Applications of MPD

- Circulating Lube Oil Systems
- Power Generation Control Systems
- Steel Mill Control Systems
- Pulp & Paper Control Systems
- Test Stands
- Automotive Stamping Presses
- Offshore & Land Based Oilfield Applications

MPD series filters are an outstanding choice for today’s demanding hydraulic control and circulating oil systems. The MPD’s innovative modular design, rugged ductile iron construction and coreless element technology, combined with many other features, provide solutions across a broad range of industrial applications.

The Modular design provides user flexibility for simplex or duplex applications. Incorporating side chambers as simplex filters along with duplex installations provide common elements across the circuit design.

Construction features like full ported transfer valve with neutral center flow capability offer tremendous benefit in cold start conditions. Standard features like pressure sensing taps, vents, drains and internal pressure equalization make this product incomparable in industry.
MPD Features

- Cover / Bypass Valve Assembly
- Permanent Core
- Coreless Element Technology
- Dust Seal
- Transfer Valve Assembly
- Modular Housing Design
- Pressure Taps
- Element Condition Indicators
- Drains
- Ports (2” ANSI Shown)
MPD-1 Element Performance

**Efficiency**

- Beta Rating vs. Efficiency
- Particle Size (Micrometre) vs. Efficiency %

**Capacity**

- Efficiency vs. PSID
- Capacity vs. Grams

Multipass tests run @ 50 gpm to 50 psid terminal - 5mg/L BUGL

**Flow vs. Pressure Loss**

- Flow LPM vs. Pressure Loss PSID
- Flow LPM vs. Pressure Loss BAR

Empty Housing
MPD-2 Element Performance

Efficiency

Beta Rating
10,000
1,000
200
100
20

Particle Size (Micrometre)
0 5 10 15 20 25

Efficiency %
99.9
99.5
99.0
95.0

Capacity

PSID
100
80
60
40
20

Grams
0 50 100 150 200

BAR
6
5
4
3
2
1
0

Multipass tests run @ 80 gpm to 50 psid terminal - 10mg/L BUGL

Flow vs. Pressure Loss

LPM
0 100 200 300 400 500
0 25 20 15 10 5 0

PSID
150 SUS

GPM
0 30 60 90 120 150
0 0.0 0.5 1.0 1.5 2.0 2.5

Parker Hannifin Corporation
Hydraulic Filter Division
Metamora, OH
Ecoglass III
Replacement Elements

Ecoglass III represents the merging of high performance filtration technology with environmentally conscious engineering. The Ecoglass III line of replacement elements features 100% non-metallic construction. The design reduces solid waste and minimizes disposal costs for industry. The non-metallic construction means lightweight elements (60% less weight) for easier servicing.

The Ecoglass III elements utilize the same proprietary media design as our Microglass III line of replacement elements.

With Ecoglass III, a reusable core is installed into the filter housing and remains in service throughout the life of the assembly.

Microglass III
Replacement Elements

Microglass III represents a leap forward in the performance obtainable in hydraulic and lube filter elements.

The unique multi-layer design combines high efficiencies with exceptional dirt holding capacities for performance that is unequalled in the industry today. This performance is further enhanced in the MPD series with the introduction of the deep pleat design. The deep pleat element design increases the amount of media in the element and therefore increases capacity.

With Microglass III, you do not have to make a compromise between efficiency and capacity; you can have both.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Advantage</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Modular design filter</td>
<td>• Use a simplex or duplex</td>
<td>• Reduced installation due to common elements</td>
</tr>
<tr>
<td>• Top access cover</td>
<td>• Remove element from top</td>
<td>• Application flexibility</td>
</tr>
<tr>
<td>• Visual and electrical indicators</td>
<td>• Lighter than removing entire bowl</td>
<td>• No oil mess</td>
</tr>
<tr>
<td>• Drain port</td>
<td>• Know exactly when to service elements</td>
<td>• Keeps system clean</td>
</tr>
<tr>
<td>• Vent port</td>
<td>• Drain all oil from assembly prior to servicing</td>
<td>• Eliminates cross contamination</td>
</tr>
<tr>
<td>• Multipass tested elements</td>
<td>• Purges all trapped air in filter</td>
<td>• Get the maximum performance from elements</td>
</tr>
<tr>
<td>(per ANSI/NFPA T3.10.8.8 R1-1990)</td>
<td></td>
<td>• Prevents a “spongy” system</td>
</tr>
<tr>
<td>• Option of Ecoglass III or Microglass III elements</td>
<td>• Element performance backed by recognized test standards</td>
<td>• Elements selected will have consistent performance levels</td>
</tr>
<tr>
<td>• Equalizing valve &amp; manifold</td>
<td>• Multi-layer media</td>
<td>• High capacity with high efficiency</td>
</tr>
<tr>
<td>• Upstream &amp; downstream sensing ports</td>
<td>• Coreless as standard</td>
<td>• No performance loss from pleat bunching</td>
</tr>
<tr>
<td></td>
<td>• HF4 as option</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No external plumbing</td>
<td>• Safety &amp; reliability</td>
</tr>
<tr>
<td></td>
<td>• Add additional instrumentation</td>
<td>• Product flexibility</td>
</tr>
</tbody>
</table>
Specifications: MPD Series

Pressure Ratings:
- Maximum Allowable Operating Pressure (MAOP):
  - 1200 psi (81.6 bar) SAE port;
  - 500 psi (34 bar) ANSI port
- Rated Fatigue Pressure:
  - 1200 psi (81.6 bar) SAE port;
  - 500 psi (34 bar) ANSI port
- Design Safety Factor: 3:1
*Consult factory for higher operating pressures

Operating Temperatures:
-15°F (-26°C) to 160°F (71°C)
*Consult factory for temperatures outside specified range

Element Collapse Rating:
- Standard: 150 psid (10.3 bar)
- High collapse Microglass only:
  - 1200 psid (81.6 bar) (SAE);
  - 500 psid (34 bar) (ANSI)

Materials:
- Transfer Valve: Ductile Iron
- Side Chamber: Ductile Iron
- Side Chamber Extension: Steel
- Cover: Ductile Iron
- Equalizing Valve and Manifolds: Steel

Shipping Weights (approximate):
- MPD-1: 215 lbs. (98 kg)
- MPD-2: 285 lbs. (129 kg)

Element Servicing Instructions: MPD
The system does not need to be shut down to service elements; however, pressure must be equalized at both side chambers of the duplex filter before performing transfer valve changeover.

1. Black flow arrow on top of the transfer valve points to the on-duty chamber.
2. Open the equalizing valve (counter-clockwise) to balance pressure at the side chambers.
3. Shift directional lever on the ratchet handle to switch the ratchet direction.
4. Pull detent ring up to disengage the locking pin and allow handle to rotate.
5. Rotate ratchet handle back and forth over the inlet port until the transfer valve is fully shifted and the detent locking pin engages.
6. Slack flow arrow now points to the new on-duty side chamber.
7. Close equalizing valve (clockwise) to isolate the side chambers.
8. Loosen new off-duty vent plug (counter-clockwise) approximately 2 turns. Do not thread out complete.
9. Remove drain plug (counter-clockwise) tram new off-duty chamber to lower oil level.
10. Remove new off-duty chamber cover by rotating (counter-clockwise) until unthreaded then lift from chamber.
11. Pull element out from chamber. Discard used disposable elements as they are not cleanable. With Ecoglass elements the permanent core will remain in the chamber.
12. Install new element by centering it on the element locator in the bottom of the chamber and pushing down into place. For Ecoglass elements slide all the way down onto the permanent core.
13. Inspect cover o-rings and replace if necessary.
14. Install cover onto the chamber by rotating clockwise) and tightening to 60-70 ft.-lbs.
15. Install and tighten drain plug (clockwise) to 60-70 ft.-lbs.
16. Open equalizing valve (counter-clockwise) to purge air from the new off-duty chamber.
17. When oil flows from the vent close the equalizing valve (clockwise).
18. Tighten new off-duty vent plug (clockwise) to 15-20 ft.-lbs.

Element Condition Indicators:
Type M2 Series: Visual, auto-resetting with a red indication at the designated differential pressure. In the clean condition, indication is green.

Type E Series: Electrical/Visual, auto-resetting with a red indication at the designated differential pressure. Rated 5 Amps at 125/250 VAC; 5 Amps resistive, 3 amps inductive (sea level) at 28 VDC; SPDT.

Type H Series: Heavy duty electrical/no visual, rated 0.25 Amps resistive, 12 to 28 VDC and .25 Amps resistive, 110-175 VAC; 5 watts; SPDT.

No indicator P option: plugged indicator port.
Contact factory for other available indicator options & types.
Medium Pressure Duplex
MPD Series

Parker Hannifin Corporation
Hydraulic Filter Division
Metamora, OH

ANSI Dimensional Drawing

Linear Measure: inch [millimeter]

Cover Torque 60-70 FT-LBS [81.4-94.9 Nm]

Cover Torque 60-70 FT-LBS [81.4-94.9 Nm]
SAE Dimensional Drawing

Linear Measure: inch [millimeter]
## Parts List

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Element Type</th>
<th>Element Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ecoglass</td>
<td>Microglass</td>
</tr>
<tr>
<td>1</td>
<td>Cover Assembly w/ 25psi bypass</td>
<td>936964</td>
<td>936964</td>
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<tr>
<td></td>
<td>w/ 50psi bypass</td>
<td>935965</td>
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<tr>
<td></td>
<td>w/ no bypass</td>
<td>935966</td>
<td>935966</td>
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<tr>
<td>2</td>
<td>Cover (O-ring &amp; Dust Seal)</td>
<td>V72247</td>
<td>V72247</td>
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<tr>
<td>3</td>
<td>Cover Backup Ring</td>
<td>935419</td>
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<td>4</td>
<td>Indicator P option-indicator port plug</td>
<td>925515</td>
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<tr>
<td></td>
<td>M2 25psi</td>
<td>932026</td>
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<td></td>
<td>M2 50psi</td>
<td>932027</td>
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<td>E2 25psi</td>
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<td>E2 50psi</td>
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<td>E3 25psi</td>
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<td>E3 50psi</td>
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<td>H 50psi</td>
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<td>H1 25psi</td>
<td>933054</td>
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<tr>
<td></td>
<td>H1 50psi</td>
<td>932906</td>
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<tr>
<td>5</td>
<td>Element (see chart on model code page)</td>
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<tr>
<td>6</td>
<td>Vent Plug</td>
<td>935466</td>
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<tr>
<td>7*</td>
<td>Vent Plug O-ring</td>
<td>V93905</td>
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<td>8</td>
<td>Drain Plug w/ O-ring</td>
<td>928364</td>
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<td>9</td>
<td>Pressure Tap Plug w/ O-ring</td>
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<tr>
<td>10*</td>
<td>Equalizing Valve</td>
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<td>11</td>
<td>Transfer Valve Assembly</td>
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<td>ANSI 2&quot; w/ indicator port</td>
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<td>SAE 2&quot; w/ indicator port</td>
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<td>12</td>
<td>Housing Assembly</td>
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<td>right side w/ indicator port</td>
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<td>left side w/ indicator port</td>
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<td>right side w/o Indicator port</td>
<td>935974</td>
<td>935975</td>
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<tr>
<td></td>
<td>left side w/o Indicator port</td>
<td>935974</td>
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<td>13</td>
<td>Housing Extension (MPD-2)</td>
<td>935489</td>
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<td>14</td>
<td>5/8&quot; - 11x1¾&quot; HHCS</td>
<td>922812</td>
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<tr>
<td>15*</td>
<td>Seal Kit-Transfer Valve</td>
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<td></td>
</tr>
<tr>
<td>16*</td>
<td>Seal Kit-Housing Assembly</td>
<td></td>
<td></td>
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</tbody>
</table>

* Not Shown
HOW TO ORDER:
Select the desired symbol (in the correct position) to construct a model code.

Example:

<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>
<th>BOX 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPD</td>
<td>1</td>
<td>10QE</td>
<td>NE2</td>
<td>25</td>
<td>B2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Design</td>
<td>number</td>
<td>assigned</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Parker</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BOX 1: Seals
Symbol Description
None Buna (N) nitrile
F3 Fluorocarbon

BOX 2: Model Number
Symbol Description
MPD Duplex Filter

BOX 3: Element Length
Symbol Description
1 Single
2 Double

BOX 4: Element Media
Symbol Description
20QE Ecoglass III
10QE Ecoglass III
05QE Ecoglass III
02QE Ecoglass III
20* Microglass III (HF4)
10* Microglass III (HF4)
3* Microglass III (HF4)
*Note: For high collapse rated (2000 psid) elements, add “H” after symbol. For Microglass III media only.

BOX 5: Indicators
Symbol Description
M2 Visual/Auto reset
H Electrical (w/½” npt conduit connection and wire pads)
H1 Electrical (w/12” leads only)
E2 Electrical (DIN 43650 Hirschman style connection)
E3 Electrical (ANSI/B93.55M 3-Pin Brad Harrison style connection)
P Indicator port plugged
N No side chamber indicator port

Note: Two (2) symbols required. First symbol denotes side chamber indicator mounted on inlet side. Second symbol denotes indicator on equalizing valve manifold.

BOX 6: Bypass
Symbol Pressure Setting
25 25 PSI (1.7 bar) setting
50 50 PSI (3.5 bar) setting
If “no bypass” option (-11) and an indicator is selected, above symbols (25,50) denote indicator setting

BOX 7: Ports
Symbol Description
B2 2” 300 lb RF ANSI Flange
Y9 2” SAE 4 Bolt Code 61 Flange Face

BOX 8: Options
Symbol Description
1 None
11 No Bypass

BOX 9: Design Number
Applied to the filter by Parker Hydraulic Filter Division. Use the full model code, including the design number when ordering replacement parts, elements and cartridges.

Ecoglass II Replacement Elements (Fluorocarbon)

<table>
<thead>
<tr>
<th>MEDIA</th>
<th>MPD-1</th>
<th>MPD-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>20QE</td>
<td>935519Q</td>
<td>935521Q</td>
</tr>
<tr>
<td>10QE</td>
<td>935518Q</td>
<td>935520Q</td>
</tr>
<tr>
<td>05QE</td>
<td>935517Q</td>
<td>935458Q</td>
</tr>
<tr>
<td>02QE</td>
<td>935516Q</td>
<td>935488Q</td>
</tr>
</tbody>
</table>

HF-4 Replacement Elements (Fluorocarbon)

<table>
<thead>
<tr>
<th>Media</th>
<th>Element Collapse Rating</th>
<th>Single Length</th>
<th>Double Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Micron</td>
<td>150 psi</td>
<td>HF41L3VQ</td>
<td>HF42L3VQ</td>
</tr>
<tr>
<td>3 Micron</td>
<td>2000 psi</td>
<td>HF41H3VQ</td>
<td>HF42H3VQ</td>
</tr>
<tr>
<td>10 Micron</td>
<td>150 psi</td>
<td>HF41L10VQ</td>
<td>HF42L10VQ</td>
</tr>
<tr>
<td>10 Micron</td>
<td>2000 psi</td>
<td>HF41H10VQ</td>
<td>HF42H10VQ</td>
</tr>
<tr>
<td>20 Micron</td>
<td>150 psi</td>
<td>HF41L20VQ</td>
<td>HF42L20VQ</td>
</tr>
<tr>
<td>20 Micron</td>
<td>2000 psi</td>
<td>HF41H20VQ</td>
<td>HF42H20VQ</td>
</tr>
</tbody>
</table>

Please note the bold options reflect standard options with a reduced lead-time of (8) weeks or less. Consult factory on all other lead-time options.