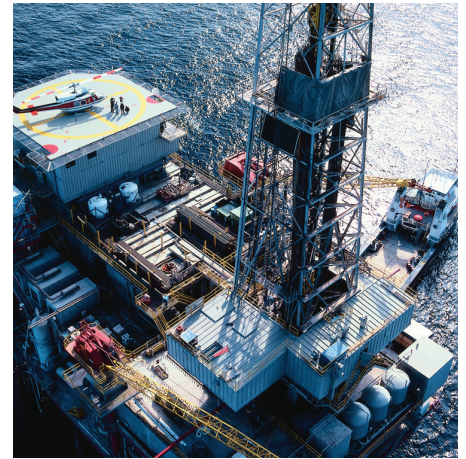


EAPF *iprotect*[®]

(Ecological ATEX Pressure Filter)

High Pressure Stainless Steel Filters
Max 120 l/min - 690 bar



Safety is a process that never stops

Designed with the *iprotect*[®] patented filtration technology

The Parker EAPF *iprotect*[®] is designed to provide high quality filtration of hydraulic systems, providing new possibilities reduce the cost of ownership by improving their productivity and profitability.

Meeting the stringent demands of the Marine, Oil & Gas and process equipment markets, the EAPF *iprotect*[®] covers a range up to 120 l/min at 690 bar working pressure.

A radical, innovative approach was applied, utilising a new patented design of the filter element providing a high level of embedded safety. Thanks to the patented product design, a service-friendly product has resulted which avoids the use of pirate-type spare parts with unknown quality of filtration. The *iprotect*[®] product applies a re-usable element core which can be combined with a bypass valve, reducing the environmental impact over 50% typically.

The EAPF applies twin seal technology. One seal ensures that seawater and contamination cannot ingress the threaded connection between the filter head and bowl. A special hole pattern is applied in the bowl for decompression of the threaded area, this ensures maximum sealing performance of the main seal.

Combined with the flexibility of various connection types (NPT, BSP, Autoclave) and optional versions with integrated check valves to handle system back flushing, the modular EAPF range provides effective integration of high pressure filter solutions in hydraulic systems.



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 filtration is excluded. This in-built safety has a direct, positive impact on the safety, productivity and profitability of equipment.

- Duplex stainless steel housing
- 690 bar rated filter housing
- Twin Seal concept for maximum protection and seal performance
- *iprotect*[®] patented filter element
- Wide range of fibreglass and stainless steel mesh filter media
- Optional versions for back-flush systems
- ATEX certified filter housing and indicators
- Coated filter housing to prevent grating of threaded connections



ENGINEERING YOUR SUCCESS.

Features	Advantages	Benefits
Patented filter element	Avoid use of non-genuine parts	Guaranteed quality of filtration
Service element remains in filter bowl	Less space needed to change/service the filter	More compact solutions are possible
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 while servicing the filter
Twin-Seal technology	Improved sealing of filter housing parts	Lower risk of leakage
		No corrosion of threaded connection filter head and bowl
Wide range of indicators	Continuous feedback of condition filter elements	Optimising filter element life time
		Contributes to scheduled maintenance
Coated filter housing	Prevents grating of threaded filter head and bowl	Long life time of filter housing

Typical Applications

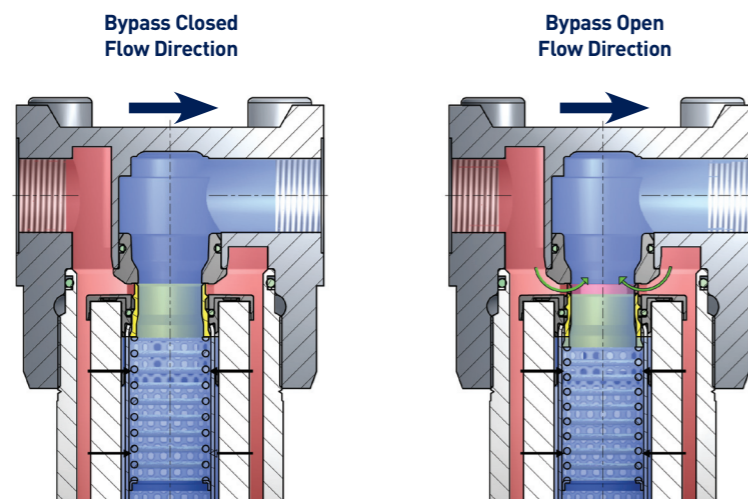
- Drilling equipment
- Lifting equipment
- Sub sea systems
- Deck equipment
- Flushing rigs
- Chemical injection



The Parker EAPF *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.



EAPF *iprotect*®

High Pressure Stainless Steel Filters

Selecting the right EAPF element



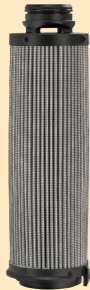
EAPF Spare Element Information

Type QI		Type QIH		Type QIR	
EAPF Size 1 L1 2 micron	944418Q	EAPF Size 1 L1 2 micron	944481Q	EAPF Size 1 L1 2 micron	944561Q
EAPF Size 1 L1 5 micron	944419Q	EAPF Size 1 L1 5 micron	944482Q	EAPF Size 1 L1 5 micron	944562Q
EAPF Size 1 L1 10 micron	944420Q	EAPF Size 1 L1 10 micron	944483Q	EAPF Size 1 L1 10 micron	944563Q
EAPF Size 1 L1 20 micron	944421Q	EAPF Size 1 L1 20 micron	944484Q	EAPF Size 1 L1 20 micron	944564Q
EAPF Size 1 L2 2 micron	944635Q	EAPF Size 1 L2 2 micron	944639Q	EAPF Size 1 L2 2 micron	944643Q
EAPF Size 1 L2 5 micron	944636Q	EAPF Size 1 L2 5 micron	944640Q	EAPF Size 1 L2 5 micron	944644Q
EAPF Size 1 L2 10 micron	944637Q	EAPF Size 1 L2 10 micron	944641Q	EAPF Size 1 L2 10 micron	944645Q
EAPF Size 1 L2 20 micron	944638Q	EAPF Size 1 L2 20 micron	944642Q	EAPF Size 1 L2 20 micron	944646Q

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 patented 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 *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.



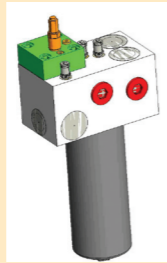
Smart valve technology

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 optimises the flow path, reducing the pressure lost across the filter.



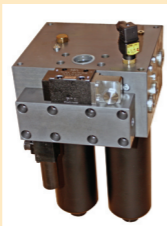
Easier to integrate

Parker has set the trend to integrate filtration into manifolds. With Parker's *EAPF 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.



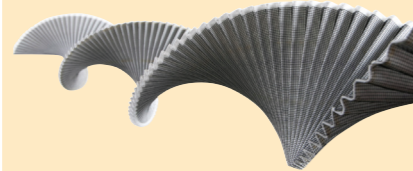
Customised solutions

Parker's motion & control technologies provide new opportunities for our customers. Customised manifolds or duplex filters, as in this example offer complete automatic change-over. The *EAPF 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 patented products aim to avoid the use of unknown filter performance, jeopardising safety and performance. Our III media is continuously upgraded and acts as a protective 'gene' in the system.

When going into reverse

Parker's *EAPF* 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 patented 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 *EAPF 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.

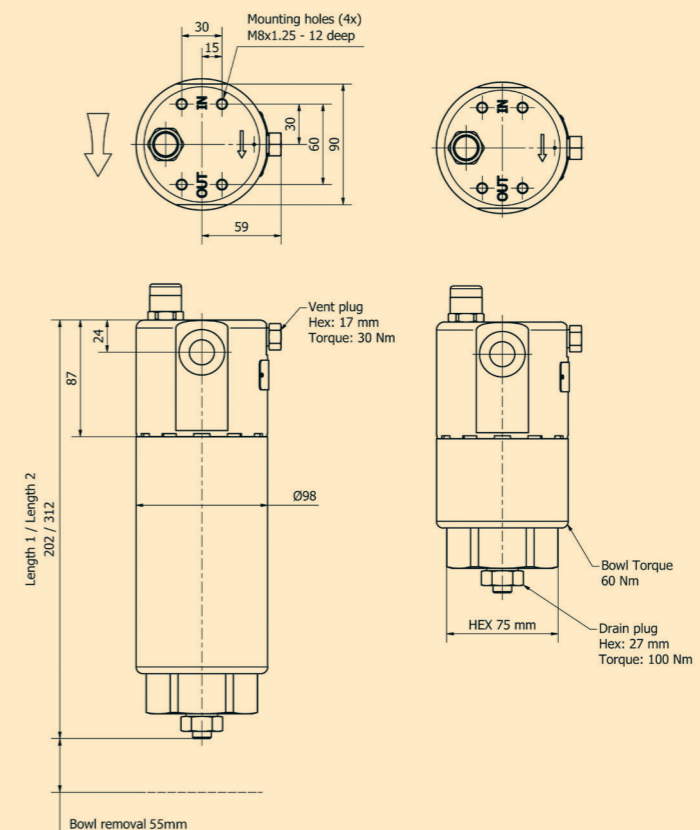
EAPF *iprotect*®

Size 1

Specification EAPF *iprotect*® Size 1

Specification	Bypass valve & Indicator settings	Indicator options
Nominal flow 120 l/min	Bypass 3.5 bar Indicator 2.5 bar	Indicating differential pressure: 2.5 +/- 0.3 bar 5.0 +/- 0.3 bar 7.0 +/- 0.3 bar
Pressure ratings Maximum allowable operating pressure 690 bar Filter housing pressure pulse fatigue tested 10 ⁶ pulses 0-690 bar	5.0 bar 4.0 bar 7.0 bar 5.0 bar Blocked 7.0 bar	Visual M3 Electrical T1 Electronic F1 (PNP) Electronic F2 (NPN) Atex versions are available on request
Connections Inlet and outlet connections are threaded internally	Filter element Degree of filtration Determined by multipass test in accordance to ISO16889	Weights (kg) EPF Size 1 length 1: 13 EPF Size 1 length 2: 17
Connection style 1/2" and 3/4" NPT Autoclave type connection 1/2" and 3/4" BSP	Flow fatigue characteristics Filter media is supported so that the optimal fatigue life is achieved (ISO 3724)	
Filter housing Head material Duplex Stainless Steel Bowl material Duplex Stainless Steel	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)	
Seal material Nitrile of Fluorelastomer	High collapse elements To be used when bypass blocked option is selected Collapse pressure 210 bar (ISO 2941)	
Operating temperature range Seal material Nitrile : -40C to +100 C Seal material Fluorelastomer : -20C to +120 C		

EAPF *iprotect*® - Size 1 (Inline)



EAPF *iprotect*® Size 1 Pressure Drop Curves

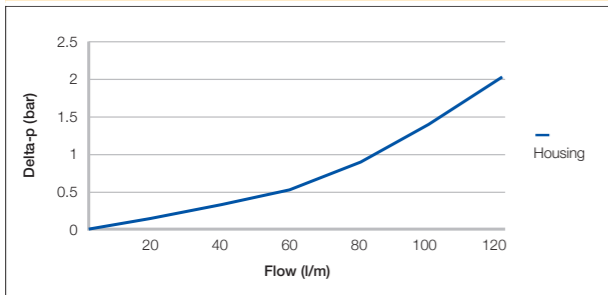
With 3.5 bar bypass the recommended initial pressure drop max is 1.2 bar

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

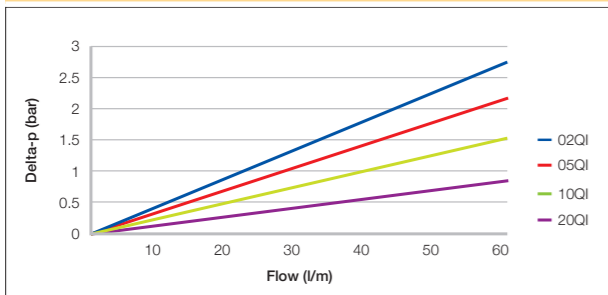
If the medium used has a viscosity different from 30cSt, pressure drop over the filter can be estimated as follows:

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

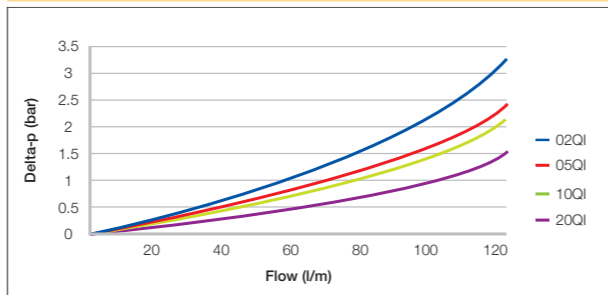
EAPF Size 1 Empty Housing



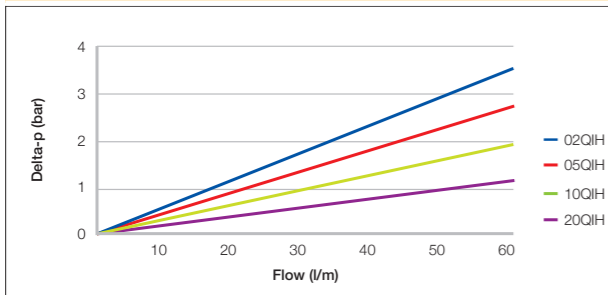
EAPF Size 1 Length 1 Filter Elements



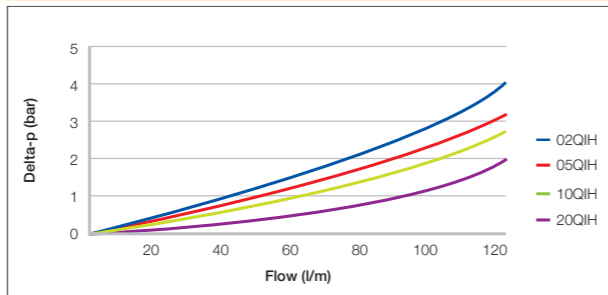
EAPF Size 1 Length 2 Filter Elements



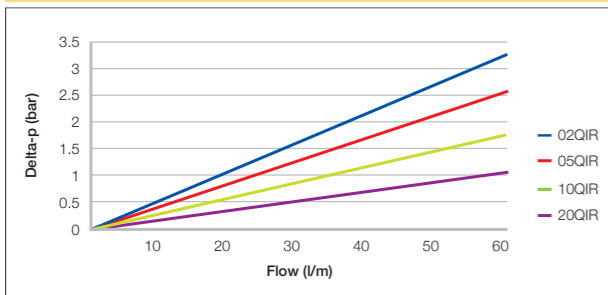
EAPF Size 1 Length 1 High Strength Filter Elements



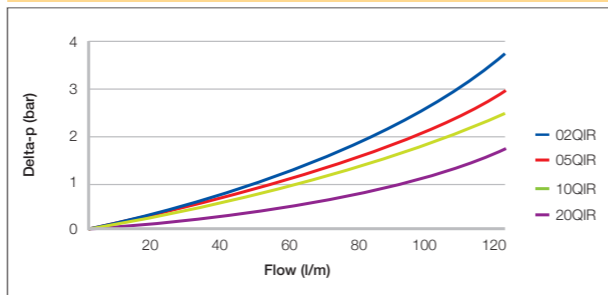
EAPF Size 1 Length 2 High Strength Filter Elements



EAPF Size 1 Length 1 Filter Element with Reverse Flow Valve



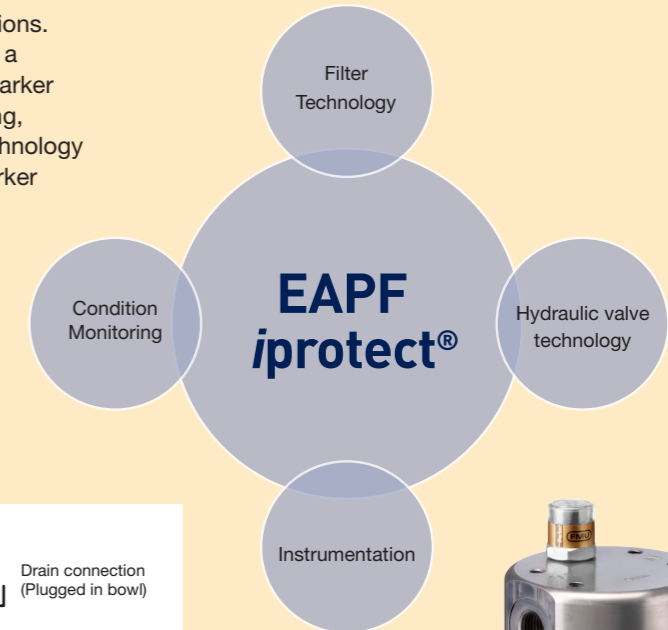
EAPF Size 1 Length 2 Filter Element with Reverse Flow Valve



EAPF *iprotect*®

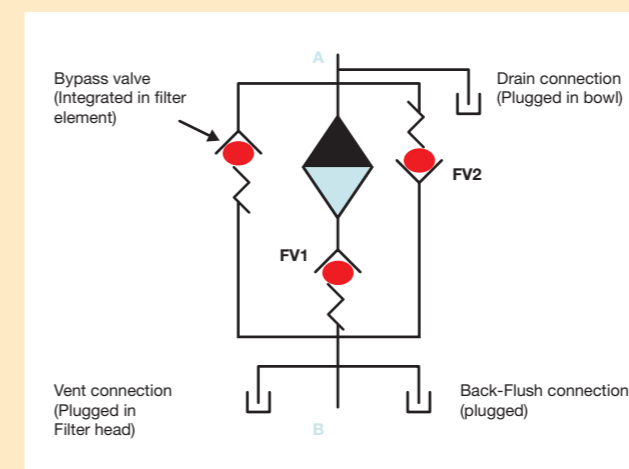
Filter Configuration for Back - Flush Systems

Parker provides tailor-made filtration solutions. For systems with back-flush requirements a customised solution can be considered. Parker Filtration can integrate condition monitoring, instrumentation and fluid control valve technology into the filter. Please consult your local Parker representative for more information.

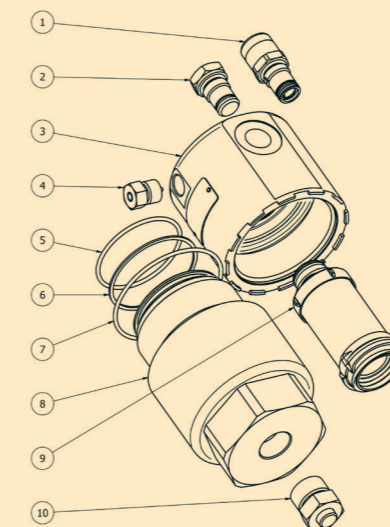


EAPF circuit

Back flush filter version



EAPF *iprotect*® - Size 1



Index	Description	Part Number
1	Indicator	On Request
2	Plug	On Request
3	Filter head	On Request
4	Vent plug	On Request
5	O-ring	In seal kit
6	Back-up ring	In seal kit
7	O-ring	In seal kit
8	Filter bowl	On Request
9	Filter element	On Request
10	Drain plug	On Request

Filter	Nitrile	Fluorelastomer
EAPF Size 1	EAPFSK001	EAPFSK002

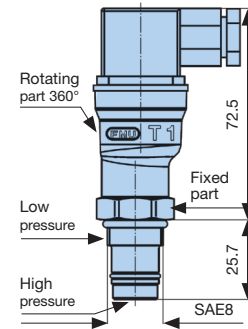
Indicator Options

FMU Δp-Indicators and Pressure Indicators

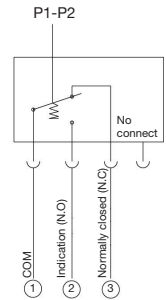
FMUT Electrical

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			

Electrical Indicator Type T1

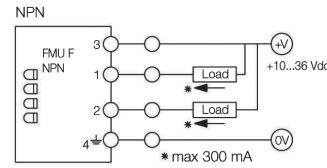


Contact configuration

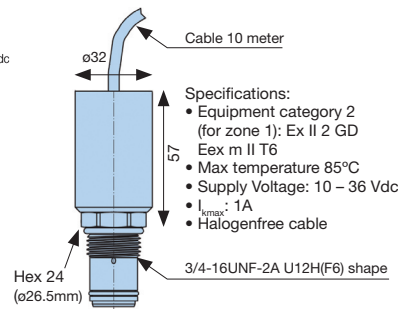


Enclosure class	IP65
Electrical connector	DIN 43650
Overvoltage category	II (EN61010-1)

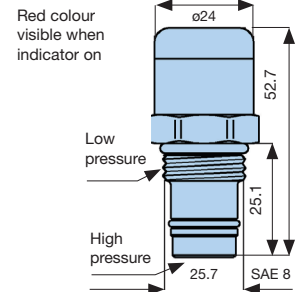
Contact configuration



FMUX ATEX Approved Electronic



FMUM3 Visual Auto Reset Operation



Ordering Information

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7	Box 8
EAPF1	2	05QI	B	X1	M	N08	1

Box 1

Capacity	
Model	Code
Size 1	EAPF1

Box 2

Filter Length	
Length 1 (60 l/min)	1
Length 2 (120 l/min)	2

Box 3

Degree of filtration				
	Media code			
iprotect® Glassfibre element	02QI	05QI	10QI	20QI
iprotect® high strength element	02QIH	05QIH	10QIH	20QIH
iprotect® with reverse flow valve(*)	02QIR	05QIR	10QIR	20QIR

Box 4

Seal Material	
	Code
Nitrile	B
Fluorelastomer	V

Box 6

Bypass Setting		
	Indicator Setting	Code
3.5 bar	2.5 bar	K
5.0 bar	4.0 bar	L
7.0 bar	5.0 bar	M
No bypass	7.0 bar	P
No bypass	No indicator	X

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

Box 8

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

Box 5

Indicator	
	Code
Visual Indicator	M3
Electrical Indicator (non ATEX)	T1
Ex version	X1
Electronic 4 LED, PNP, NO	on request
Electronic 4 LED, NPN, NO	on request
Electronic 4 LED, PNP, NC	on request
Electronic 4 LED, NPN, NC	on request
Plugged with Steel plug	P
No indicator port	N

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

Highlights Key (Denotes part number availability)

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

Box 7

Filter Connection		
	Connection type & size	Code
Size 1	Thread 1/2" NPT	N08
	Thread G1/2"	G08
	Autoclave	on request



Parker Hannifin
Hydraulic Filter Division Europe
Email: filtrationinfo@parker.com
www.parker.com/hfde