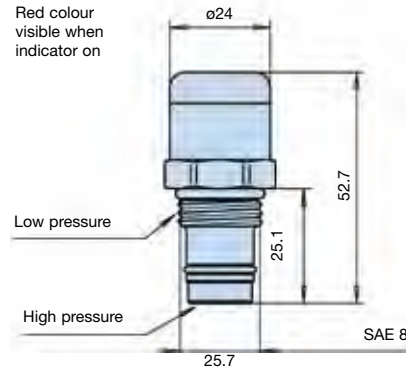
Rated voltage	Non-inductive load (A)				Inductive load (A)				Inrush current (A)	
	Resistive load		Lamp load		Inductive load		Motor load		N.C.	N.O.
	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.		
125VAC	5		1.5	0.7	3		2.5	1.3	20 max.	10 max.
250VAC	3		1.0	0.5	2		1.5	0.8		
8VDC	5		2		5	4	3			
14VDC	5		2		4	4	3			
30VDC	4		2		3	3	3			
125VDC	0.4		0.05		0.4	0.4	0.05			
250VDC	0.2		0.03		0.2	0.2	0.03			

Enclosure class	IP65
Electrical connector	DIN 43650
Overvoltage category	II (EN61010-1)

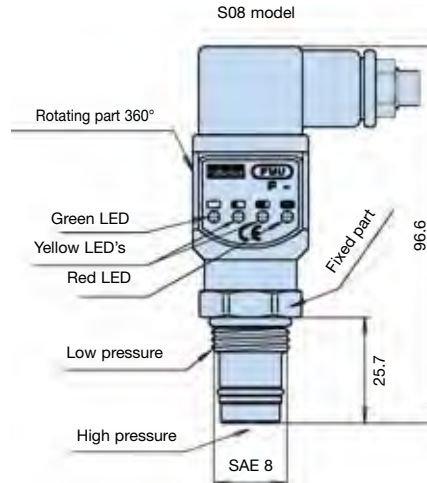
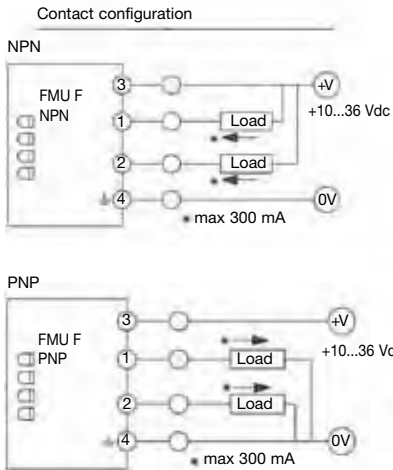
### Contact configuration Electrical Indicator Type T1



### FMUM3 Visual Auto Reset Operation



### FMUF Electronic



### Thermal lock-out (standard setting +20 °C)

- Indicator operates only when temperature is above setting.

Ind. press. setting	LED status				Output
	G	Y1	Y2	R	
< 50 %	⊗				-
50 %	⊗	⊗			-
75 %	⊗	⊗	⊗		2 active
100 %	⊗	⊗	⊗	⊗	1 active

Enclosure class	IP65
Electrical connector	DIN 43650, cable connection PG9 or optionally M12 4-pin
Input supply voltage	+10 to 36 Vdc
*Indication output	max. 300 mA/36 Vdc
Output type:	N.O. or N.C./NPN or PNP

Note: Do not connect output terminals 1 or 2 directly (without load) to power supply terminals, because this will damage the equipment.

## Filter media efficiency

Degree of filtration						Code	
Average filtration beta ratio $\beta$ (ISO 16889) / particle size $\mu\text{m}$ [c]							
$\beta_{x(c)=2}$	$\beta_{x(c)=10}$	$\beta_{x(c)=75}$	$\beta_{x(c)=100}$	$\beta_{x(c)=200}$	$\beta_{x(c)=1000}$	Disposable Microglass III	Element with reverse flow valve
% efficiency, based on the above beta ration ( $\beta_{x}$ )							
50.0%	90.0%	98.7%	99.0%	99.5%	99.9%		
N/A	N/A	N/A	N/A	N/A	4.5%	<b>02QI</b>	<b>02QIR</b>
N/A	N/A	4.5	5	6	7	<b>05QI</b>	<b>05QIR</b>
N/A	6	8.5	9	10	12	<b>10QI</b>	<b>10QIR</b>
6	11	17	18	20	22	<b>20QI</b>	<b>20QIR</b>

## Ordering information. Standard part numbers

Visual Indicators	Part Number	Setting (bar)
	FMUM3MVMS08	5

Electrical Indicators	Part Number	Setting (bar)	Switch Type	Additional
	FMUT1MVMS08	5	NO/NC	
	FMUF1MVMS08	5	NO	Electronic 4 LED, PNP
	FMUF2MVMS08	5	NO	Electronic 4 LED, NPN
	FMUF3MVMS08	5	NC	Electronic 4 LED, PNP
	FMUF4MVMS08	5	NC	Electronic 4 LED, NPN

## Spare elements (Type QI only. Type QIR and QIH on request)

EMDPF Size 3 L1 2 micron	944434Q
EMDPF Size 3 L1 5 micron	944435Q
EMDPF Size 3 L1 10 micron	944436Q
EMDPF Size 3 L1 20 micron	944437Q
EMDPF Size 3 L2 2 micron	944438Q
EMDPF Size 3 L2 5 micron	944439Q

EMDPF Size 3 L2 10 micron	944440Q
EMDPF Size 3 L2 20 micron	944441Q
EMDPF Size 4 L1 2 micron	944442Q
EMDPF Size 4 L1 5 micron	944443Q
EMDPF Size 4 L1 10 micron	944444Q
EMDPF Size 4 L1 20 micron	944445Q

EMDPF Size 4 L2 2 micron	944446Q
EMDPF Size 4 L2 5 micron	944447Q
EMDPF Size 4 L2 10 micron	944448Q
EMDPF Size 4 L2 20 micron	944449Q

# EMDPF *iprotect*<sup>®</sup>

## High Pressure Duplex Filter

### Ordering Information

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
<b>EMDPF3</b>	<b>2</b>	<b>02QI</b>	<b>B</b>	<b>P</b>	<b>M</b>	<b>G16</b>	<b>1</b>

Box 1

Capacity	
Model	Code
Size 3	<b>EMDPF3</b>
Size 4	<b>EMDPF4</b>

Box 2

Filter Length	
	Code
Length 1	<b>1</b>
Length 2	<b>2</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 3

Degree of filtration				
	Media code			
<i>iprotect</i> <sup>®</sup> Glassfibre element(*)	<b>02QI</b>	<b>05QI</b>	<b>10QI</b>	<b>20QI</b>

\* High collapse elements type QIH on request

Box 4

Seal Material	
	Code
Nitrile	<b>B</b>
Fluorelastomer	V

Box 5

Indicator	
	Code
Visual Indicator	<b>M3</b>
Electrical Indicator	<b>T1</b>
Electronic 4 LED, PNP, NO	F1
Electronic 4 LED, NPN, NO	F2
Electronic 4 LED, PNP, NC	F3
Electronic 4 LED, NPN, NC	F4
Plugged with Steel plug	<b>P</b>
No indicator port	N

Box 6

Bypass Setting		
	Indicator Setting	Code
3.5 bar	2.5 bar	K
5.0 bar	3.5 bar	L
7.0 bar	5.0 bar	<b>M</b>
No bypass	5.0 bar	<b>M</b>
No bypass	No indicator	X

Important notes: When no bypass is selected Parker strongly advises the usage of high strength elements

Other versions like ATEX on request  
All electrical indicators are CE-certified

Box 7

Filter Connection		
	Connection type & size	Code
Size 3	Thread 1" BSP	<b>G16</b>
	SAE - flange 1 1/4" 6000M	H20
Size 4	Thread 1 1/4" BSP	<b>G20</b>
	SAE - flange 1 1/2" 6000M	H24

Box 8

Options		
		Code
Standard		<b>1</b>
No Bypass		2

# EADPF *iprotect*® Series

High Pressure Duplex Filters

Max. 320 l/min - 350 bar



## Automatic duplex filters increase safety

### New patented duplex filter technology offers continuous automated protection

The EADPF Series utilizes a unique patented element design named *iprotect*®. The ecological design reduces environmental impact over 50% typically and covers flow rates up to 320 l/min at 350 bar. This 'smart' element is integrated into a duplex head featuring a fully automatic change over. One or two differential pressure indicators are used to control the duplex filter. A unique aspect is that the system pressure is used for the pilot lines operating the flow control valves, isolating or putting the filter bowl with the clean element into service.



## Contact Information:

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**

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

## Product Features:

- The quality of filtration is protected.
- Rated at 350 bar for flows up to 320 l/min.
- Multiple bypass settings up to 7 bar or blocked with 210 bar rated high collapse element.
- EADPF duplex filters feature fully automatic element change-over.

## Important Information



### **WARNING-USER RESPONSIBILITY**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through their own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the applications are met.

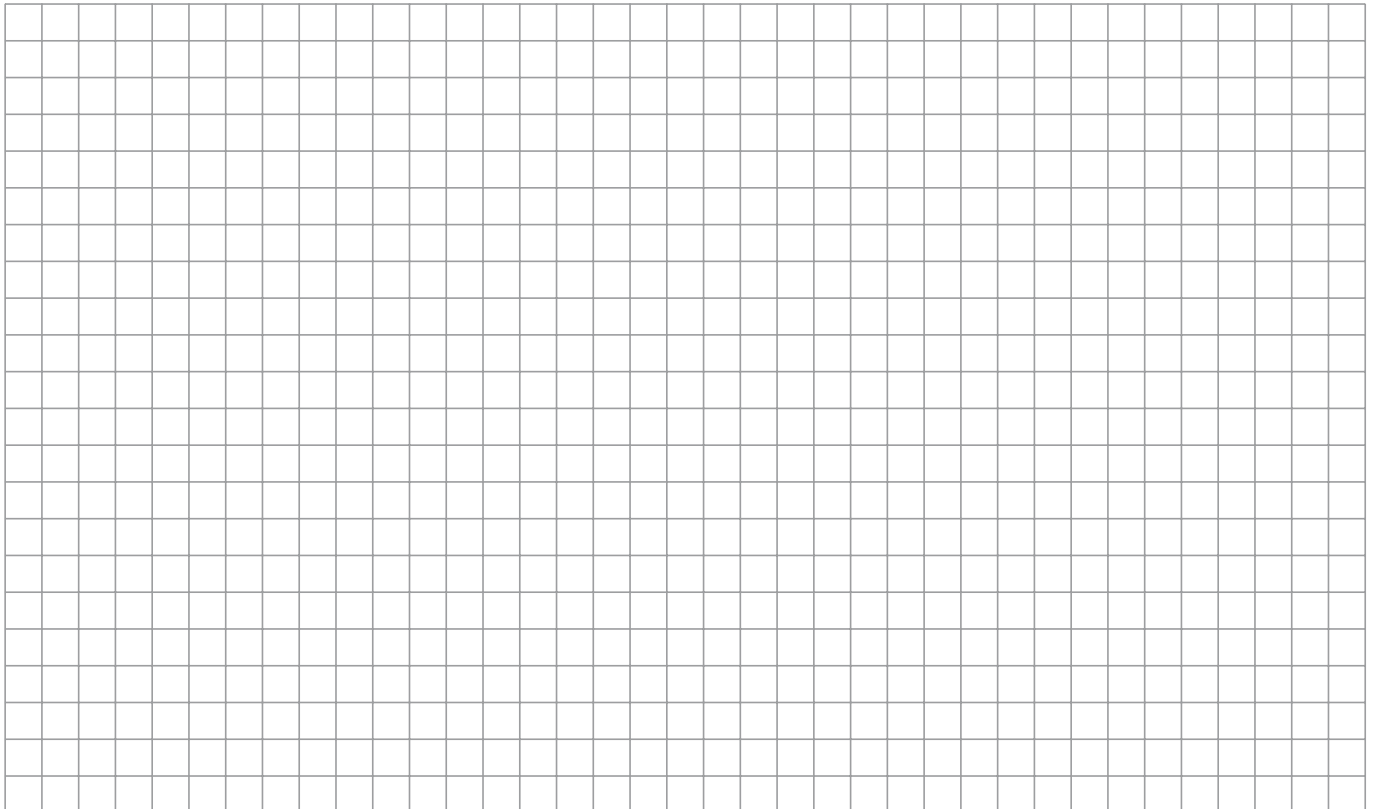
The user must analyse all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalogue and in any other materials provided from Parker or its subsidiaries or authorized distributors.

- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

The operation of the products described here in is subject to the operating and safety procedures details of which are available upon request.

#### **Sales conditions**

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. Any sale contract entered into by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request)



# 18/28/38P Series

High Pressure Filters  
Max 700 l/min - 414 bar



## The all-round high pressure filter solution

### Robust housing for heavy duty applications

The 18/28/38P Series features a range of head and bowl sizes and connection options. Microglass III glassfibre media is standard. Maximum pressure 414 bar. Maximum flow 700 l/min. A globally proven filter with optimized sizing for a wide range of industrial applications.



## Contact Information:

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

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

## Product Features:

- Multiple bypass settings up to 7 bar.
- 18/28/38P features a range of head and bowl sizes and connection options.
- Microglass III glassfibre media is standard.
- Maximum pressure 414 bar. Maximum flow 700 l/min.
- A proven filter solution for 'heavy duty' hydraulic systems.

# 18/28/38P Series

## High Pressure Filters

### Features & Benefits

Features	Advantages	Benefits
Fatigue tested to full pressure rating	Strong and robust housing for heavy duty applications	Reliable and continuous operation both in mobile and industrial applications
Several head sizes	Optimised sizing	Efficient filtration Covers wide flow range
Several connection options	Easy mounting	Global design, global acceptance Right filter for each application
Microglass III replacement elements	Multi-layered design produced high capacity and efficiency	Great performance value
	Wire support reduces pleat bunching, keeps performance consistent	Reliable performance throughout element life Reduces downtime, maximises element life
Visual, electrical and electronic indicators available	Check element condition at a glance	Optimises element life, prevents bypassing
	Right style for the application	Matches your system electrical connections

### Typical Applications

- Injection moulding
- Die casting
- Servo controls
- Machine tools
- Mobile equipment

### The Parker Filtration 18/28/38P Series High Pressure Filters

Parker Filtration engineered the 18/28/38P series of high pressure filters to satisfy demanding applications in the mobile and industrial markets throughout the world. With metric mounting and optional ISO 6149 ports, this new series is truly a global design.

Installed downstream of the pump, this new series with their wide range of high capacity Microglass III elements, offer excellent protection to system components.

Standard filters come complete with industry proven spool type bypass valve. For more critical applications such as servo or proportional controls, a no bypass high strength element combination ensures maximum protection.

The modular low hysteresis differential pressure indicator fitted to this series is unrivaled in its performance. Tests prove its accuracy and foolproof design to be a major advance in indicator technology.



# Specification

**Pressure ratings:**

Maximum allowable operating pressure 414 bar.  
 Filter housing pressure pulse fatigue tested: 10<sup>6</sup> pulses 0 - 414 bar.

**Connections:**

Inlet and outlet connections are threaded internally or flange faced.

Connection style	Model		
	18P	28P	38P
BSPF(G)	3/4"	1"	1 1/4", 1 1/2"
SAE	12	16	20, 24
ISO 6149	M27	M33	M42, M48
Flange SAE 6000	3/4"	1"	1 1/4"
Flange SAE 6000-M*	3/4"	1"	1 1/4"

\*6000-M is a SAE style with appropriate metric fixing threads.

**Filter housing:**

Head material cast iron (GSI).  
 Bowl material steel.

**Seal material:**

Nitrile or Fluoroelastomer.

**Operating temperature range:**

Seal material Nitrile: -40 °C to +100 °C.  
 Seal material Fluoroelastomer: -20 °C to +120 °C.

**Bypass valve & indicator settings:**

Table below gives bypass valve and corresponding indicator setting.

Bypass	Indicator
3.5 bar	2.5 bar
7.0 bar	5.0 bar

**Filter element:**

**Degree of filtration:**  
 Determined by multipass-test according to ISO 16889.

**Flow fatigue characteristics:**

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724).

**Microglass III:**

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and metal inner core. Collapse rating 20 bar (ISO 2941).

**High collapse elements:**

(To be used when no bypass function in filter housing).  
 Microglass III media supported with epoxy coated metal wire mesh on upstream and stainless steel on downstream, end cap material steel. Strong metal inner core. Collapse rating 210 bar (ISO 2941).

**Indicator options:**

Indicating differential pressure: 2.5 ± 0.3 bar or 5.0 ± 0.5 bar.  
 - visual M3.  
 - electrical T1.  
 - electronic F1(PNP).  
 - electronic F2(NPN).

For indicator details see catalogue section 6.

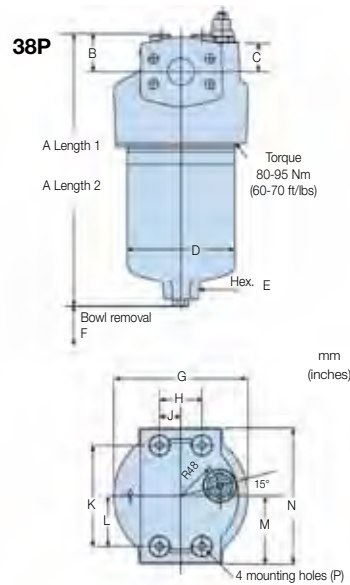
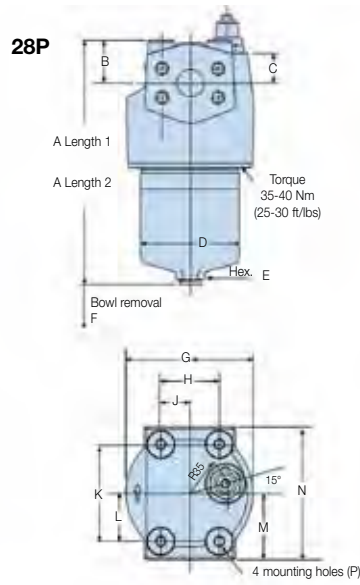
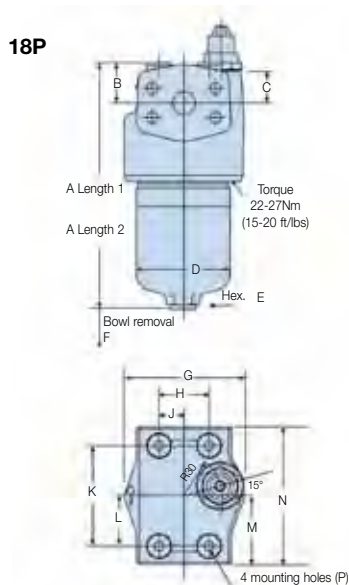
**Weights (kg):**

Model	Length 1	Length 2
18P	4.2	5.7
28P	6.7	9.2
38P	15.8	20.3

**Fluid compatibility:**

Suitable for use with mineral and vegetable oils, and some synthetic oils.  
 For other fluids, please consult Parker Filtration.

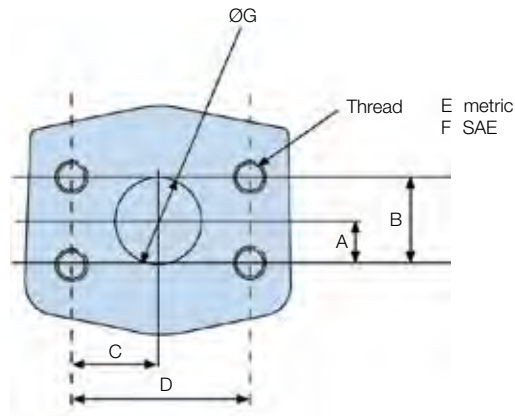
Model	A	B	C	D	E (A/F)	F	G	H	J	K	L	M	N	P
<b>18P-1</b>	198 (7.79)	32 (1.26)	26 (1.02)	75 (2.95)	24 (0.94)	100 (3.94)	98 (3.86)	40 (1.57)	20 (0.79)	80 (3.15)	40 (1.57)	55 (2.16)	110 (4.33)	M8 x 1.25 x12 deep
<b>18P-2</b>	293 (11.53)													
<b>28P-1</b>	228 (8.97)	40 (1.57)	29 (1.14)	93 (3.66)	24 (0.94)		120 (4.72)	55 (2.16)	27.5 (1.07)	90 (3.54)	45 (1.77)	62 (2.44)	124 (4.88)	M10 x 1.5 x11 deep
<b>28P-2</b>	337 (13.26)													
<b>38P-1</b>	329 (12.95)	44 (1.73)	35 (1.38)	128 (5.04)	36 (1.42)		160 (6.30)	50 (1.97)	25 (0.98)	120 (4.72)	60 (2.36)	81 (3.19)	162 (6.38)	M10 x 1.5 x12 deep
<b>38P-2</b>	448 (17.64)													



# 18/28/38P Series

## High Pressure Filters

### Flange Face Details



Model mm (inches)	A	B	C	D	E	F	G
<b>18P (3/4")</b>	11.9 (0.47)	23.8 (0.94)	25.4 (1.00)	50.8 (2.0)	M10 x 1.5-6H x 18 Deep	3/8-16 UNC-2B x 18 deep	19.0 (0.75)
<b>28P (1")</b>	14 (0.55)	27.8 (1.09)	28.0 (1.10)	57.1 (2.25)	M12 x 1.75-6H x 20 Deep	7/16-14 UNC-2B x 20 deep	25.4 (1.0)
<b>38P (1 1/4")</b>	15.7 (0.62)	31.7 (1.25)	33.0 (1.30)	66.7 (2.62)	M14 x 2-6H x 20 Deep	1/2-13 UNC-2B x 20 deep	31.8 (1.25)

## Pressure Drop Curves

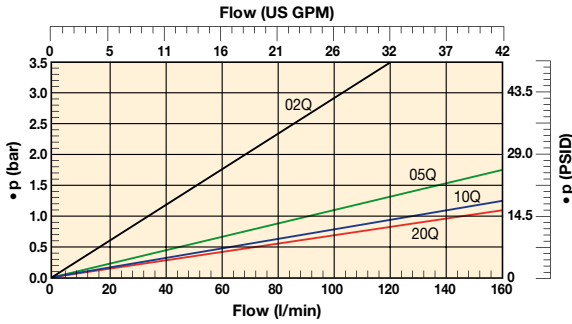
With 3.5 bar bypass the recommended initial pressure drop is max 1.2 bar.

With 7.0 bar bypass the recommended initial pressure drop is max 2.3 bar.

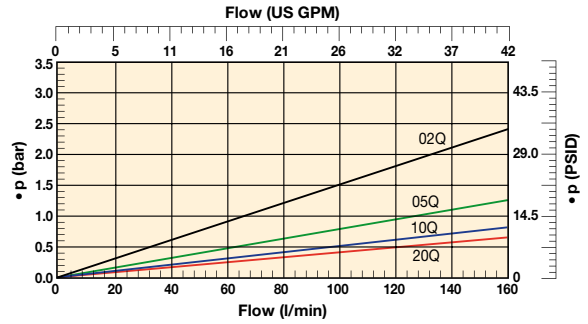
If the medium used has a viscosity different from 30 cSt, pressure drop over the filter can be estimated as follows:

The total  $\Delta p$  = housing  $\Delta p_h$  + (element  $\Delta p_e \times \text{working viscosity}/30$ ).

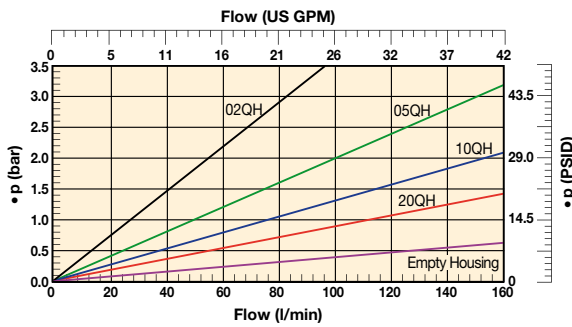
### 18P-1 Elements



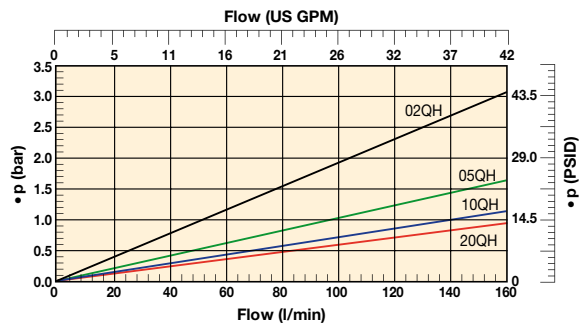
### 18P-2 Elements



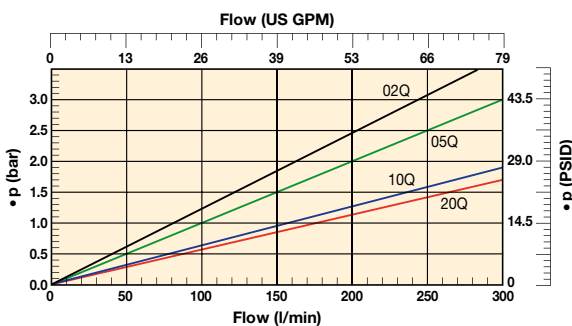
### 18P-1 Empty Housing and High Collapse



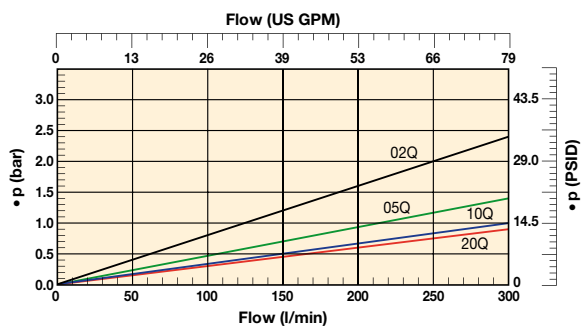
### 18P-2 High Collapse Elements



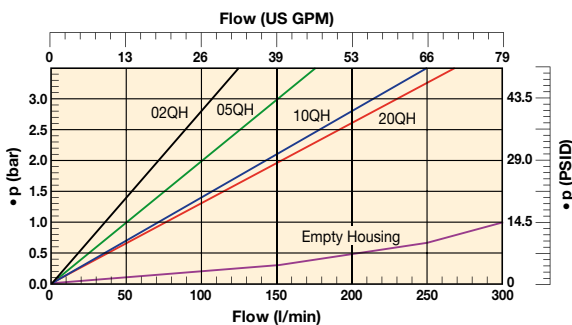
### 28P-1 Elements



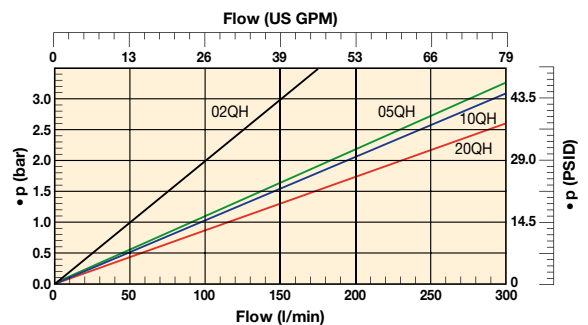
### 28P-2 Elements



### 28P-1 Empty Housing and High Collapse



### 28P-2 High Collapse Elements

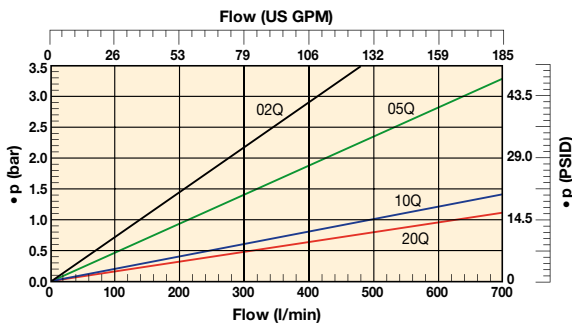


# 18/28/38P Series

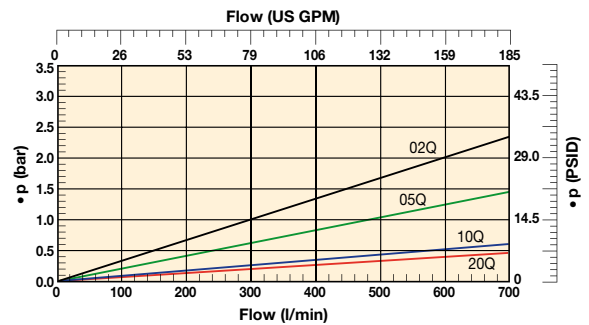
## High Pressure Filters

### Pressure Drop Curves (cont.)

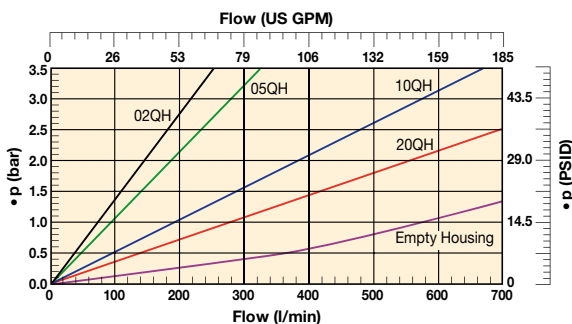
**38P-1 Elements**



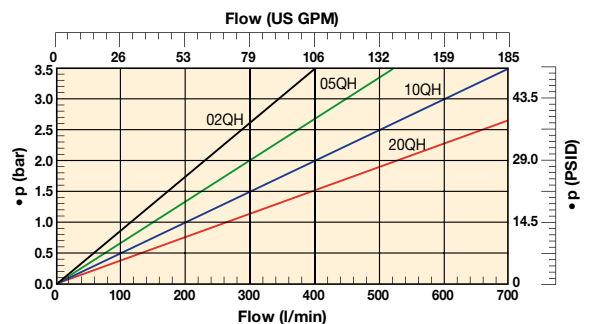
**38P-2 Elements**



**38P-1 Empty Housing and High Collapse**



**38P-2 High Collapse Elements**



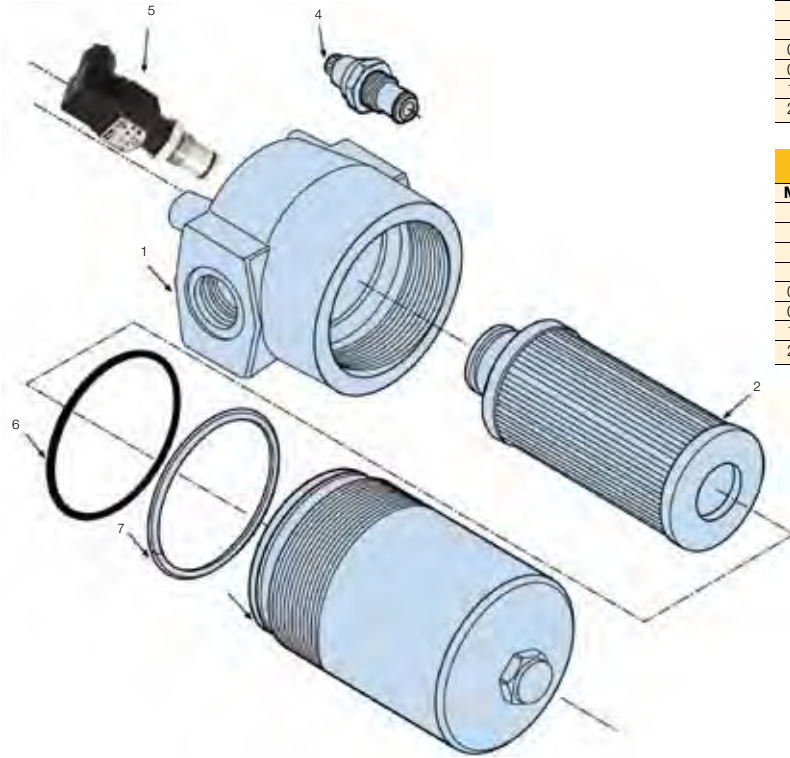
### Element Service

- A. Stop the system's power unit.
- B. Relieve any system pressure in the filter line.
- C. Drain the filter bowl if drain port option is provided.
- D. Rotate the bowl clockwise (left) and remove.
- E. Remove element by pulling downward with a slight twisting motion and discard.
- F. Check bowl o-ring and anti-extrusion ring for damage and replace if necessary.
- G. Lubricate element o-ring with system fluid and locate element in filter head.
- H. Install bowl by rotating counter-clockwise (right) and tighten to specified torque.
  - 18P - 22-27 Nm (16-20 ft. lbs.)
  - 28P - 35-40 Nm (25-30 ft. lbs.)
  - 38P - 80-95 Nm (60-70 ft. lbs.)
- I. Confirm there are no leaks after powering the system.

### Parts List

Index	Description	Part number
1	<b>Head Assembly</b>	
2	<b>Element</b>	see table on
3	<b>Bowl</b>	next page
	<b>Indicators</b>	
4	M3 – Visual auto reset; 2.5 bar	FMUM3KVMU14H
	M3 – Visual auto reset; 5.0 bar	FMUM3MVMU14H
5	T1 – Electrical; 2.5 bar with DIN 43650 Connector	FMUT1KVMU14H
	T1 – Electrical; 5.0 bar with DIN 43650 Connector	FMUT1KVMU14H
	F1 – Electronic PNP; 2.5 bar with 4 LED	FMUF1KVMU14H
	F2 – Electronic NPN; 2.5 bar with 4 LED	FMUF2KVMU14H
	F1 – Electronic PNP; 5.0 bar with 4 LED	FMUF1MVMU14H
	F2 – Electronic NPN; 5.0 bar with 4 LED	FMUF2MVMU14H
6	<b>Bowl Seal</b>	
7	<b>Bowl Anti-extrusion Ring</b>	
	<b>Seal Kits</b>	
	Seal kit 18P (std) – Nitrile	S04350
	Seal kit 18P (F3) – Fluoroelastomer	S04351
	Seal kit 28P (std) – Nitrile	S04352
	Seal kit 28P (F3) – Fluoroelastomer	S04353
	Seal kit 38P (std) – Nitrile	S04354
	Seal Kit 38P (F3) – Fluoroelastomer	S04355

## Element Service (cont.)



### Replacement element part numbers

Elements with Nitrile seals						
Model	18P-1	18P-2	28P-1	28P-2	38P-1	38P-2
02Q	G04242	G04250	G04258	G04266	G04274	G04282
05Q	G04243	G04251	G04259	G04267	G04275	G04283
10Q	G04244	G04252	G04260	G04268	G04276	G04284
20Q	G04245	G04253	G04261	G04269	G04277	G04285
02QH	G04290	G04298	G04306	G04314	G04322	G04330
05QH	G04291	G04299	G04307	G04315	G04323	G04331
10QH	G04292	G04300	G04308	G04316	G04324	G04332
20QH	G04293	G04301	G04309	G04317	G04325	G04333

Elements with Fluoroelastomer seals						
Model	18P-1	18P-2	28P-1	28P-2	38P-1	38P-2
02Q	G04246	G04254	G04262	G04270	G04278	G04286
05Q	G04247	G04255	G04263	G04271	G04279	G04287
10Q	G04248	G04256	G04264	G04272	G04280	G04288
20Q	G04249	G04257	G04265	G04273	G04281	G04289
02QH	G04294	G04302	G04310	G04318	G04326	G04334
05QH	G04295	G04303	G04311	G04319	G04327	G04335
10QH	G04296	G04304	G04312	G04320	G04328	G04336
20QH	G04297	G04305	G04313	G04321	G04329	G04337

## Ordering Information

### Standard products table

Part number	Supersedes	Flow (l/min)	Model number	Element length	Media rating (µ)	Seals	Indicator	Bypass settings	Ports	Replacement elements
18P110QBT1MG121	18P-1-10Q-TW6-98-B2B2-1	80	18P	Length 1	10	Nitrile	Electrical	7.0 bar	G <sup>3/4</sup> "	G04244
18P110QBM3MG121	18P-1-10Q-M2-98-B2B2-1	80	18P	Length 1	10	Nitrile	Visual	7.0 bar	G <sup>3/4</sup> "	G04244
18P120QBT1MG121	18P-1-20Q-TW6-98-B2B2-1	100	18P	Length 1	20	Nitrile	Electrical	7.0 bar	G <sup>3/4</sup> "	G04245
18P120QBM3MG121	18P-1-20Q-M2-98-B2B2-1	100	18P	Length 1	20	Nitrile	Visual	7.0 bar	G <sup>3/4</sup> "	G04245
18P210QBT1MG121	18P-2-10Q-TW6-98-B2B2-1	130	18P	Length 2	10	Nitrile	Electrical	7.0 bar	G <sup>3/4</sup> "	G04252
18P210QBM3MG121	18P-2-10Q-M2-98-B2B2-1	130	18P	Length 2	10	Nitrile	Visual	7.0 bar	G <sup>3/4</sup> "	G04252
18P220QBT1MG121	18P-2-20Q-TW6-98-B2B2-1	150	18P	Length 2	20	Nitrile	Electrical	7.0 bar	G <sup>3/4</sup> "	G04253
18P220QBM3MG121	18P-2-20Q-M2-98-B2B2-1	150	18P	Length 2	20	Nitrile	Visual	7.0 bar	G <sup>3/4</sup> "	G04253
28P110QBT1MG161	28P-1-10Q-TW6-98-C2C2-1	120	28P	Length 1	10	Nitrile	Electrical	7.0 bar	G1"	G04260
28P110QBM3MG161	28P-1-10Q-M2-98-C2C2-1	120	28P	Length 1	10	Nitrile	Visual	7.0 bar	G1"	G04260
28P120QBT1MG161	28P-1-20Q-TW6-98-C2C2-1	150	28P	Length 1	20	Nitrile	Electrical	7.0 bar	G1"	G04261
28P120QBM3MG161	28P-1-20Q-M2-98-C2C2-1	150	28P	Length 1	20	Nitrile	Visual	7.0 bar	G1"	G04261
28P210QBT1MG161	28P-2-10Q-TW6-98-C2C2-1	250	28P	Length 2	10	Nitrile	Electrical	7.0 bar	G1"	G04268
28P210QBM3MG161	28P-2-10Q-M2-98-C2C2-1	250	28P	Length 2	10	Nitrile	Visual	7.0 bar	G1"	G04268
38P110QBT1MG201	38P-1-10Q-TW6-98-D2D2-1	340	38P	Length 1	10	Nitrile	Electrical	7.0 bar	G1 <sup>1/2</sup> "	G04276
38P110QBM3MG201	38P-1-10Q-M2-98-D2D2-1	340	38P	Length 1	10	Nitrile	Visual	7.0 bar	G1 <sup>1/2</sup> "	G04276
38P120QBT1MG201	38P-1-20Q-TW6-98-D2D2-1	420	38P	Length 1	20	Nitrile	Electrical	7.0 bar	G1 <sup>1/2</sup> "	G04277
38P120QBM3MG201	38P-1-20Q-M2-98-D2D2-1	420	38P	Length 1	20	Nitrile	Visual	7.0 bar	G1 <sup>1/2</sup> "	G04277
38P210QBT1MG201	38P-2-10Q-TW6-98-D2D2-1	560	38P	Length 2	10	Nitrile	Electrical	7.0 bar	G1 <sup>1/2</sup> "	G04284
38P210QBM3MG201	38P-2-10Q-M2-98-D2D2-1	560	38P	Length 2	10	Nitrile	Visual	7.0 bar	G1 <sup>1/2</sup> "	G04284
38P220QBT1MG201	38P-2-20Q-TW6-98-D2D2-1	700	38P	Length 2	20	Nitrile	Electrical	7.0 bar	G1 <sup>1/2</sup> "	G04285
38P220QBM3MG201	38P-2-20Q-M2-98-D2D2-1	700	38P	Length 2	20	Nitrile	Visual	7.0 bar	G1 <sup>1/2</sup> "	G04285

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

# 18/28/38P Series

## High Pressure Filters

### Ordering Information (cont.)

#### Product configurator

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
<b>38P</b>	<b>1</b>	<b>10Q</b>	<b>B</b>	<b>M3</b>	<b>M</b>	<b>G20</b>	<b>1</b>

#### Box 1

Code	
<b>Model</b>	<b>Code</b>
Small size high pressure filter, T-port	<b>18P</b>
Medium size high pressure filter, T-port	<b>28P</b>
Large size high pressure filter, T-port	<b>38P</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

Note: Standard items are in stock, semi standard items are available within four weeks

#### Box 2

Filter type	
<b>Length</b>	<b>Code</b>
Length 1	<b>1</b>
Length 2	<b>2</b>

#### Box 3

Degree of filtration				
Element media	<b>Glass fibre</b>			
	<b>Media code</b>			
Microglass III element	<b>02Q</b>	<b>05Q</b>	<b>10Q</b>	<b>20Q</b>
High collapse element	<b>02QH</b>	<b>05QH</b>	<b>10QH</b>	<b>20QH</b>

#### Box 4

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

#### Box 5

Indicator	
<b>No indicator port</b>	<b>N</b>
Visual indicator	<b>M3</b>
Electrical indicator	<b>T1</b>
Plugged with steel plug	P
Electronic 4 LED, PNP, N.O.	F1
Electronic 4 LED, NPN, N.O.	F2
Electronic 4 LED, PNP, N.C.	F3
Electronic 4 LED, NPN, N.C.	F4

#### Box 6

Bypass and indicator settings		
<b>Bypass valve</b>	<b>Indicator</b>	<b>Code</b>
3.5 bar	2.5 bar	<b>K</b>
7.0 bar	5.0 bar	<b>M</b>
No bypass	5.0 bar	<b>M</b>
No bypass	No indicator	<b>X</b>

+ Box 8: code 2  
+ Box 8: code 2

When filter includes a bypass valve but not an indicator, code denotes bypass setting.

#### Box 7

Filter connection	
<b>Ports</b>	<b>Code</b>
18P: Thread G 3/4	<b>G12</b>
Thread SAE 12	S12
Thread M27, ISO 6149	M27
SAE flange 3/4" 6000-M	H12
SAE flange 3/4" 6000	F12
28P: Thread G 1	<b>G16</b>
Thread SAE 16	S16
Thread M33, ISO 6149	M33
SAE flange 1" 6000-M	H16
SAE flange 1" 6000	F16
38P: Thread G 1 1/4	<b>G20</b>
Thread G 1 1/2	<b>G24</b>
Thread SAE 20	S20
Thread SAE 24	S24
Thread M42, ISO 6149	M42
Thread M48, ISO 6149	M48
SAE flange 1 1/2" 6000-M	<b>H20</b>
SAE flange 1 1/2" 6000	F20

#### Box 8

Options	
<b>Options</b>	<b>Code</b>
Standard	<b>1</b>
No bypass	<b>2</b>

#### Nominal flow (l/min) at viscosity 30 cSt

Filter model	02Q	05Q	10Q	20Q
18P-1	35	60	80	100
18P-2	70	110	130	150
28P-1	80	100	120	150
28P-2	140	200	250	300
38P-1	140	220	340	420
38P-2	320	440	560	700

#### 18/28/38P Series Seal Kits

Part Number	Description
<b>S04350</b>	NITRILE SEAL KIT 18P
<b>S04351</b>	FLUOROELASTOMER SEAL KIT 18P
<b>S04352</b>	NITRILE SEAL KIT 28P
<b>S04353</b>	FLUOROELASTOMER SEAL KIT 28P
<b>S04354</b>	NITRILE SEAL KIT 38P
<b>S04355</b>	FLUOROELASTOMER SEAL KIT 38P

Degree of filtration						Code	
Average filtration beta ratio $\beta$ (ISO 16889) / particle size $\mu\text{m}$ [c]							
$\beta_x(c)=2$	$\beta_x(c)=10$	$\beta_x(c)=75$	$\beta_x(c)=100$	$\beta_x(c)=200$	$\beta_x(c)=1000$	Disposable Microglass III	High collapse element
% efficiency, based on the above beta ratio ( $\beta_x$ )							
<b>50.0%</b>	<b>90.0%</b>	<b>98.7%</b>	<b>99.0%</b>	<b>99.5%</b>	<b>99.9%</b>		
N/A	N/A	N/A	N/A	N/A	4.5	<b>02Q</b>	<b>02QH</b>
N/A	N/A	4.5	5	6	7	<b>05Q</b>	<b>05QH</b>
N/A	6	8.5	9	10	12	<b>10Q</b>	<b>10QH</b>
6	11	17	18	20	22	<b>20Q</b>	<b>20QH</b>

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.



# 70/70 Eco Series

High Pressure Filters  
Max 450 l/min - 420 bar



When flexibility meets reducing environmental impact

**A proven filter offering reduced space and piping**

The 70/70 Eco Series features a range of head and bowl sizes and connection options. Microglass III glassfibre and Ecoglass III media is available. Maximum pressure 420 bar. Maximum flow 450 l/min. A proven, strong and robust filter for heavy duty applications.



## Contact Information:

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

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

## Product Features:

- 70/70 Eco features a range of head and bowl sizes and connection options.
- Microglass III glassfibre and Ecoglass III media is available.
- Maximum pressure 420 bar. Maximum flow 450 l/min.
- A proven filter offering high levels of system protection.

# 70/70 Eco Series

## High Pressure Filters

### Features & Benefits

Features	Advantages	Benefits
Fatigue tested to full pressure rating	Strong and robust housing for heavy duty applications	Reliable and continuous operation both in mobile and industrial applications
Several head options and connection sizes	Easy mounting	Reduced space and piping Right filter for each application
Several bowl lengths	Optimised sizing	Efficient filtration
Microglass III replacement elements	Multi-layered design produced high capacity and efficiency	Great performance value
	Wire support reduces pleat bunching, keeps performance consistent	Reliable performance throughout element life Reduces downtime, maximises element life
Coreless Ecoglass III replacement elements	No metal content in element	Environmentally friendly disposal by incineration
	Reduced overall weight of 50%	Lower element replacement costs
	Easy compaction of used elements	Lower disposal costs
	Eco adaptors available	Retrofit coreless design to housings already installed
Visual, electrical and electronic indicators available	Check element condition at a glance	Optimise element life, prevent bypassing
	Right style for the application	Matches your system electrical connections

### Typical Applications

- Forestry equipment
- Industrial power units
- Pulp and paper
- Port handling equipment
- Mining and quarrying equipment

### The Parker Filtration 70/70 Eco Series High Pressure Filters.

High quality 420 bar in-line pressure filters designed to offer high levels of protection at flows up to 450 l/min.

Dirt sensitive systems can be protected with confidence using the 70 Series high pressure filters.

The 70 Series also available with environmentally friendly Ecoglass III elements.



## Specification

### Pressure ratings:

Maximum allowable operating pressure 420 bar (350 bar Length 4).  
Filter housing pressure pulse fatigue tested:  $10^6$  pulses 0 - 414 bar.

### Connections:

Threads G1, G1 $\frac{1}{4}$ , G1 $\frac{1}{2}$  (ISO 228/1).  
or flanges 1 $\frac{1}{4}$ " SAE 3000-M, 1 $\frac{1}{2}$ " SAE 3000-M, 1 $\frac{1}{4}$ " SAE 6000-M, 1 $\frac{1}{2}$ " SAE 6000-M.

### Filter housing:

Head material cast iron (GSI).  
Bowl material steel. Max torque 40 Nm.

### Seal material:

Nitrile or Fluoroelastomer.

### Operating temperature range:

Seal material Nitrile: -40 °C to +100 °C.  
Seal material Fluoroelastomer: -20 °C to +120 °C.

### Bypass valve:

Opening pressure 3.5 bar.

### Filter element:

#### Degree of filtration:

Determined by Multipass-test according to ISO 16889.

#### Flow fatigue characteristics:

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724).

### Microglass III:

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and metal inner core.  
Collapse rating 20 bar (ISO 2941).

### Ecoglass III:

Supported with plastic net, end cap material reinforced composite.  
No metal parts.

Collapse rating 10 bar (ISO 2941).

Filter element can only be used together with reusable FEA Eco-adapter.

Note: Ecoglass III contributes to ISO 14001 quality.

### High collapse elements:

(To be used when no bypass function in filter housing).

Microglass III media supported with epoxy coated metal wire mesh on upstream and stainless steel on downstream, end cap material steel. Strong metal inner core. Collapse rating 210 bar (ISO 2941).

### Indicator options:

Indicating differential pressure:  $2.5 \pm 0.3$  bar or  $7.0 \pm 0.5$  bar.

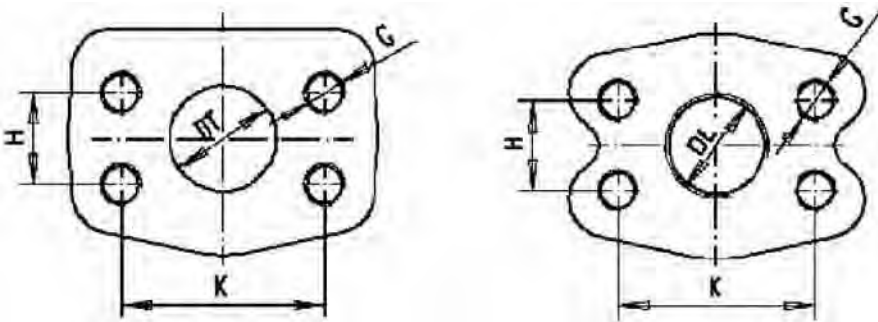
2.5 bar indicators to be used with 3.5 bar bypass valve and 7.0 bar indicators with no bypass function.

- visual M3.
- electrical T1.
- electronic F1 (PNP).
- electronic F2 (NPN).

For indicator details see catalogue section 6.

### Fluid compatibility:

Suitable for use with mineral and vegetable oils, and some synthetic oils. For other fluids, please consult Parker Filtration.



SAE Flange Dimensions					
Type	K	H	DL	DT	G
1.1/4 SAE 3000 psi	58,7	30,2	Ø 36	31,8	M10-15
1.1/2 SAE 3000 psi	69,9	35,7	G1.1/4	38,1	M12-18
1.1/4 SAE 6000 psi	66,7	31,7	Ø 30,3	31,8	M14-19
1.1/4 SAE 6000 psi	79,4	36,5	G1.1/4	38,1	M16-21

Spare Eco adaptors that are needed for use with or changing to Eco elements are as follows

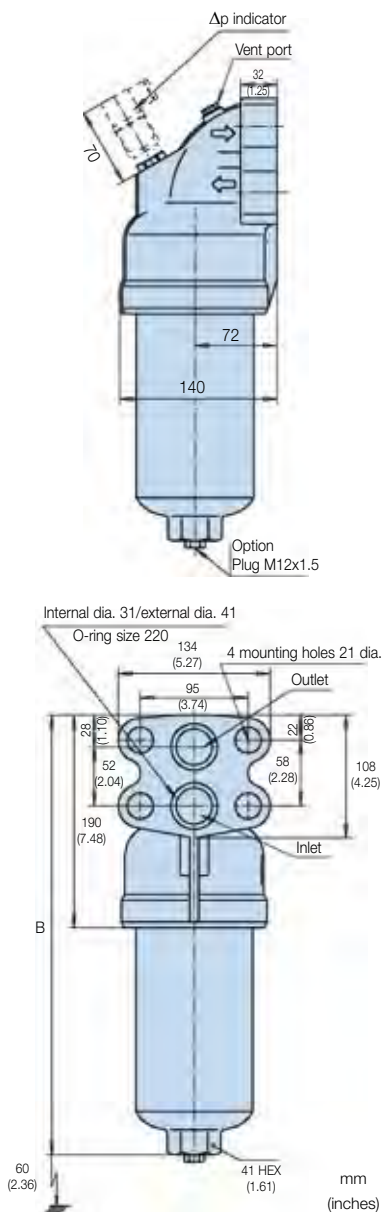
Filter Type	Eco Adaptor	Part Number
70-1	FEA7005.B	911042090
70-2	FEA7006.B	911042087
70-3	FEA7007.B	911042091
70-4	FEA7008.B	911042092

# 70/70 Eco Series

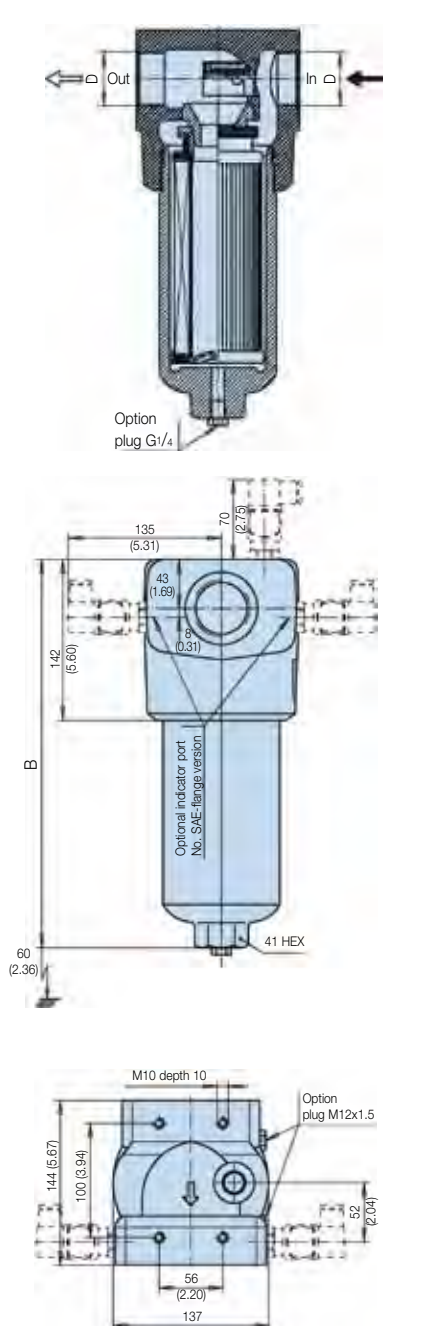
## High Pressure Filters

### Specification

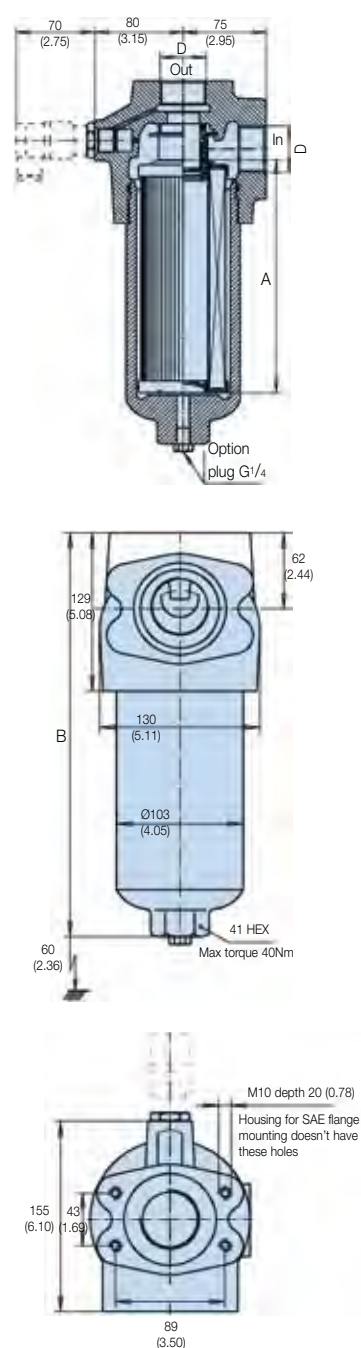
**70B**



**70T**



**70L**



**Weights (kg)**

Type	70T	70L	70B
Length 1	14	10.5	11.5
Length 2	16.5	13	14
Length 3	19	15.5	16.5
Length 4	22	18.5	19.5

Type	A	B 70T	B 70B	B 70L	Max working pressure	Port D
Length 1	116 (4.57)	249 (9.80)	295 (11.61)	235 (9.25)	420 bar	G1, G1 <sup>1</sup> / <sub>4</sub> or G1 <sup>1</sup> / <sub>2</sub> Flange 1 <sup>1</sup> / <sub>2</sub> SAE 3000-M Flange 1 <sup>1</sup> / <sub>4</sub> SAE 3000-M Flange 1 <sup>1</sup> / <sub>2</sub> SAE 6000-M Flange 1 <sup>1</sup> / <sub>4</sub> SAE 6000-M
Length 2	208 (8.19)	342 (13.46)	390 (15.35)	330 (13.00)		
Length 3	329 (12.95)	462 (18.19)	510 (20.08)	450 (17.72)		
Length 4	428 (16.85)	562 (22.12)	610 (24.01)	550 (21.65)	350 bar	



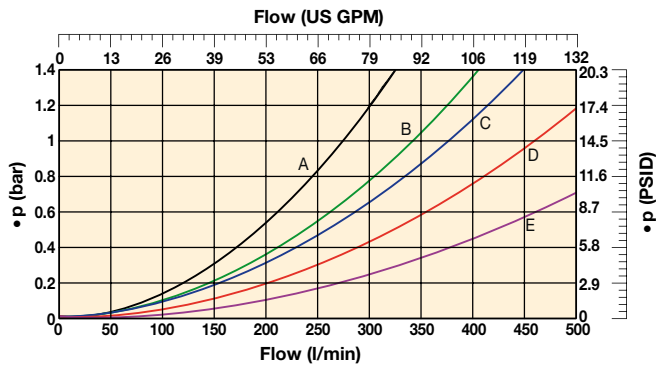
## Pressure Drop Curves

With 3.5 bar bypass the recommended initial pressure drop is max 1.2 bar.

If the medium used has a viscosity different from 30 cSt, pressure drop over the filter can be estimated as follows:

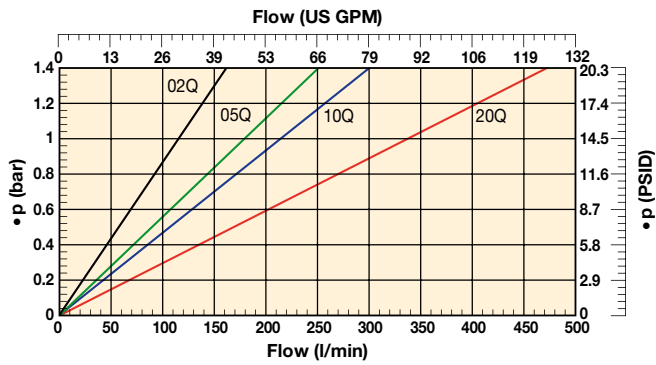
The total  $\Delta p = \text{housing } \Delta p_h + (\text{element } \Delta p_e \times \text{working viscosity}/30)$ .

### 70 Series Empty Housing

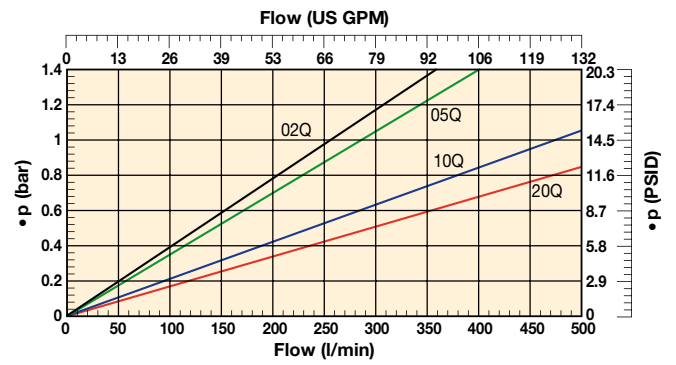


- A: 70T with G16 connections
- B: 70T with G20 connections and 70L with G16 connections
- C: 70L with G20 connections and 70B
- D: 70T with G24 connections
- E: 70L with G24 connections

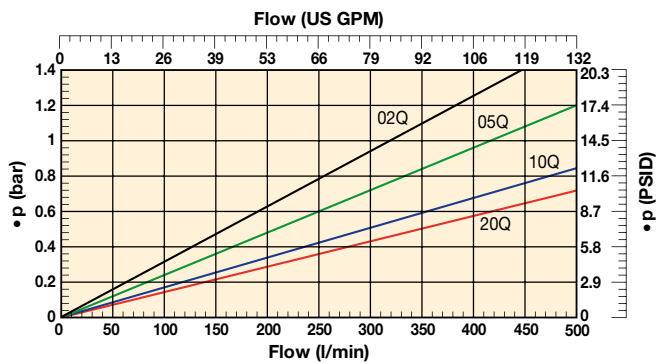
### 70-1 Elements with Microglass III



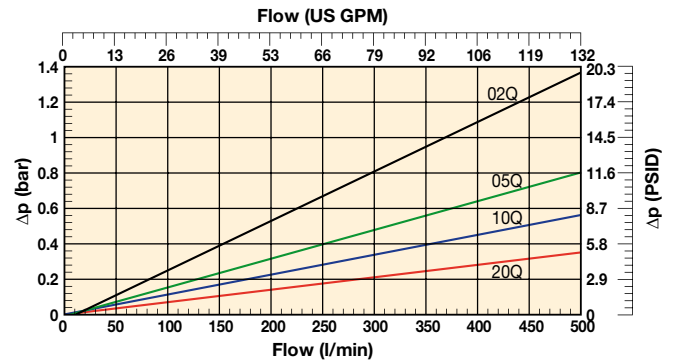
### 70-2 Elements with Microglass III



### 70-3 Elements with Microglass III



### 70-4 Elements with Microglass III

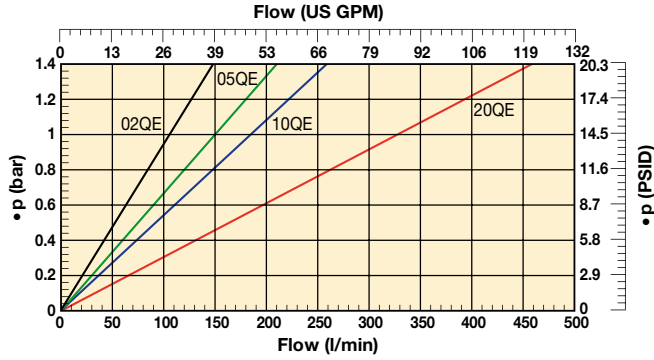


# 70/70 Eco Series

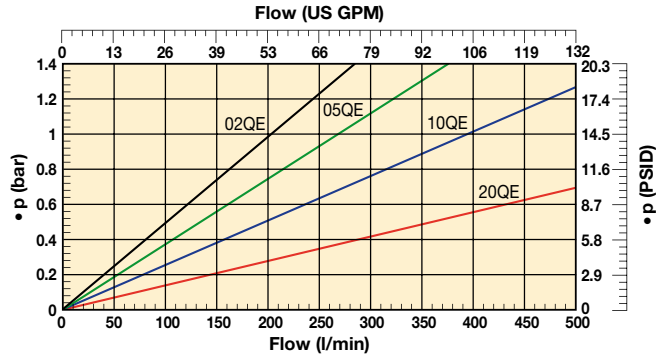
## High Pressure Filters

### Pressure Drop Curves (cont.)

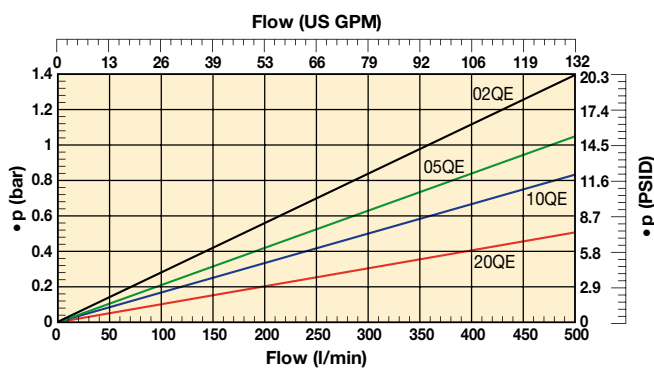
70-1 Elements with Ecoglass III



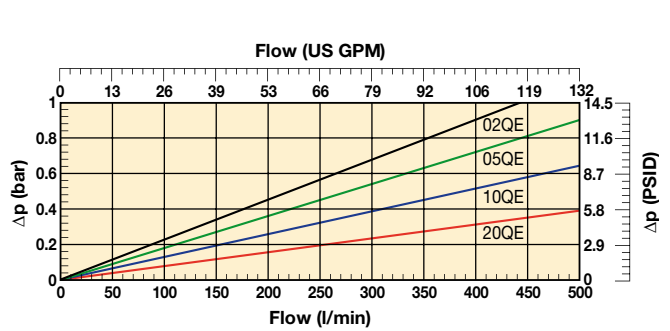
70-2 Elements with Ecoglass III



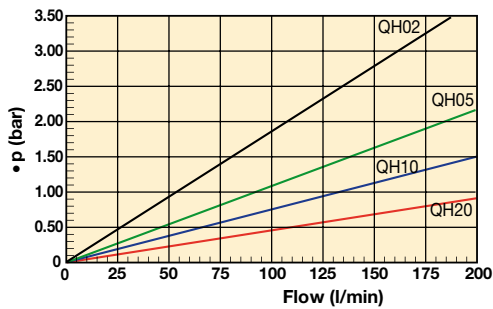
70-3 Elements with Ecoglass III



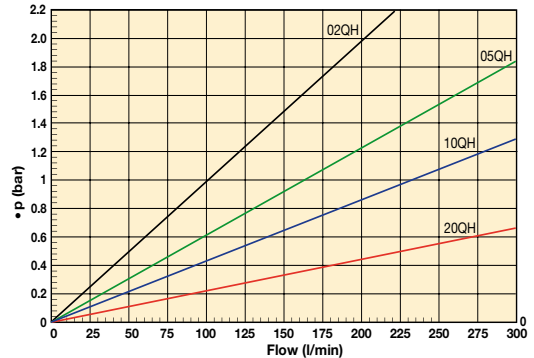
70-4 Elements with Ecoglass III



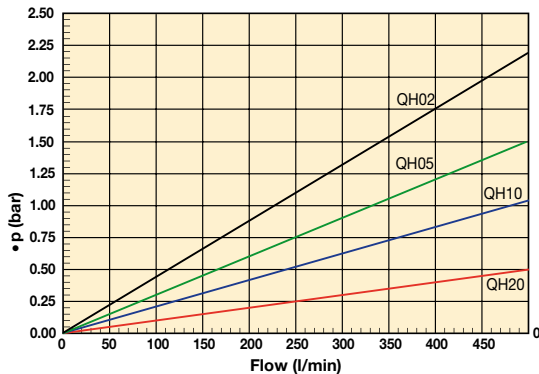
70-1 PRESSURE DROP CURVE  
High Collapse FC7005



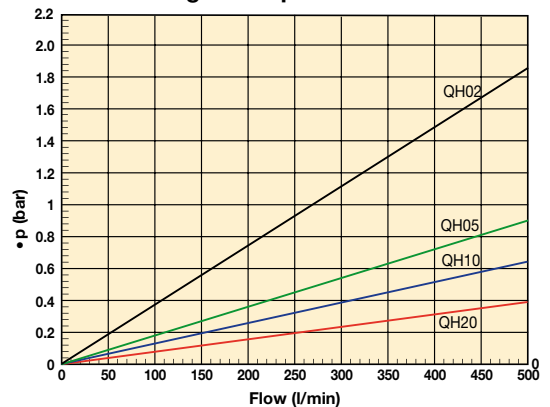
PRESSURE DROP CURVE  
70-2 High Collapse FC7006



70-3 PRESSURE DROP CURVE  
High Collapse FC7007



70-4 PRESSURE DROP CURVE  
High Collapse FC7008



## Ordering Information

Standard products table

Part number	Supersedes	Flow (l/min)	Model number	Element length	Media rating (µ)	Seals	Indicator	Bypass settings	Ports	Replacement elements	Supersedes
70L110QBPKG161	FF7005.Q010.BS35.GL16	150	70L	1	10	Nitrile	Plugged	3.5 bar	G1"	938773Q	FC7005.Q010.BK
70L120QBPKG161	FF7005.Q020.BS35.GL16	230	70L	1	20	Nitrile	Plugged	3.5 bar	G1"	938774Q	FC7005.Q020.BK
70L210QBPKG201	FF7006.Q010.BS35.GL20	280	70L	2	10	Nitrile	Plugged	3.5 bar	G1½"	938777Q	FC7006.Q010.BK
70L220QBPKG201	FF7006.Q020.BS35.GL20	300	70L	2	20	Nitrile	Plugged	3.5 bar	G1½"	938778Q	FC7006.Q020.BK
70L310QBPKG241	FF7007.Q010.BS35.GL24	400	70L	3	10	Nitrile	Plugged	3.5 bar	G1½"	938781Q	FC7007.Q010.BK
70L320QBPKG241	FF7007.Q020.BS35.GL24	430	70L	3	20	Nitrile	Plugged	3.5 bar	G1½"	938782Q	FC7007.Q020.BK
70L410QBPKG241	FF7008.Q010.BS35.GL24	430	70L	4	10	Nitrile	Plugged	3.5 bar	G1½"	938785Q	FC7008.Q010.BK
70L420QBPKG241	FF7008.Q020.BS35.GL24	450	70L	4	20	Nitrile	Plugged	3.5 bar	G1½"	938786Q	FC7008.Q020.BK
70L110QEBPKG161	FF7005.QE10.BS35.GL16	150	70L	1	10	Nitrile	Plugged	3.5 bar	G1"	938789Q	FC7005.QE10.BK
70L120QEBPKG161	FF7005.QE20.BS35.GL16	230	70L	1	20	Nitrile	Plugged	3.5 bar	G1"	938790Q	FC7005.QE20.BK
70L210QEBPKG201	FF7006.QE10.BS35.GL20	280	70L	2	10	Nitrile	Plugged	3.5 bar	G1½"	938793Q	FC7006.QE10.BK
70L220QEBPKG201	FF7006.QE20.BS35.GL20	300	70L	2	20	Nitrile	Plugged	3.5 bar	G1½"	938794Q	FC7006.QE20.BK
70L310QEBPKG241	FF7007.QE10.BS35.GL24	400	70L	3	10	Nitrile	Plugged	3.5 bar	G1½"	938797Q	FC7007.QE10.BK
70L320QEBPKG241	FF7007.QE20.BS35.GL24	430	70L	3	20	Nitrile	Plugged	3.5 bar	G1½"	938798Q	FC7007.QE20.BK
70L410QEBPKG241	FF7008.QE10.BS35.GL24	430	70L	4	10	Nitrile	Plugged	3.5 bar	G1½"	938801Q	FC7008.QE10.BK
70L420QEBPKG241	FF7008.QE20.BS35.GL24	450	70L	4	20	Nitrile	Plugged	3.5 bar	G1½"	938802Q	FC7008.QE20.BK
70T110QBPKG161	FF7005.Q010.BS35.GT16	150	70T	1	10	Nitrile	Plugged	3.5 bar	G1"	938773Q	FC7005.Q010.BK
70T120QBPKG161	FF7005.Q020.BS35.GT16	200	70T	1	20	Nitrile	Plugged	3.5 bar	G1"	938774Q	FC7005.Q020.BK
70T210QBPKG201	FF7006.Q010.BS35.GT20	260	70T	2	10	Nitrile	Plugged	3.5 bar	G1½"	938777Q	FC7006.Q010.BK
70T220QBPKG201	FF7006.Q020.BS35.GT20	280	70T	2	20	Nitrile	Plugged	3.5 bar	G1½"	938778Q	FC7006.Q020.BK
70T310QBPKG241	FF7007.Q010.BS35.GT24	360	70T	3	10	Nitrile	Plugged	3.5 bar	G1½"	938781Q	FC7007.Q010.BK
70T320QBPKG241	FF7007.Q020.BS35.GT24	380	70T	3	20	Nitrile	Plugged	3.5 bar	G1½"	938782Q	FC7007.Q020.BK
70T410QBPKG241	FF7008.Q010.BS35.GT24	360	70T	4	10	Nitrile	Plugged	3.5 bar	G1½"	938785Q	FC7008.Q010.BK
70T420QBPKG241	FF7008.Q020.BS35.GT24	380	70T	4	20	Nitrile	Plugged	3.5 bar	G1½"	938786Q	FC7008.Q020.BK
70T110QEBPKG161	FF7005.QE10.BS35.GT16	150	70T	1	10	Nitrile	Plugged	3.5 bar	G1"	938789Q	FC7005.QE10.BK
70T120QEBPKG161	FF7005.QE20.BS35.GT16	200	70T	1	20	Nitrile	Plugged	3.5 bar	G1"	938790Q	FC7005.QE20.BK
70T210QEBPKG201	FF7006.QE10.BS35.GT20	260	70T	2	10	Nitrile	Plugged	3.5 bar	G1½"	938793Q	FC7006.QE10.BK
70T220QEBPKG201	FF7006.QE20.BS35.GT20	280	70T	2	20	Nitrile	Plugged	3.5 bar	G1½"	938794Q	FC7006.QE20.BK
70T310QEBPKG241	FF7007.QE10.BS35.GT24	360	70T	3	10	Nitrile	Plugged	3.5 bar	G1½"	938797Q	FC7007.QE10.BK
70T320QEBPKG241	FF7007.QE20.BS35.GT24	380	70T	3	20	Nitrile	Plugged	3.5 bar	G1½"	938798Q	FC7007.QE20.BK
70T410QEBPKG241	FF7008.QE10.BS35.GT24	360	70T	4	10	Nitrile	Plugged	3.5 bar	G1½"	938801Q	FC7008.QE10.BK
70T420QEBPKG241	FF7008.QE20.BS35.GT24	380	70T	4	20	Nitrile	Plugged	3.5 bar	G1½"	938802Q	FC7008.QE20.BK

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

70/70 Eco Series Seal Kits	
Part Number	Description
911045021	NITRILE SEAL KIT 70/70 Eco
911045051	FLUOROELASTOMER SEAL KIT 70/70 Eco

# 70/70 Eco Series

## High Pressure Filters

### Ordering Information (cont.)

#### Product configurator

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
<b>70L</b>	<b>3</b>	<b>10Q</b>	<b>B</b>	<b>M3</b>	<b>K</b>	<b>G24</b>	<b>1</b>

Box 1		Box 2		Box 3				
Code		Filter type		Degree of filtration				
<b>Model</b>	<b>Code</b>	<b>Length</b>	<b>Code</b>	<b>Element media</b>				
High pressure filter with L-port	<b>70L</b>	Length 1	<b>1</b>	<b>Glass fibre</b>				
High pressure filter with T-port	<b>70T</b>	Length 2	<b>2</b>	<b>Media code</b>				
High pressure filter with side manifold mounting	70B	Length 3	<b>3</b>	Microglass III element	<b>02Q</b>	<b>05Q</b>	<b>10Q</b>	<b>20Q</b>
		Length 4	<b>4</b>	Ecoglass III element	<b>02QE</b>	<b>05QE</b>	<b>10QE</b>	<b>20QE</b>
				High collapse element	02QH	05QH	10QH	20QH

Note: When using Ecoglass III elements reusable Eco-adaptor is required. Consult Parker.

Box 4		Box 5			Box 6		
Seal type		Indicator			Bypass and indicator settings		
<b>Seal material</b>	<b>Code</b>			<b>Code</b>	<b>Bypass valve</b>	<b>Indicator</b>	<b>Code</b>
Nitrile	<b>B</b>	Plugged with steel plug		<b>P</b>	3.5 bar	2.5 bar	<b>K</b>
Fluoroelastomer	V	Visual indicator		<b>M3</b>	No bypass	7.0 bar	N
		Electrical indicator		<b>T1</b>	No bypass	No indicator (P)	X
		Electronic 4 LED, PNP, N.O.		F1	+ Box 8: code 2		
		Electronic 4 LED, NPN, N.O.		F2	+ Box 8: code 2		
		Electronic 4 LED, PNP, N.C.		F3			
		Electronic 4 LED, NPN, N.C.		F4			

When filter includes a bypass valve but not an indicator, code denotes bypass setting.

Box 7						
Filter connection						
<b>Connections</b>	<b>Code</b>	Length 1	Length 2	Length 3	Length 4	
Thread G 1	<b>G16</b>	<b>S</b>	<b>S</b>	x	x	
Thread G 1 1/4	<b>G20</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	
Thread G 1 1/2	<b>G24</b>	x	<b>S</b>	<b>S</b>	<b>S</b>	
SAE flange 1 1/2" 3000-M	R20	x	x	x	x	
SAE flange 1 1/2" 3000-M	R24	x	x	x	x	
SAE flange 1 1/4" 6000-M	H20	x	x	x	x	
SAE flange 1 1/2" 6000-M	H24	x	x	x	x	
Side manifold (70B only)	X32	x	x	x	x	

Availability: **S** = standard product  
x = non-standard, ask for availability

Box 8		
Options		
<b>Options</b>		<b>Code</b>
Standard		<b>1</b>
No bypass		2
Drain port		4
70T: side indicator ports		6
70T: options 2 + 6		8

Options 6 and 8: in 70T model there is an option for 2 x indicator ports on filter outlet flange (standard indicator port not machined)  
P: both side indicator ports plugged with steel plug  
M3 or other indicator chosen: right side (in flow direction) port plugged with a plastic plug, left with a steel plug

Nominal flow (l/min) at viscosity 30 cSt						
Filter length	Media	G16 T-port	G16 L-port & G20 T-port	G20 L-port & Side manifold	G24 T-port	G24 L-port
Length 1	02Q/02QE	80	80	80	80	80
	05Q/05QE	120	120	120	120	120
	10Q/10QE	150	150	150	150	150
	20Q/20QE	200	230	230	230	230
Length 2	02Q/02QE	160	160	160	160	160
	05Q/05QE	180	200	200	200	200
	10Q/10QE	220	260	280	300	320
	20Q/20QE	240	280	300	330	350
Length 3	02Q/02QE	200	220	220	220	220
	05Q/05QE	220	250	280	280	280
	10Q/10QE	240	280	300	350	400
	20Q/20QE	250	300	320	380	430
Length 4	02Q/02QE	220	250	270	270	270
	05Q/05QE	230	260	300	330	330
	10Q/10QE	250	280	330	360	430
	20Q/20QE	260	300	350	380	450

Replacement elements with nitrile seals				
Media	Length 1	Length 2	Length 3	Length 4
02Q	<b>938771Q</b>	<b>938775Q</b>	<b>938779Q</b>	<b>938783Q</b>
05Q	<b>938772Q</b>	<b>938776Q</b>	<b>938780Q</b>	<b>938784Q</b>
10Q	<b>938773Q</b>	<b>938777Q</b>	<b>938781Q</b>	<b>938785Q</b>
20Q	<b>938774Q</b>	<b>938778Q</b>	<b>938782Q</b>	<b>938786Q</b>
02QE	<b>938787Q</b>	<b>938791Q</b>	<b>938795Q</b>	<b>938799Q</b>
05QE	<b>938788Q</b>	<b>938792Q</b>	<b>938796Q</b>	<b>938800Q</b>
10QE	<b>938789Q</b>	<b>938793Q</b>	<b>938797Q</b>	<b>938801Q</b>
20QE	<b>938790Q</b>	<b>938794Q</b>	<b>938798Q</b>	<b>938802Q</b>
02QH	938803Q	938807Q	938811Q	938815Q
05QH	938804Q	938808Q	938812Q	938816Q
10QH	938805Q	938809Q	938813Q	938817Q
20QH	938806Q	938810Q	938814Q	938818Q

#### 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

Note: Standard items are in stock, semi standard items are available within four weeks

Degree of filtration						Code		
Average filtration beta ratio $\beta$ (ISO 16889) / particle size $\mu\text{m}$ [c]						Disposable Microglass III	Metal free Ecoglass III	High collapse element
$\beta_x(c)=2$	$\beta_x(c)=10$	$\beta_x(c)=75$	$\beta_x(c)=100$	$\beta_x(c)=200$	$\beta_x(c)=1000$			
% efficiency, based on the above beta ratio ( $\beta_x$ )								
<b>50.0%</b>	<b>90.0%</b>	<b>98.7%</b>	<b>99.0%</b>	<b>99.5%</b>	<b>99.9%</b>	<b>02Q</b>	<b>02QE</b>	02QH
N/A	N/A	N/A	N/A	N/A	4.5	<b>05Q</b>	<b>05QE</b>	05QH
N/A	N/A	4.5	5	6	7	<b>10Q</b>	<b>10QE</b>	10QH
N/A	6	8.5	9	10	12	<b>20Q</b>	<b>20QE</b>	20QH
6	11	17	18	20	22			

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.



# 22PD/32PD Series

High Pressure Duplex Filters

Max 260 l/min - 210 bar



## A duplex design with a wide application capability

**Designed to offer continuous operation during element change**

The 22PD/32PD Series utilizes a duplex design with integrated balancing valve and vent ports. Microglass III glassfibre media is standard. Maximum pressure 210 bar. Maximum flow 260 l/min. A changeover valve operates on the upstream side of the filter, ensuring a contamination free system.



## Contact Information:

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

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

## Product Features:

- 22PD/32PD utilizes a duplex design with integrated balancing valve and vent ports.
- Microglass III glassfibre media is standard.
- Maximum pressure 210 bar. Maximum flow 260 l/min.
- Designed to offer continuous operation during element change.

# 22PD/32PD Series

## High Pressure Duplex Filters

### Features & Benefits

Features	Advantages	Benefits
Duplex design	Element service possible during operation	Allows to keep machine running with full contamination protection
Integrated balancing valve	No external piping required	Safety and reliability
Vent ports	Purges all trapped air in filter	Get the maximum performance from the elements Prevents a "flabby" system
Microglass III replacement elements	Multi-layered design produced high capacity and efficiency	Great performance value Reliable performance throughout element life
	Wire support reduces pleat bunching, keeps performance consistent	Reduces downtime, maximises element life
Visual, electrical and electronic indicators available	Check element condition at a glance	Optimises element life, prevents bypassing
	Right style for the application	Matches your system electrical connections

### Typical Applications

- Ship steering systems
- Continuous operation industrial systems
- High flow flushing systems

### The Parker Filtration 22PD/32PD Series High Pressure Duplex Filters.

Specially designed to offer continuous operation, even during element change.

A changeover valve operates on the upstream side of the filter, ensuring a contamination free system.



# Specification

**Pressure ratings:**

Maximum allowable operating pressure 210 bar.  
 Filter housing pressure pulse fatigue tested: 10<sup>6</sup> cycles 210 bar.

**Connections:**

Inlet and outlet connections are threaded.

Connection style	Model	
BSPF(G)	22PD	32PD
Flange SAE 3000-M	1" 1/4"	1 1/2"

\*3000-M is a SAE style with appropriate metric fixing threads.

**Filter housing:**

Head material cast iron (GSI).  
 Bowl material steel.

**Seal material:**

Nitrile or Fluoroelastomer.

**Operating temperature range:**

Seal material Nitrile: -40 °C to +100 °C.  
 Seal material Fluoroelastomer: -20 °C to +120 °C.

**Bypass valve:**

Opening pressure 3.5 bar

**Filter element:**

**Degree of filtration:**

Determined by multipass-test according to ISO 16889.

**Flow fatigue characteristics:**

Filter media is supported so that the optimal fatigue life is achieved (ISO 3724).

**Microglass III:**

Supported with epoxy coated metal wire mesh, end cap material reinforced composite and metal inner core. Collapse rating 20 bar (ISO 2941).

**High collapse elements:**

(to be used when no bypass function in filter housing).  
 Microglass III media supported with epoxy coated metal wire mesh on upstream and stainless steel on downstream, end cap material steel. Strong metal inner core. Collapse rating 210 bar (ISO 2941).

**Indicator options:**

Indicating differential pressure: 2.5 ± 0.3 bar.

- visual M3.
- electrical T1.
- electronic F1 (PNP).
- electronic F2 (NPN).

For indicator details see catalogue section 6.

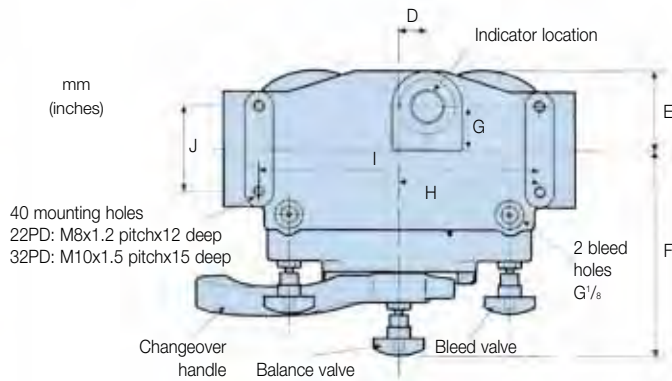
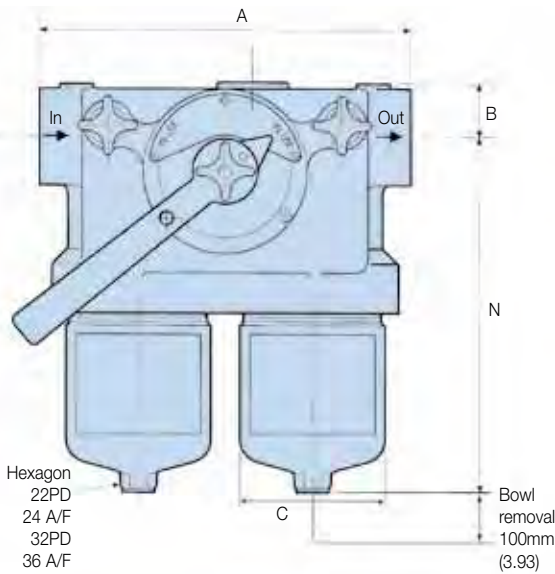
**Weights (kg):**

Model	Length 1	Length 2
22PD	22	27
32PD	44	50

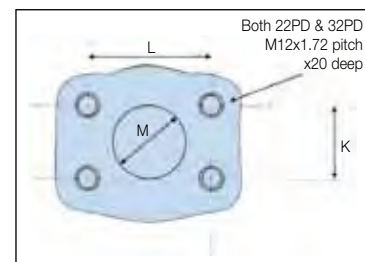
**Fluid compatibility:**

Suitable for use with mineral and vegetable oils, and some synthetic oils. For other fluids, please consult Parker Filtration.

Dimensions mm (inches)														
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
22PD-1	240	35	92	18	55	150	32	96	192	60	30	59	30.75Ø	236 (9.29)
22-PD-2	(9.45)	(1.38)	(3.62)	(0.71)	(2.16)	(5.91)	(2.21)	(3.70)	(7.56)	(2.36)	(1.18)	(2.32)		345 (13.58)
32PD-1	306	42	130	20	78	170	33	120	240	75	36	70	38Ø	317 (12.48)
32PD-2	(12.05)	(1.65)	(5.12)	(0.79)	(3.07)	(6.69)	(2.28)	(4.72)	(9.45)	(2.95)	(1.42)	(2.75)		437 (17.20)



**Flange face detail**



# 22PD/32PD Series

## High Pressure Duplex Filters

### Pressure Drop Curves

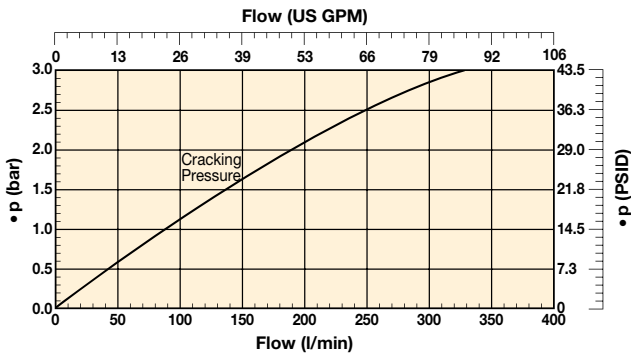
The recommended level of initial pressure drop is max. 1.2 bar.

If the medium used has a viscosity different from 30 cSt, pressure drop over the filter can be estimated as follows:

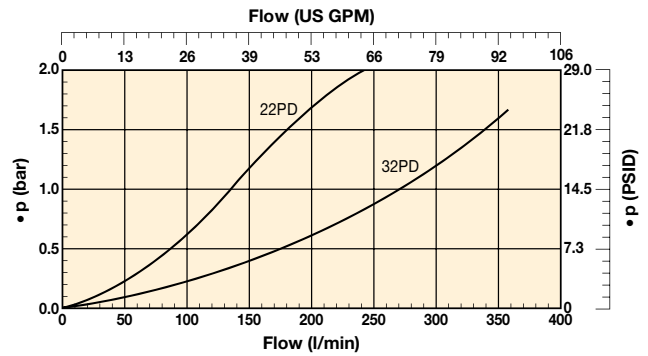
$$\Delta p = (\Delta p_{30} \times \text{viscosity of medium used}) / 30 \text{ cSt.}$$

The total  $\Delta p = \text{housing } \Delta p_h + (\text{element } \Delta p_e \times \text{working viscosity}/30).$

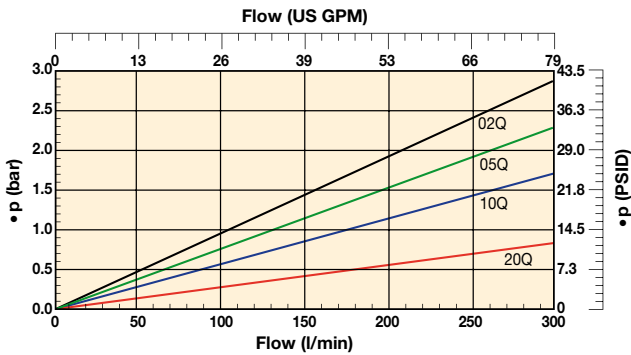
**22PD/32PD Bypass Valve**



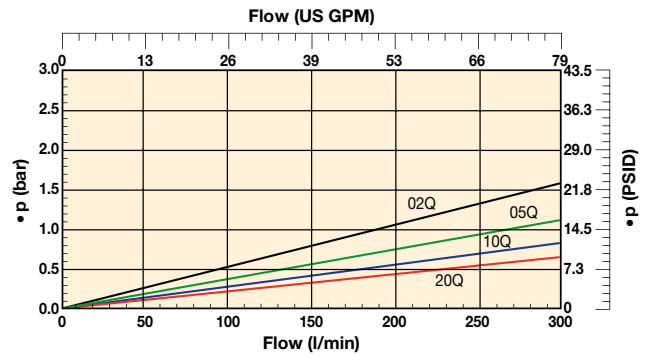
**22PD/32PD Empty Housing**



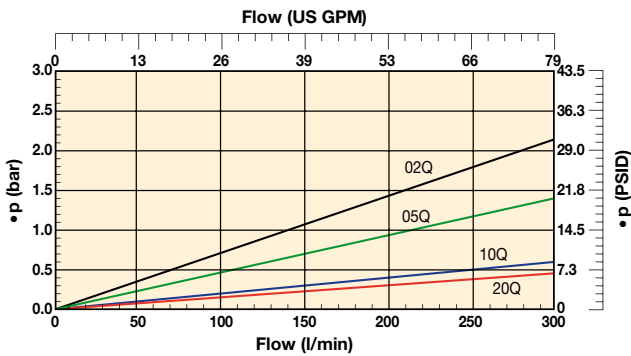
**22PD-1 Elements**



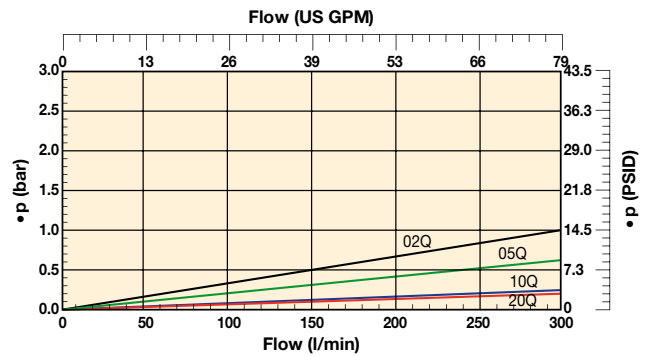
**22PD-2 Elements**



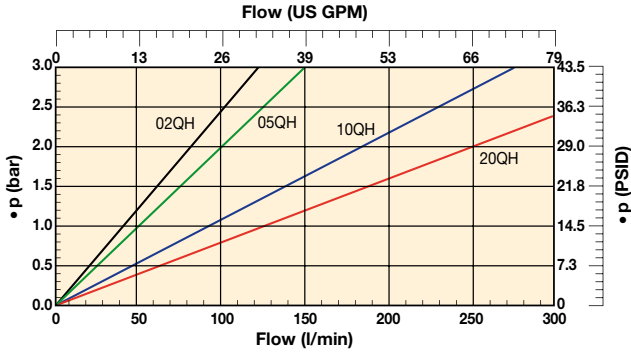
**32PD-1 Elements**



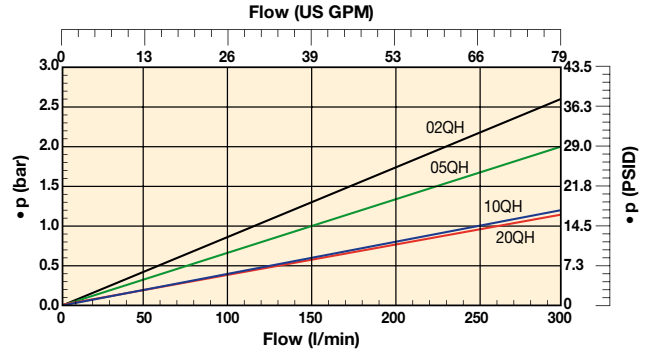
**32PD-2 Elements**



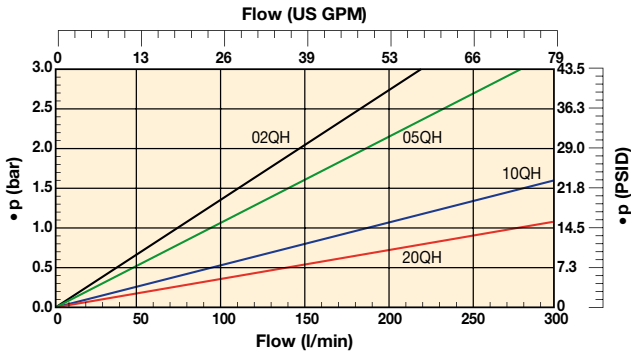
### 22PD-1 High Collapse Elements



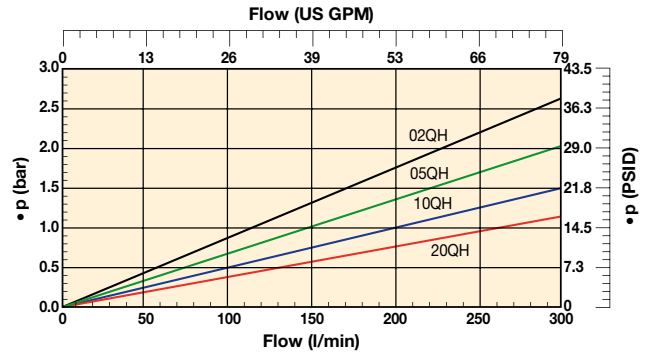
### 22PD-2 High Collapse Elements



### 32PD-1 High Collapse Elements



### 32PD-2 High Collapse Elements



## Ordering Information

### Standard products table

Part number	Supersedes	Flow (l/min)	Model number	Element length	Media rating (µ)	Seals	Indicator	Bypass settings	Ports	Replacement elements
22PD210QBM3KG161	0-22-PD-2-10Q-V-50-C-1	120	22PD	Length 2	10	Nitrile	Visual	3.5 bar	G1"	G01315Q
22PD210QBT1KG161	0-22-PD-2-10Q-TW3-50-C-1	120	22PD	Length 2	10	Nitrile	Electrical	3.5 bar	G1"	G01315Q
22PD220QBM3KG161	0-22-PD-2-20Q-V-50-C-1	140	22PD	Length 2	20	Nitrile	Visual	3.5 bar	G1"	G01938Q
22PD220QBT1KG161	0-22-PD-2-20Q-TW3-50-C-1	140	22PD	Length 2	20	Nitrile	Electrical	3.5 bar	G1"	G01938Q
32PD210QBM3KG201	0-32-PD-2-10Q-V-50-D-1	240	32PD	Length 2	10	Nitrile	Visual	3.5 bar	G1½"	G01098Q
32PD210QBT1KG201	0-32-PD-2-10Q-TW3-50-D-1	240	32PD	Length 2	10	Nitrile	Electrical	3.5 bar	G1½"	G01098Q
32PD220QBM3KG201	0-32-PD-2-20Q-V-50-D-1	260	32PD	Length 2	20	Nitrile	Visual	3.5 bar	G1½"	G01954Q
32PD220QBT1KG201	0-32-PD-2-20Q-TW3-50-D-1	260	32PD	Length 2	20	Nitrile	Electrical	3.5 bar	G1½"	G01954Q

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

### 22PD/32PD Series Seal Kits

Part Number	Description
S04233	NITRILE SEAL KIT 22PD
S04234	FLUOROELASTOMER SEAL KIT 22PD
S04233	NITRILE SEAL KIT 32PD
S04234	FLUOROELASTOMER SEAL KIT 32PD



# 22PD/32PD Series

## High Pressure Duplex Filters

### Ordering Information (cont.)

#### Product configurator

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
<b>22PD</b>	<b>2</b>	<b>10Q</b>	<b>B</b>	<b>M3</b>	<b>K</b>	<b>G16</b>	<b>1</b>

Box 1		Box 2	
Code		Filter type	
<b>Model</b>	<b>Code</b>	<b>Length</b>	<b>Code</b>
Small high pressure duplex filter	<b>22PD</b>	Length 1	<b>1</b>
Large high pressure duplex filter	<b>32PD</b>	Length 2	<b>2</b>

Box 3				
Degree of filtration				
Element media	Glass fibre			
	Media code			
Microglass III element	02Q	05Q	<b>10Q</b>	<b>20Q</b>
High collapse element	02QH	05QH	10QH	20QH

Box 4	
Seal type	
<b>Seal material</b>	<b>Code</b>
Nitrile	<b>B</b>
Fluoroelastomer	V

Box 5	
Indicator	
	<b>Code</b>
Visual indicator	<b>M3</b>
Electrical indicator	<b>T1</b>
Plugged with steel plug	P
No indicator port	N
Electronic 4 LED, PNP, N.O.	F1
Electronic 4 LED, NPN, N.O.	F2
Electronic 4 LED, PNP, N.C.	F3
Electronic 4 LED, NPN, N.C.	F4

Box 6		
Bypass and indicator settings		
<b>Bypass valve</b>	<b>Indicator</b>	<b>Code</b>
3.5 bar	2.5 bar	<b>K</b>
No bypass	5.0 bar	M
No bypass	No indicator	X

+ Box 8: code 2  
+ Box 8: code 2

When filter includes a bypass valve but not an indicator, code denotes bypass setting.

Box 7	
Filter connection	
<b>Ports</b>	<b>Code</b>
22PD: Thread G 1	<b>G16</b>
SAE flange 1 1/2" 3000-M	R20
32PD: Thread G 1 1/4	<b>G20</b>
SAE flange 1 1/2" 3000-M	R24

Box 8	
Options	
<b>Options</b>	<b>Code</b>
Standard	<b>1</b>
No bypass	2

Replacement elements with nitrile seals				
Media	22PD-1	22PD-2	32PD-1	32PD-2
02Q	<b>G01282Q</b>	<b>G01316Q</b>	<b>G01069Q</b>	<b>G01099Q</b>
05Q	<b>G02721Q</b>	<b>G02724Q</b>	<b>G02567Q</b>	<b>G02727Q</b>
10Q	<b>G01281Q</b>	<b>G01315Q</b>	<b>G01068Q</b>	<b>G01098Q</b>
20Q	<b>G01930Q</b>	<b>G01938Q</b>	<b>G01946Q</b>	<b>G01954Q</b>
02QH	G01442Q	G01448Q	G01454Q	G01460Q
05QH	G03737Q	G03738Q	G03739Q	G03740Q
10QH	G01441Q	G01447Q	G01453Q	G01459Q
20QH	G01932Q	G01940Q	G01948Q	G01956Q

Nominal flow (l/min) at viscosity 30 cSt				
Filter model	02Q	05Q	10Q	20Q
22PD-1	70	80	100	120
22PD-2	100	110	120	140
32PD-1	100	150	210	230
32PD-2	180	210	240	260

Seal kits		
Filter model	Nitrile	Fluoroelastomer
22PD	S04233	S04234
32PD	S03520	S03522

Replacement elements with fluoroelastomer seals				
Media	22PD-1	22PD-2	32PD-1	32PD-2
02Q	G01302Q	G01336Q	G01089Q	G01119Q
05Q	G02723Q	G02726Q	G02569Q	G02729Q
10Q	G01301Q	G01335Q	G01088Q	G01118Q
20Q	G01934Q	G01942Q	G01950Q	G01958Q
02QH	G01446Q	G01452Q	G01458Q	G01464Q
05QH	G04235Q	G04236Q	G04237Q	G04238Q
10QH	G01445Q	G01451Q	G01457Q	G01463Q
20QH	G01935Q	G01943Q	G01951Q	G01959Q

#### 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

Note: Standard items are in stock, semi standard items are available within four weeks

Degree of filtration						Code	
Average filtration beta ratio $\beta$ (ISO 16889) / particle size $\mu\text{m}$ [c]							
<b>Bx(c)=2</b>	<b>Bx(c)=10</b>	<b>Bx(c)=75</b>	<b>Bx(c)=100</b>	<b>Bx(c)=200</b>	<b>Bx(c)=1000</b>		
% efficiency, based on the above beta ratio ( $\beta_x$ )							
<b>50.0%</b>	<b>90.0%</b>	<b>98.7%</b>	<b>99.0%</b>	<b>99.5%</b>	<b>99.9%</b>		
N/A	N/A	N/A	N/A	N/A	4.5	02Q	02QH
N/A	N/A	4.5	5	6	7	<b>05Q</b>	05QH
N/A	6	8.5	9	10	12	<b>10Q</b>	10QH
6	11	17	18	20	22	<b>20Q</b>	20QH

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.

