A compact, cost effective pressure filter solution

Designed with the iprotect® patented filtration technology

The Parker EPF iprotect® (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®, 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
Epf iprotect® applies the latest generation of Microglass III filter media. The patented element design guarantees the quality of filtration.

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® 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®

## High Pressure Filters

### Selecting the right EPF element

#### Standard iprotect® element
- (code QI)
- 25 bar collapse pressure
- Bypass setting 3.5 / 5 / 7 bar

#### Standard iprotect® High Strength element (code QIH)
- 210 bar collapse pressure
- Blocked bypass

## EPF Spare Element Information

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<thead>
<tr>
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<th>Type QIH</th>
<th>Type QIR</th>
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<td>EPF High Strength Size5 L1 20 micron</td>
<td>EPF Size5 L1 20 micron reverse flow</td>
</tr>
</tbody>
</table>

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.
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.

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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Nominal flow 40 l/min</th>
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</thead>
<tbody>
<tr>
<td>Pressure ratings</td>
<td>Maximum allowable operating pressure 450 bar</td>
</tr>
<tr>
<td>Filter housing pressure pulse fatigue tested</td>
<td>10^-6 pulses 0-414 bar</td>
</tr>
<tr>
<td>Connections</td>
<td>Inlet and outlet connections are threaded internally</td>
</tr>
<tr>
<td>Connection style</td>
<td>Thread G½</td>
</tr>
<tr>
<td>Seal material</td>
<td>Nitrile of Fluorelastomer</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>Seal material Nitrile: -40 °C to +100 °C</td>
</tr>
<tr>
<td></td>
<td>Seal material Fluorelastomer: -20 °C to +120 °C</td>
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</tbody>
</table>

Bypass valve & Indicator settings

<table>
<thead>
<tr>
<th>Bypass</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5 bar</td>
<td>2.5 bar</td>
</tr>
<tr>
<td>5.0 bar</td>
<td>3.5 bar</td>
</tr>
<tr>
<td>7.0 bar</td>
<td>5.0 bar</td>
</tr>
<tr>
<td>Blocked</td>
<td>5.0 bar</td>
</tr>
</tbody>
</table>

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)

Indicating 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 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 Δp = housing Δph + (element Δpe x working viscosity/30).

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**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**
Specification EPF iprotect® Size 2

**Specifications**
- **Nominal flow**: >100 l/min
- **Pressure ratings**
  - Maximum allowable operating pressure: 450 bar
  - Filter housing pressure pulse fatigue tested 10^6 pulses 0-414 bar

**Connections**
- Inlet and outlet connections are threaded internally
- Connection style: Thread G¾
- Thread SAE 12
- Thread M27, ISO 6149
- SAE flange ¾ = 6000M
- SAE flange ¾ = 6000

**Filter Housing**
- **Filter Housing Material**: Cast iron
- **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 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 (PNP)**
- **Electronic (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 HESS 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 Δp = housing Δph + (element Δpe x working viscosity/30).

Empty Housing EPF Size 2

EPF Size 2 Length 1 Filter Elements

EPF Size 2 Length 1 Filter Elements with reverse flow valve

EPF Size 2 Length 1 High Strength Filter Elements

EPF Size 2 Length 2 Filter Elements

EPF Size 2 Length 2 Filter Elements with reverse flow valve

EPF Size 2 Length 2 High Strength Filter Elements
Specification EPF iprotect® Size 3

Specification
Nominal flow >160 l/min
Pressure ratings
Maximum allowable operationg pressure 450 bar
Filter housing pressure pulse fatigue tested
10^6 pulses 0-414 bar
Connections
Inlet and outlet connections are threaded internally
Connection style
Thread G1
Thread SAE 16
SAE flange 1 = 6000M
SAE flange 1 = 6000
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 3 length 1: 6.7
EPF Size 3 length 2: 9.2
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 3 (Inline)
**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 $\Delta p = \text{housing} \Delta p_{h} + (\text{element} \Delta p_{e} \times \text{working viscosity}/30)$.

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**EPF Size 3 Empty Housing**

![Graph of EPF Size 3 Empty Housing](image1)

**EPF Size 3 Length 1 Filter Elements**

![Graph of EPF Size 3 Length 1 Filter Elements](image2)

**EPF Size 3 Length 2 Filter Elements**

![Graph of EPF Size 3 Length 2 Filter Elements](image3)

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

![Graph of EPF Size 3 Length 1 Filter Elements with reverse flow valve](image4)

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

![Graph of EPF Size 3 Length 2 Filter Elements with reverse flow valve](image5)

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

![Graph of EPF Size 3 Length 1 High Strength Filter Elements](image6)

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

![Graph of EPF Size 3 Length 2 High Strength Filter Elements](image7)
**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 10^6 pulses 0-414 bar

**Connections**
- Inlet and outlet connections are threaded internally
- Connection style
  - Thread G1 1/4
  - Thread G1 1/2
  - Thread SAE 20
  - Thread SAE 24
  - Thread M42, ISO 6149
  - SAE flange 1¼ = 6000M
  - SAE flange 1¼ = 6000

**Filter housing**
- Head material: cast iron (GSI)
- 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 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)

**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 HEEG to VDMA 24568)
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 Δp = housing Δph + (element Δpe x 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**
### Specification EPF iprotect® Size 5

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<tr>
<td>Pressure ratings</td>
<td>Maximum allowable operating pressure 450 bar</td>
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<tr>
<td>Filter housing pressure pulse fatigue tested</td>
<td>10^6 pulses 0-414 bar</td>
</tr>
<tr>
<td>Connections</td>
<td>Inlet and outlet connections are threaded internally</td>
</tr>
<tr>
<td>Connection style</td>
<td>Thread G1½</td>
</tr>
<tr>
<td>Manifold</td>
<td>SAE flange 1½ – 6000M</td>
</tr>
<tr>
<td>Filter housing</td>
<td>Head material cast iron (GSI)</td>
</tr>
<tr>
<td>Bowl material</td>
<td>Steel</td>
</tr>
<tr>
<td>Seal material</td>
<td>Nitrile of Fluorelastomer</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>Seal material Nitrile: -40 °C to +100 °C</td>
</tr>
<tr>
<td>Filter element</td>
<td>Degree of filtration determined by multipass test in accordance to ISO16889</td>
</tr>
<tr>
<td>Flow fatigue characteristics</td>
<td>Filter media is supported so that the optimal fatigue life is achieved (ISO 3724)</td>
</tr>
<tr>
<td>Microglass III</td>
<td>Supported with epoxy coated metal wire mesh, end cap material reinforced composite and reusable metal inner core. Collapse pressure 25 bar (ISO 2941)</td>
</tr>
<tr>
<td>High collapse elements</td>
<td>To be used when bypass blocked option is selected Collapse pressure 210 bar (ISO 2941)</td>
</tr>
</tbody>
</table>

### Bypass valve & Indicator settings

<table>
<thead>
<tr>
<th>Bypass</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5 bar</td>
<td>2.5 bar</td>
</tr>
<tr>
<td>5.0 bar</td>
<td>3.5 bar</td>
</tr>
<tr>
<td>7.0 bar</td>
<td>5.0 bar</td>
</tr>
<tr>
<td>Blocked</td>
<td>5.0 bar</td>
</tr>
</tbody>
</table>

### Indicator options

- Indicating differential pressure:
  - 2.5 +/- 0.3 bar
  - 3.5 +/- 0.3 bar
  - 5.0 +/- 0.3 bar
- Visual M3
  - Electrical T1 (PNP)
  - Electronic F1
  - 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)

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**EPF iprotect® - Size 5 (Inline)**

**EPF iprotect® - Size (Manifold)**
EPF iprotect® Size 5 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 Δp = housing Δph + (element Δpe x working viscosity/30).

**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**

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

**Seal kit numbers**

<table>
<thead>
<tr>
<th>Filter</th>
<th>Nitrile</th>
<th>Fluorelastomer</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPF 1</td>
<td>EPFSK001</td>
<td>EPFSK011</td>
</tr>
<tr>
<td>EPF 2</td>
<td>EPFSK002</td>
<td>EPFSK012</td>
</tr>
<tr>
<td>EPF 3</td>
<td>EPFSK003</td>
<td>EPFSK013</td>
</tr>
<tr>
<td>EPF 4 + 5</td>
<td>EPFSK004</td>
<td>EPFSK014</td>
</tr>
</tbody>
</table>

See opposite for parts list and seal kit numbers.
**Indicator Options**

**FMU Δp-Indicators and Pressure Indicators**

**FMUT Electrical**

<table>
<thead>
<tr>
<th>Rated voltage</th>
<th>Non-inductive load (A)</th>
<th>Inductive load (A)</th>
<th>Inrush current (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Resistive load</td>
<td>Lamp load</td>
<td>Inductive load</td>
</tr>
<tr>
<td>125VAC</td>
<td>N.C.</td>
<td>5</td>
<td>N.O.</td>
</tr>
<tr>
<td>250VAC</td>
<td>N.C.</td>
<td>3</td>
<td>N.O.</td>
</tr>
<tr>
<td>8VDC</td>
<td>N.C.</td>
<td>5</td>
<td>N.O.</td>
</tr>
<tr>
<td>14VDC</td>
<td>N.C.</td>
<td>5</td>
<td>N.O.</td>
</tr>
<tr>
<td>30VDC</td>
<td>N.C.</td>
<td>4</td>
<td>N.O.</td>
</tr>
<tr>
<td>125VDC</td>
<td>N.C.</td>
<td>0.4</td>
<td>N.O.</td>
</tr>
<tr>
<td>250VDC</td>
<td>N.C.</td>
<td>0.2</td>
<td>N.O.</td>
</tr>
</tbody>
</table>

**Contact configuration**

**Electrical Indicator Type T1**

**FMUF Electronic**

**Contact configuration**

**FMUM3 Visual Auto Reset Operation**

- Red colour visible when indicator on

**Thermal lock-out (standard setting +20 °C)**
- Indicator operates only when temperature is above setting.

<table>
<thead>
<tr>
<th>Ind. press. setting</th>
<th>LED status</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Enclosure class** IP65

**Electrical connector** DIN 43650

**Overvoltage category** II (EN61010-1)

*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

<table>
<thead>
<tr>
<th>Average filtration beta ratio $\beta$ (ISO 16889) / particle size $\mu m$</th>
<th>Code</th>
<th>Disposable Microglass III</th>
<th>Element with reverse flow valve</th>
<th>High strength Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta x (c) = 2$</td>
<td>$\beta x (c) = 10$</td>
<td>$\beta x (c) = 75$</td>
<td>$\beta x (c) = 100$</td>
<td>$\beta x (c) = 200$</td>
</tr>
<tr>
<td>% efficiency, based on the above beta ratio ($\beta x$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50.0%</td>
<td>90.0%</td>
<td>98.7%</td>
<td>99.0%</td>
<td>99.5%</td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>4.5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>N/A</td>
<td>6</td>
<td>8.5</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>17</td>
<td>18</td>
<td>20</td>
</tr>
</tbody>
</table>

### Ordering information. Standard part numbers

<table>
<thead>
<tr>
<th>Filter Assemblies</th>
<th>Part Number</th>
<th>Flow (l/min)</th>
<th>Model Number</th>
<th>Element Length</th>
<th>Media Rating (micron)</th>
<th>Seals</th>
<th>Indicator</th>
<th>Bypass (bar)</th>
<th>Ports</th>
<th>Replacement elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPF1105QIBPMG081</td>
<td>40</td>
<td>EFP1</td>
<td>1</td>
<td>5</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G1/2''</td>
<td></td>
<td>944419Q</td>
</tr>
<tr>
<td>EPF1110QIBPMG081</td>
<td>40</td>
<td>EFP1</td>
<td>1</td>
<td>10</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G1/2''</td>
<td></td>
<td>944420Q</td>
</tr>
<tr>
<td>EPF1120QIBPMG081</td>
<td>40</td>
<td>EFP1</td>
<td>1</td>
<td>20</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G1/2''</td>
<td></td>
<td>944421Q</td>
</tr>
<tr>
<td>EPF2205QIBPMG121</td>
<td>140</td>
<td>EPF2</td>
<td>2</td>
<td>5</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G3/4''</td>
<td></td>
<td>944431Q</td>
</tr>
<tr>
<td>EPF2210QIBPMG121</td>
<td>140</td>
<td>EPF2</td>
<td>2</td>
<td>10</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G3/4''</td>
<td></td>
<td>944432Q</td>
</tr>
<tr>
<td>EPF2220QIBPMG121</td>
<td>140</td>
<td>EPF2</td>
<td>2</td>
<td>20</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G3/4''</td>
<td></td>
<td>944433Q</td>
</tr>
<tr>
<td>EPF3205QIBPMG161</td>
<td>250</td>
<td>EPF3</td>
<td>2</td>
<td>5</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G1''</td>
<td></td>
<td>944439Q</td>
</tr>
<tr>
<td>EPF3210QIBPMG161</td>
<td>250</td>
<td>EPF3</td>
<td>2</td>
<td>10</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G1''</td>
<td></td>
<td>944440Q</td>
</tr>
<tr>
<td>EPF3220QIBPMG161</td>
<td>250</td>
<td>EPF3</td>
<td>2</td>
<td>20</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G1''</td>
<td></td>
<td>944441Q</td>
</tr>
<tr>
<td>EPF4205QIBPMG201</td>
<td>450</td>
<td>EPF4</td>
<td>2</td>
<td>5</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G11/4''</td>
<td></td>
<td>944447Q</td>
</tr>
<tr>
<td>EPF4210QIBPMG201</td>
<td>450</td>
<td>EPF4</td>
<td>2</td>
<td>10</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G11/4''</td>
<td></td>
<td>944448Q</td>
</tr>
<tr>
<td>EPF4220QIBPMG201</td>
<td>450</td>
<td>EPF4</td>
<td>2</td>
<td>20</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G11/4''</td>
<td></td>
<td>944449Q</td>
</tr>
<tr>
<td>EPF5105QIBPMG241</td>
<td>500</td>
<td>EPF5</td>
<td>1</td>
<td>5</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G11/2''</td>
<td></td>
<td>944451Q</td>
</tr>
<tr>
<td>EPF5110QIBPMG241</td>
<td>500</td>
<td>EPF5</td>
<td>1</td>
<td>10</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G11/2''</td>
<td></td>
<td>944452Q</td>
</tr>
<tr>
<td>EPF5120QIBPMG241</td>
<td>500</td>
<td>EPF5</td>
<td>1</td>
<td>20</td>
<td>Nitrile</td>
<td>Plugged port</td>
<td>7</td>
<td>G11/2''</td>
<td></td>
<td>944453Q</td>
</tr>
</tbody>
</table>

### Visual Indicators

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Setting (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMUM3MVM508</td>
<td>5</td>
</tr>
</tbody>
</table>

For spare element see page 130.

### Electrical Indicators

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Setting (bar)</th>
<th>Switch Type</th>
<th>Additional</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMUT1MVM508</td>
<td>5</td>
<td>NO/NC</td>
<td>Electronic 4 LED, PNP</td>
</tr>
<tr>
<td>FMUF1MVM508</td>
<td>5</td>
<td>NO</td>
<td>Electronic 4 LED, PNP</td>
</tr>
<tr>
<td>FMUF2MVM508</td>
<td>5</td>
<td>NO</td>
<td>Electronic 4 LED, PNP</td>
</tr>
<tr>
<td>FMUF3MVM508</td>
<td>5</td>
<td>NC</td>
<td>Electronic 4 LED, PNP</td>
</tr>
<tr>
<td>FMUF4MVM508</td>
<td>5</td>
<td>NC</td>
<td>Electronic 4 LED, PNP</td>
</tr>
</tbody>
</table>
### EPF iprotect®

**High Pressure Filter**

#### Ordering Information

<table>
<thead>
<tr>
<th>Box 1</th>
<th>Box 2</th>
<th>Box 3</th>
<th>Box 4</th>
<th>Box 5</th>
<th>Box 6</th>
<th>Box 7</th>
<th>Box 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPF3</td>
<td>2</td>
<td>02QI</td>
<td>B</td>
<td>P</td>
<td>M</td>
<td>G16</td>
<td>1</td>
</tr>
</tbody>
</table>

- **Model**: EPF1, EPF2, EPF3, EPF4, EPF5
- **Capacity**:
  - Size 1 (40 l/min) EPF1
  - Size 2 (replaces 18P) EPF2
  - Size 3 (replaces 28P) EPF3
  - Size 4 (replaces 38P) EPF4
  - Size 5 EPF5

#### Filter Length

<table>
<thead>
<tr>
<th>Length</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length 1</td>
<td>1</td>
</tr>
<tr>
<td>Length 2 (not for Size 1 and Size 5)</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Degree of filtration

- **Media code**: 02QI, 05QI, 10QI, 20QI
  - iprotect® Glassfibre element
  - iprotect® with reverse flow valve(*)
  - iprotect® High Strength element

- **Code**: Nitrile B, Fluorelastomer V

#### Bypass Setting

<table>
<thead>
<tr>
<th>Indicator Setting</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5 bar</td>
<td>2.5 bar</td>
</tr>
<tr>
<td>5.0 bar</td>
<td>3.5 bar</td>
</tr>
<tr>
<td>7.0 bar</td>
<td>5.0 bar</td>
</tr>
<tr>
<td>No bypass</td>
<td>5.0 bar</td>
</tr>
<tr>
<td>No bypass</td>
<td>No indicator</td>
</tr>
</tbody>
</table>

#### Options

- **Code**:
  - Standard 1
  - No bypass 2
  - Reverse flow valve RFV
  - ATEX certified* EX

#### Highlights Key

(Denotes part number availability)

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

#### Media code

- 02QI: iprotect® Glassfibre element
- 05QI, 10QI, 20QI: iprotect® with reverse flow valve(*)
- 02QIH, 05QIH, 10QIH, 20QIH: iprotect® High Strength element

#### Filter Connection

<table>
<thead>
<tr>
<th>Size</th>
<th>Connection type &amp; size</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 1</td>
<td>Thread G1½</td>
<td>G08</td>
</tr>
<tr>
<td></td>
<td>Thread SAE 8</td>
<td>S08</td>
</tr>
<tr>
<td>Size 2</td>
<td>Thread G1½</td>
<td>G08</td>
</tr>
<tr>
<td></td>
<td>Thread G1½</td>
<td>G12</td>
</tr>
<tr>
<td></td>
<td>Thread SAE 12</td>
<td>S12</td>
</tr>
<tr>
<td></td>
<td>Thread M27, ISO 6149</td>
<td>M27</td>
</tr>
<tr>
<td></td>
<td>SAE flange ¼ - 6000M</td>
<td>H12</td>
</tr>
<tr>
<td></td>
<td>SAE flange ¼ - 6000</td>
<td>F12</td>
</tr>
<tr>
<td></td>
<td>Manifold</td>
<td>X12</td>
</tr>
<tr>
<td>Size 3</td>
<td>Thread G1</td>
<td>G16</td>
</tr>
<tr>
<td></td>
<td>Thread SAE 16</td>
<td>S16</td>
</tr>
<tr>
<td></td>
<td>Thread M33, ISO 6149</td>
<td>M33</td>
</tr>
<tr>
<td></td>
<td>SAE flange 1 - 6000M</td>
<td>H16</td>
</tr>
<tr>
<td></td>
<td>SAE flange 1 - 6000</td>
<td>F16</td>
</tr>
<tr>
<td>Size 4</td>
<td>Thread G1½</td>
<td>G20</td>
</tr>
<tr>
<td></td>
<td>Thread G1½</td>
<td>G24</td>
</tr>
<tr>
<td></td>
<td>Thread SAE20</td>
<td>S20</td>
</tr>
<tr>
<td></td>
<td>Thread SAE24</td>
<td>S24</td>
</tr>
<tr>
<td></td>
<td>Thread M42, ISO 6149</td>
<td>M42</td>
</tr>
<tr>
<td></td>
<td>SAE flange ¼ - 6000M</td>
<td>H20</td>
</tr>
<tr>
<td></td>
<td>SAE flange ¼ - 6000</td>
<td>F20</td>
</tr>
<tr>
<td></td>
<td>Manifold</td>
<td>X20</td>
</tr>
<tr>
<td>Size 5</td>
<td>Thread G1½</td>
<td>G24</td>
</tr>
<tr>
<td></td>
<td>Thread SAE 24</td>
<td>S24</td>
</tr>
<tr>
<td></td>
<td>SAE flange 1½ - 6000M</td>
<td>H24</td>
</tr>
<tr>
<td></td>
<td>Manifold</td>
<td>X20</td>
</tr>
</tbody>
</table>

### Important Notes:

- When no bypass is selected, Parker strongly advises the use of high strength elements.
- For non-bypass please select High strength element type QIH.
- 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.
- Consult Parker Filtration for any questions related to the classification of our products.