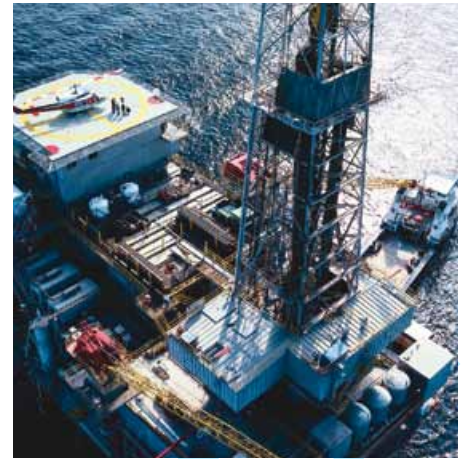


EAPF iprotect®

(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-build 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

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

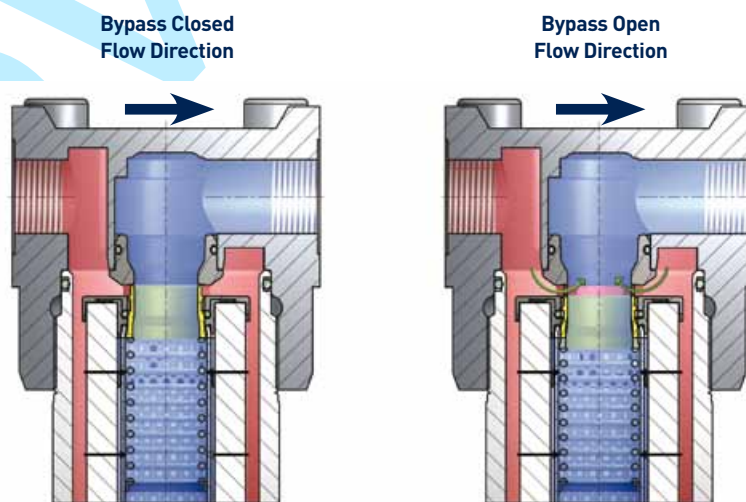
- Drilling equipment
- Lifting equipment
- Sub sea systems
- Deck equipment
- Flushing rigs
- Chemical injection



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

EAPF Size 1 L1 2 micron	944418Q
EAPF Size 1 L1 5 micron	944419Q
EAPF Size 1 L1 10 micron	944420Q
EAPF Size 1 L1 20 micron	944421Q
EAPF Size 1 L2 2 micron	944422Q
EAPF Size 1 L2 5 micron	944423Q
EAPF Size 1 L2 10 micron	944424Q
EAPF Size 1 L2 20 micron	944425Q

Type QIH

EAPF Size 1 L1 2 micron	944481Q
EAPF Size 1 L1 5 micron	944482Q
EAPF Size 1 L1 10 micron	944483Q
EAPF Size 1 L1 20 micron	944484Q
EAPF Size 1 L2 2 micron	944485Q
EAPF Size 1 L2 5 micron	944486Q
EAPF Size 1 L2 10 micron	944487Q
EAPF Size 1 L2 20 micron	944488Q

Type QIR

EAPF Size 1 L1 2 micron	944561Q
EAPF Size 1 L1 5 micron	944562Q
EAPF Size 1 L1 10 micron	944563Q
EAPF Size 1 L1 20 micron	944564Q
EAPF Size 1 L2 2 micron	944565Q
EAPF Size 1 L2 5 micron	944566Q
EAPF Size 1 L2 10 micron	944567Q
EAPF Size 1 L2 20 micron	944568Q

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 EAPF *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.

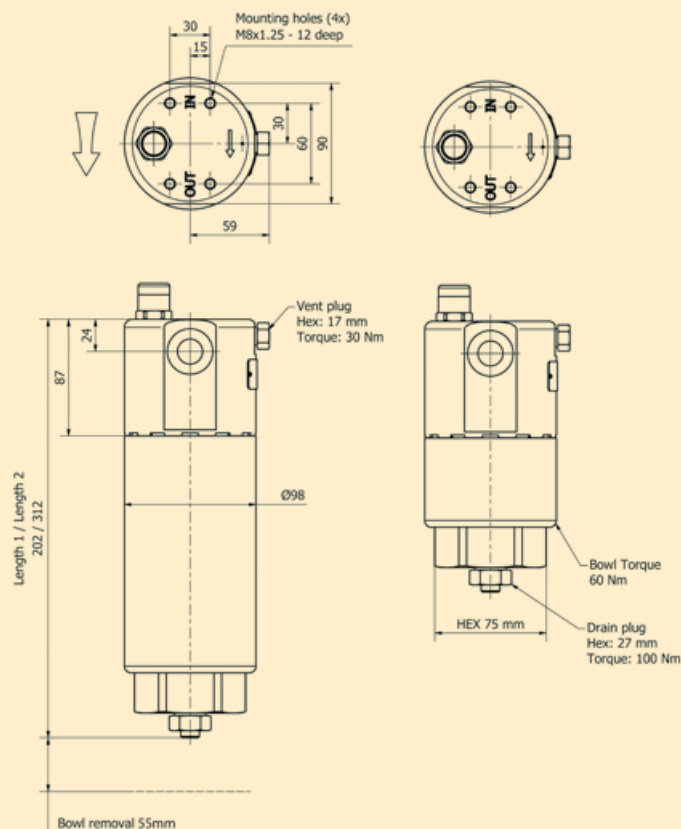
EAPF *iprotect*®

Size 1

Specification EAPF *iprotect*® Size 1

Specification Nominal flow 120 l/min	Bypass valve & Indicator settings		Indicator options
	Bypass	Indicator	Indicating differential pressure:
Pressure ratings	3.5 bar	2.5 bar	2.5 +/- 0.3 bar
Maximum allowable operating pressure 690 bar	5.0 bar	4.0 bar	5.0 +/- 0.3 bar
Filter housing pressure pulse fatigue tested 10 ⁶ pulses 0-690 bar	7.0 bar	5.0 bar	7.0 +/- 0.3 bar
	Blocked	7.0 bar	
Connections	Filter element		Visual M3
Inlet and outlet connections are threaded internally	Degree of filtration		Electrical T1
	Determined by multipass test in accordance to ISO16889		Electronic F1 (PNP)
			Electronic F2 (NPN)
			Atex versions are available on request
Connection style	Flow fatigue characteristics		Weights (kg)
1/2" and 3/4" NPT	Filter media is supported so that the optimal fatigue life is achieved (ISO 3724)		EPF Size 1 length 1: 13
Autoclave type connection			EPF Size 1 length 2: 17
1/2" and 3/4" BSP			
Filter housing	Microglass III		
Head material Duplex Stainless Steel	Supported with epoxy coated metal wire mesh, end cap material reinforced composite and reusable metal inner core. Collapse pressure 25 bar (ISO 2941)		
Bowl material Duplex Stainless Steel			
Seal material	High collapse elements		
Nitrile of Fluorelastomer	To be used when bypass blocked option is selected		
Operating temperature range	Collapse pressure 210 bar (ISO 2941)		
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

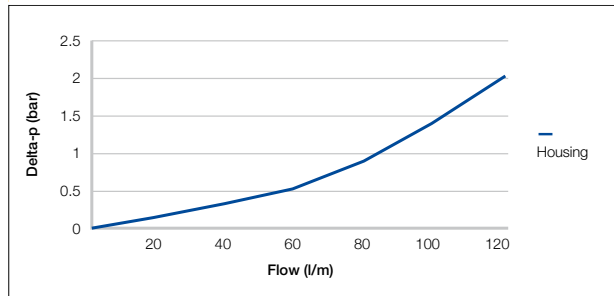
With 3.5 bar bypass the recommended initial pressure drop max is 1.2 bar

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

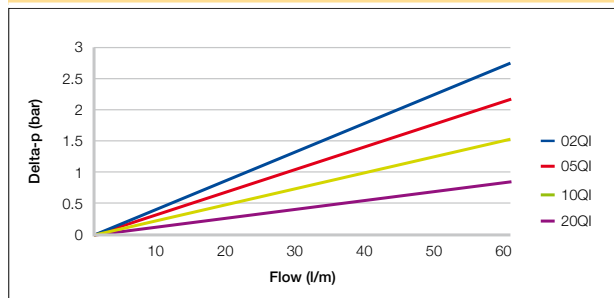
If the medium used has a viscosity different from 30cSt, pressure drop over the filter can be estimated as follows:

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

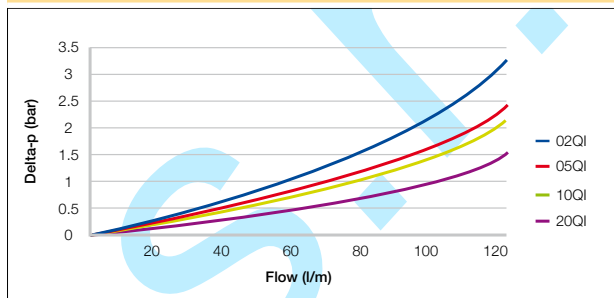
EAPF Size 1 Empty Housing



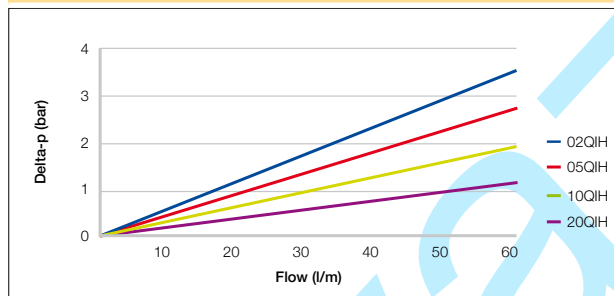
EAPF Size 1 Length 1 Filter Elements



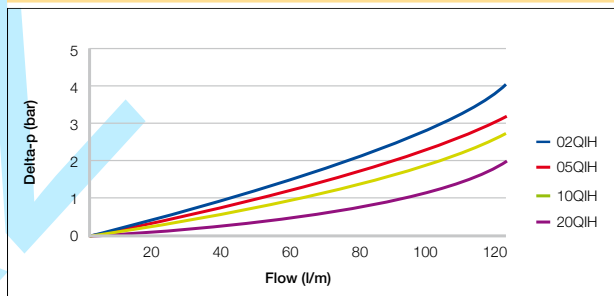
EAPF Size 1 Length 2 Filter Elements



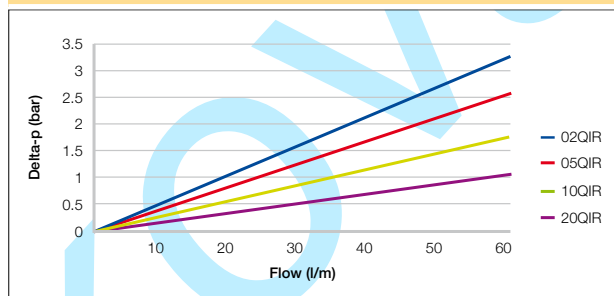
EAPF Size 1 Length 1 High Strength Filter Elements



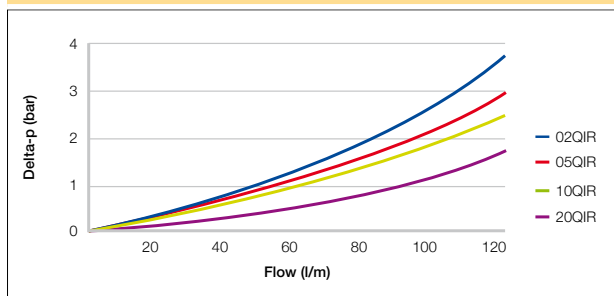
EAPF Size 1 Length 2 High Strength Filter Elements



EAPF Size 1 Length 1 Filter Element with Reverse Flow Valve



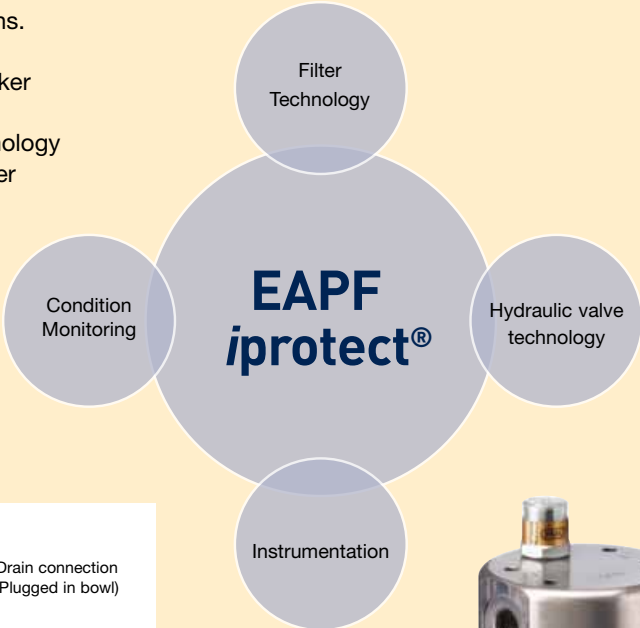
EAPF Size 1 Length 2 Filter Element with Reverse Flow Valve



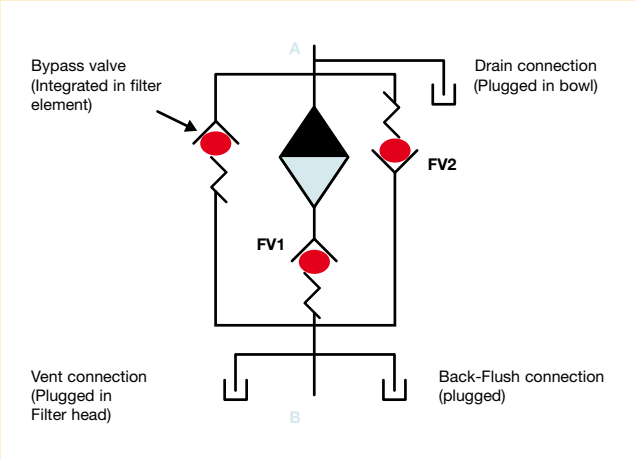
EAPF *iprotect*®

Filter Configuration for Back - Flush Systems

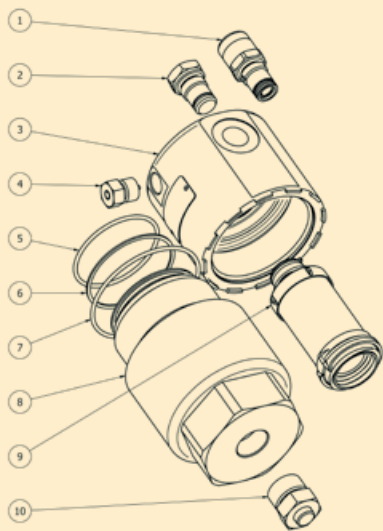
Parker provides tailor-made filtration solutions. For systems with back-flush requirements a customised solution can be considered. Parker Filtration can integrate condition monitoring, instrumentation and fluid control valve technology into the filter. Please consult your local Parker representative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

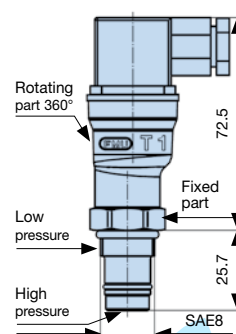
Indicator Options

FMU Δp-Indicators and Pressure Indicators

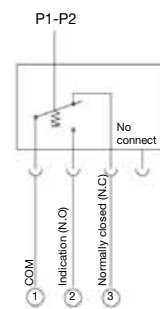
FMUT Electrical

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

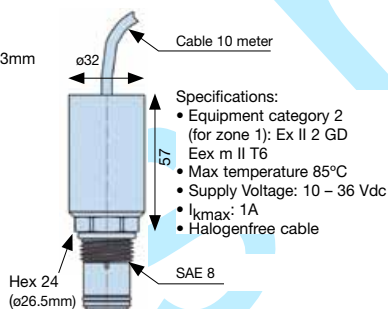


Enclosure class	IP65
Electrical connector	DIN 43650
Overvoltage category	II (EN61010-1)

Electrical Connection

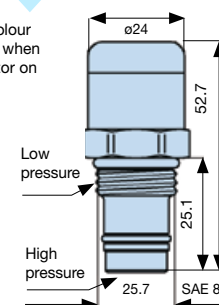
Voltage: 10 - 36 Vdc
Current: 300 MA (Max.)
Cable: Halogen free HABIA N2419 I14 4x0, 3mm
Red = Input voltage
Blue = GND
White = Pre - Indication
Black = Indication

FMUX ATEX Approved Electronic



FMUM3 Visual Auto Reset Operation

Red colour visible when indicator on



Ordering Information

Box 1	Box 2
EAPF1	2

Capacity	
Model	Code
Size 1	EAPF1

Seal Material	
	Code
Nitrile	B
Fluorelastomer	V

Options		
		Code
Standard		1
No bypass		2
Reverse flow valve	Safeguard valve only in combination with 3.5 bar bypass	RFV
	ATEX certified* (Category 2, non-electrical equipment)	EX

Note 1: Important notes: When no bypass is selected Parker strongly advises the usage of high strength elements

Note 2*: For ATEX classified filters add EX after the code. ATEX certified filters with electrical indicator are available on request. Visual indicators are classified as Category 2, non electrical equipment. Filter assemblies with EX code will be supplied with a dedicated name plate. Pls consult Parker Filtration for any questions related to the classification of our products.

Box 3	Box 4
05QI	B

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

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	5.0 bar	M
No bypass	No indicator	X

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 5	Box 6	Box 7	Box 8
X1	M	N08	1

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

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

Indicator	
	Code
Visual Indicator	M3
Electrical Indicator (non ATEX)	T1
Ex version, PNP, NO (LED's are not available)	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 Stainless Steel plug	P
No indicator port	N

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



Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK/EAPF