HYDRAULIC FILTRATION PRODUCTS
SPIN ON FILTERS
Filter element

Element description

M - Wire Mesh  \( \Delta p \) 145 psi (10 bar)
P - Paper  \( \Delta p \) 145 psi (10 bar)
A - Microfibre  \( \Delta p \) 145 psi (10 bar)

Characteristics of filter elements with nominal filtration, M series

For wire mesh filter elements, filtration degree is defined as the maximum diameter of a sphere corresponding to the mesh size, in microns.

Characteristics of filter elements with nominal filtration, P series

For cellulose filter elements, filtration efficiency expressed in micron is to be construed as nominal \( \beta_{x\geq} \geq 2 \).

Characteristics of filter elements with absolute filtration, A series

For microfibre filter elements, filtration degree is defined by the test bench MULTIPASS ISO 16889.

Reference standards

All filter elements comply with the following ISO standards.

- ISO 2941 - Collapse and burst resistance.
- ISO 2942 - Bubble point test resistance.
- ISO 2943 - Compatibility with fluids.
- ISO 3723 - Resistance to axial deformation.
- ISO 23181 - Fatigue test with flow.
- ISO 3968 - Pressure drop.
- ISO 16889 - Filtration efficiency by means of Multipass.

N.B. P series cellulose cartridges are compatible only with mineral oils in accordance to ISO 2943 - 4.

Multipass test in compliance new ISO 16889

Contaminant ISO MTD

<table>
<thead>
<tr>
<th>Filtration</th>
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International standards for fluid contamination control

<table>
<thead>
<tr>
<th>Components</th>
<th>Recommended filtrations</th>
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<tr>
<td>Servo valves</td>
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<td>Proportional Valves</td>
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<td>Variable displacement pumps.</td>
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* On request
Hydraulic symbols & Compatibility

Compatibility (to ISO 2943)

- Housings compatible with:
  - Mineral oils, synthetic fluids
  - Aqueous emulsions, water and glycol (on request).
- The filter elements are compatible with:
  - Mineral oils, synthetic fluids.
  - Aqueous emulsions, water and glycol.
- NBR seals series A, compatible with:
  - Mineral oils, synthetic fluids, aqueous emulsions and water and glycol.

Sizes - Connections SAE

Connection to 3000 psi SAE flange

<table>
<thead>
<tr>
<th>Dimension</th>
<th>1 1/2” SAE 3000 PSI M</th>
<th>1 1/2” SAE 3000 PSI UNC</th>
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<tr>
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<td>D</td>
<td>M12</td>
<td>1/2” UNC</td>
</tr>
</tbody>
</table>

In-Line

MPS 300-350
MPS 301-351
MPS

Maximum pressure 174 psi (12 bar)
Flow rates to 96 gpm (365 l/min)

Technical data

Filter housing (Materials)
• Head: Aluminium
• Bypass valve: Nylon - Steel
• Element: Zinc-Plated Steel, Painted Steel

Pressure
• Working pressure: 174 psi (12 bar - 1.2 MPa)

Temperature
• From -4°F to +230°F / -20°C to +110°C

Bypass valve
• Return filter opening pressure: 25 psi ±10% (1.75 bar ±10%)
• Suction filter opening pressure: 4.35 psi ±10% (30 kPa ±10%)

Δp Elements type
• Δp: 73 psi (5 bar)
• Fluid flow through the filter element from OUT to IN.

Seals
• Standard NBR series A

MPS FILTERS ARE PROVIDED FOR VERTICAL MOUNTING

Weights lbs (kg)
• MPS050 2.20 (1,00)
• MPS051 2.31 (1,05)
• MPS070 2.65 (1,20)
• MPS071 2.76 (1,25)
• MPS100 4.63 (2,10)
• MPS101 4.85 (2,20)
• MPS150 5.29 (2,40)
• MPS151 5.51 (2,50)
• MPS200 8.60 (3,90)
• MPS250 10.14 (4,60)
• MPS300-301 11.68 (5,30)
• MPS350-351 13.23 (6,00)

Volumes in³ (dm³)
• MPS050-051 42.72 (0,70)
• MPS070-071 57.97 (0,95)
• MPS100-101 100.69 (1,65)
• MPS150-151 122.05 (2,00)
• MPS200 183.07 (3,00)
• MPS300-351 250.20 (4,10)

Filter housings Δp pressure drop

The curves are plotted utilising mineral oil with density of 53.69 lbs/ft³/0.86 kg/dm³ to ISO 3968.

Δp varies proportionally with density.

Valves: Bypass valve pressure drop

MPS 050/070
In-Line/Return - Setting 25 psi (1.75 bar)

MPS 100-150-200-250-300-350
In-Line/Return - Setting 25 psi (1.75 bar)

MPS 050/070
In-Line/Suction - Setting 4,35 psi (30 kPa)

MPS 100-150-200-250-300-350
In-Line/Suction - Setting 4,35 psi (30 kPa)
## Filter sizing - Imperial unit of measure

### In-Line/Suction Filter

The following filter sizing recommendations are based on a mineral oil fluid at 150/212/311 SUS with a maximum total filter assembly (housing and filter element) of 1.45 psi.

<table>
<thead>
<tr>
<th>MPS 050</th>
<th>SUS</th>
<th>MPS 070</th>
<th>SUS</th>
<th>MPS 100</th>
<th>SUS</th>
<th>MPS 150</th>
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### In-Line/Return Filter

The following filter sizing recommendations are based on a mineral oil fluid at 150/212/311 SUS with a maximum total filter assembly (housing and filter element) of 7.25 psi.

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<tr>
<th>MPS 050 - 051</th>
<th>SUS</th>
<th>MPS 070 - 071</th>
<th>SUS</th>
<th>MPS 100 - 101</th>
<th>SUS</th>
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### Spin-On Filter

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### Flow rate gpm

- MPS 050: P10: 5.3, P25: 6.6, M25: 7.9
- MPS 100: P10: 13.2, P25: 15.8, M25: 19.8

### Spin-On Filter

- MPS 300: A03: 21.9, A06: 27.7, A10: 33.8, A25: 44.4, P10: 42.3, P25: 46.2, M25: 50.2

### Flow rate gpm

- MPS 100: A03: 21.9, A06: 27.7, A10: 33.8, A25: 44.4, P10: 42.3, P25: 46.2, M25: 50.2

### Flow rate gpm


### Flow rate gpm

- MPS 050: 151 212 311: 84.5 33.0 18.5
- MPS 070: 151 212 311: 21.1 66.0 74.0
- MPS 100: 151 212 311: 66.0 33.0 95.1
- MPS 150: 151 212 311: 88.5 20.3 43.6

### Flow rate gpm

- MPS 200: 151 212 311: 21.1 66.0 74.0
- MPS 250: 151 212 311: 66.0 33.0 95.1
- MPS 300: 151 212 311: 88.5 20.3 43.6
- MPS 350: 151 212 311: 14.8 51.5 50.2
### Filter sizing - Metric unit of measure

#### In-Line/Suction Filter

The following filter sizing recommendations are based using a mineral oil fluid at 30/46/68 \( \text{mm}^2/\text{s} \) (cSt) with a maximum total filter assembly (housing and filter element) of 10 kPa (0.1 bar).

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#### In-Line/Return Filter

The following filter sizing recommendations are based using a mineral oil fluid at 30/46/68 \( \text{mm}^2/\text{s} \) (cSt) with a maximum total filter assembly (housing and filter element) of 50 kPa (0.5 bar).

<table>
<thead>
<tr>
<th>MPS 050 - 051</th>
<th>MPS 070 - 071</th>
<th>MPS 100 - 101</th>
<th>MPS 150 - 151</th>
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Flow rate l/min

Flow rate l/min

Flow rate l/min

Flow rate l/min

Flow rate l/min
### MPS 050 / 070

- **Filter element**: CS
- **Filter element**: CSG
- **Dimensions**:
  - Ø 3.78" (96)
  - 3.74" (95)
  - 0.51" (13)
  - 0.91" (23)

### MPS 100 / 150

- **Filter element**: CS
- **Filter element**: CSG
- **Dimensions**:
  - Ø 5.08" (129)
  - 5.24" (133)
  - 1.50" (38)
  - 1.97" (50)

### Thread Connections

<table>
<thead>
<tr>
<th>Type</th>
<th>Size MPS 050 / 070</th>
<th>Size MPS 100 / 150</th>
<th>T</th>
<th>E Depth 0.47 Inch (12 mm) MPS 050 - 070</th>
<th>E Depth 0.59 Inch (12 mm) MPS 100 - 150</th>
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<tbody>
<tr>
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<td>G 3/4&quot;</td>
<td>G 1 1/4&quot;</td>
<td>G 1/8&quot;</td>
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<td>1/4&quot; UNC</td>
<td>5/16&quot; UNC</td>
</tr>
<tr>
<td>U5</td>
<td>G 1&quot;</td>
<td>G 1/8&quot;</td>
<td>M6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>U6</td>
<td>1&quot; NPT</td>
<td>1/8&quot; NPT</td>
<td>1/4&quot; UNC</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
MPS 200 - 250

Length Filter | H inch (mm) | H1 inch (mm)
--- | --- | ---
200 | 8.39 (213) | 1.97 (50)
250 | 10.20 (259) | 1.97 (50)

Thread connections

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>T</th>
<th>E Depth 0.79 inch (20 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>G 1 1/2</td>
<td>G 1/8</td>
<td>M10</td>
</tr>
<tr>
<td>02</td>
<td>1 1/2 NPT</td>
<td>1/8 NPT</td>
<td>7/16&quot; UNC</td>
</tr>
<tr>
<td>03</td>
<td>SAE 24 - 1 7/8&quot; - 12 UN</td>
<td>1/8 NPT</td>
<td>7/16&quot; UNC</td>
</tr>
</tbody>
</table>
### MPS 300 - 350

<table>
<thead>
<tr>
<th>Length Filter</th>
<th>H (inch)</th>
<th>H1 (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>10.47 (266)</td>
<td>1.97 (50)</td>
</tr>
<tr>
<td>390</td>
<td>12.28 (312)</td>
<td>1.97 (50)</td>
</tr>
</tbody>
</table>

### MPS 300/301 - 350/351 Thread/Flange connections

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>T</th>
<th>Depth 0.59 inch (15 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>G 1 1/2&quot;</td>
<td>G 1/8&quot;</td>
<td>M10</td>
</tr>
<tr>
<td>G2</td>
<td>1 1/2&quot; NPT</td>
<td>1/8&quot; NPT</td>
<td>7/16&quot; UNC</td>
</tr>
<tr>
<td>G3</td>
<td>SAE 24 - 1 7/8&quot; - 12 UN</td>
<td>1/8&quot; NPT</td>
<td>7/16&quot; UNC</td>
</tr>
</tbody>
</table>

### MPS 301 - 351

<table>
<thead>
<tr>
<th>Length Filter</th>
<th>H (inch)</th>
<th>H1 (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>10.47 (266)</td>
<td>1.97 (50)</td>
</tr>
<tr>
<td>351</td>
<td>12.28 (312)</td>
<td>1.97 (50)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>T</th>
<th>Depth 0.59 inch (15 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>1 1/2&quot; SAE 3000 psi/M</td>
<td>G 1/8&quot;</td>
<td>M10</td>
</tr>
<tr>
<td>F2</td>
<td>1 1/2&quot; SAE 3000 psi/UNC</td>
<td>1/8&quot; NPT</td>
<td>7/16&quot; UNC</td>
</tr>
</tbody>
</table>
CSGW:
This series of canister removes water from oil while filtering the oil at the same time. Water absorbent polymers up to 800 times their own weight, provide this major feature.

Water holding capacities:
CSGW 50 = 5.24 oz (155 ml) - Ordering code: CSGW50P10A, CSGW50P25A
CSGW 100 = 12.17 oz (360 ml) - Ordering code: CSGW100P10A
CSGW 150 = 25.36 oz (750 ml) - Ordering code: CSGW150A03A, CSGW150P10A, CSGW150P25A

<table>
<thead>
<tr>
<th>Viscosity</th>
<th>141/212 SUS (30/46 mm²/s (cSt))</th>
<th>good</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 212 SUS (&gt; 46 mm²/s (cSt))</td>
<td>poor</td>
</tr>
<tr>
<td>H₂O p.p.m.</td>
<td>600/800 p.p.m.</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>&gt; 800 p.p.m.</td>
<td>poor</td>
</tr>
<tr>
<td>Flow rate</td>
<td>CSGW50  1.85/3.96 gpm (7/15 l/min)</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>CSGW50  5.28 gpm (&gt; 20 l/min)</td>
<td>poor</td>
</tr>
<tr>
<td></td>
<td>CSGW150 5.28/10.57 gpm (20/40 l/min)</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>CSGW150 13.21 gpm (&gt; 50 l/min)</td>
<td>poor</td>
</tr>
<tr>
<td>Temperature</td>
<td>104/140 °F (40/60 °C)</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>&lt; 86 °F (&lt; 30 °C)</td>
<td>poor</td>
</tr>
</tbody>
</table>
# MPS Ordering Information Series “0” Barometric Indicator

## Designation & Ordering code

### Complete Filter

<table>
<thead>
<tr>
<th>Series and Size</th>
<th>Configuration Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS050</td>
<td>use MPS050 style head</td>
</tr>
<tr>
<td>MPS070</td>
<td>use MPS050 style head</td>
</tr>
<tr>
<td>MPS100</td>
<td>use MPS100 style head</td>
</tr>
<tr>
<td>MPS150</td>
<td>use MPS100 style head</td>
</tr>
</tbody>
</table>

### Bypass Valve

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>without bypass, with 4 indicator ports (plugged)</td>
</tr>
<tr>
<td>S</td>
<td>with 4.5 psi bypass, with 4 indicator ports (plugged)</td>
</tr>
<tr>
<td>R</td>
<td>with 25 psi bypass, with 4 indicator ports (plugged)</td>
</tr>
<tr>
<td>D</td>
<td>with 50 psi bypass, with 4 indicator ports (plugged)</td>
</tr>
<tr>
<td>T</td>
<td>with 15 psi bypass, with 4 indicator ports (plugged)</td>
</tr>
</tbody>
</table>

### Connections

**Note:** MPS050..G. head - use CS can only MPS050.. U. Head - use CSG only

| MPS050..U4. | Head only available without bypass |

<table>
<thead>
<tr>
<th>Connection</th>
<th>Size/Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>U1</td>
<td>3/4” G 3/4”</td>
</tr>
<tr>
<td>U2</td>
<td>3/4” NPT</td>
</tr>
<tr>
<td>U3</td>
<td>SAE 12 - 1 1/16” - 12 UN</td>
</tr>
<tr>
<td>U4</td>
<td>SAE 8 - 3/4” - 16 UNF</td>
</tr>
<tr>
<td>U5</td>
<td>G 1”</td>
</tr>
<tr>
<td>U6</td>
<td>1” NPT</td>
</tr>
<tr>
<td>G1</td>
<td>G 1 1/4”</td>
</tr>
<tr>
<td>G2</td>
<td>1 1/4” NPT</td>
</tr>
<tr>
<td>G3</td>
<td>SAE 12 - 1 1/16” - 12 UN</td>
</tr>
<tr>
<td>G4</td>
<td>SAE 8 - 3/4” - 16 UNF</td>
</tr>
<tr>
<td>F1</td>
<td>1 1/2” SAE 3000 psi/M</td>
</tr>
<tr>
<td>F2</td>
<td>1 1/2” SAE 3000 psi/UNC</td>
</tr>
</tbody>
</table>

### Filtration Rating (Filter Media)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Filter Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>A03</td>
<td>Inorganic microfiber 3 µm</td>
</tr>
<tr>
<td>A06</td>
<td>Inorganic microfiber 6 µm</td>
</tr>
<tr>
<td>A10</td>
<td>Inorganic microfiber 10 µm</td>
</tr>
<tr>
<td>A25</td>
<td>Inorganic microfiber 25 µm</td>
</tr>
<tr>
<td>M25</td>
<td>Wire mesh 25 µm</td>
</tr>
<tr>
<td>M60</td>
<td>Wire mesh 60 µm</td>
</tr>
<tr>
<td>M90</td>
<td>Wire mesh 90 µm</td>
</tr>
<tr>
<td>P10</td>
<td>Resin impregnated paper 10 µm</td>
</tr>
<tr>
<td>P25</td>
<td>Resin impregnated paper 25 µm</td>
</tr>
</tbody>
</table>

### Seal

<table>
<thead>
<tr>
<th>Character</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>NBR</td>
</tr>
<tr>
<td>V</td>
<td>FPM</td>
</tr>
</tbody>
</table>

### Execution

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P01</td>
<td>MP Filtri standard</td>
</tr>
</tbody>
</table>
## MPS Ordering Information Series "1" Differential Indicator

### Designation & Ordering code

<table>
<thead>
<tr>
<th>Series and size</th>
<th>Complete Filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS051</td>
<td>use MPS051 style head</td>
</tr>
<tr>
<td>MPS071</td>
<td>use MPS051 style head</td>
</tr>
<tr>
<td>MPS101</td>
<td>use MPS101 style head</td>
</tr>
<tr>
<td>MPS151</td>
<td>use MPS101 style head</td>
</tr>
</tbody>
</table>

### Configuration Example:

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS101 R A A10 G1P01</td>
<td></td>
</tr>
</tbody>
</table>

### Bypass Valve

- **P**: without bypass, with differential indicator ports
- **R**: with 25 psi bypass, with differential indicator ports
- **D**: with 50 psi bypass, with differential indicator ports

### Connections

- **U1**
  - G 3/4" NPT
- **U2**
  - 3/4" NPT
- **U3**
  - SAE 12 - 1 1/16" - 12 UN
- **U4**
  - SAE 8 - 3/4" - 16 UNF
- **U5**
  - 1" NPT
- **U6**
  - G 3/4"
- **G1**
  - G 1 1/4"
- **G2**
  - 1 1/4" NPT
- **G3**
  - SAE 20 - 1 5/8" - 12 UN
- **G4**
  - SAE 16 - 1 5/16" - 12 UN
- **F1**
  - 1 1/2" SAE 3000 psi/M
- **F2**
  - 1 1/2" SAE 3000 psi/UNC

### Filtration Rating (Filter Media)

- **A03**: Inorganic microfiber 3 µm
- **A06**: Inorganic microfiber 6 µm
- **A10**: Inorganic microfiber 10 µm
- **A25**: Inorganic microfiber 25 µm
- **M25**: Wire mesh 25 µm
- **M60**: Wire mesh 60 µm
- **M90**: Wire mesh 90 µm
- **P10**: Resin impregnated paper 10 µm
- **P25**: Resin impregnated paper 25 µm

### Seal

- **A**: NBR
- **V**: FPM

### Execution

- **P01**: MP Filtri standard
Filter elements are efficient only if their dirt holding capacity is fully exploited. This is achieved by using filter housings equipped with clogging indicators. These devices trip when the clogging of the filter element causes an increase in pressure drop across the filter element. The indicator is set to alarm before the element becomes fully clogged.

MP Filtri can supply indicators of the following designs:

- Vacuum switches and gauges
- Pressure switches and gauges
- Differential pressure indicators

These type of devices can be provided with a visual, electrical or both signals. The electronic model is available with warning signals and alarm (only available for differential type indicators).
BAROMETRIC INDICATORS

Pressure indicators are used on the return line to check the efficiency of the filter element. They measure the pressure upstream of the filter element. Standard items are produced with 1/8" NPT connection.

VACUUM INDICATORS

Vacuum indicators are used on the suction line to check the efficiency of the filter element. They measure the pressure downstream of the filter element. Available products with 1/8" NPT to be fitted on MPS series.

DIFFERENTIAL INDICATORS (SERIES “1” ONLY)

Differential indicators are used on the pressure line to check the efficiency of the filter element. They measure the pressure upstream and downstream of the filter element (differential pressure). Also available in Stainless Steel models.

CLOGGING INDICATORS
### Axial Pressure Gauge

**Materials:**
- Case: Painted steel
- Window: Clear plastic
- Dial: Painted steel
- Pointer: Painted aluminum
- Pressure connection: Brass
- Pressure element: Bourdon tube Cu-Alloy soft soldered

**Technical data:**
- Indicator type: Axial pressure gauge
- Max working pressure: 40 psi
- Working temperature: -40°F to 140°F
- Compatibility with fluids: Mineral oils

Available setting:
From 0 to 40 psi (VR VA COLOR)

---

### CI-20

**Materials:**
- Case: Painted steel
- Window: Clear plastic
- Dial: Painted steel
- Pointer: Painted aluminum
- Pressure connection: Brass
- Pressure element: Bourdon tube Cu-Alloy soft soldered

**Technical data:**
- Indicator type: Axial pressure gauge
- Max working pressure: 60 psi
- Working temperature: -40°F to 140°F
- Compatibility with fluids: Mineral oils

Available setting:
From 0 to 60 psi (CI-20)

---

### CI-30

**Materials:**
- Case: Painted steel
- Window: Clear plastic
- Dial: Painted steel
- Pointer: Painted aluminum
- Pressure connection: Brass
- Pressure element: Bourdon tube Cu-Alloy soft soldered

**Technical data:**
- Indicator type: Axial pressure gauge
- Max working pressure: 60 psi
- Working temperature: -40°F to 140°F
- Compatibility with fluids: Mineral oils

Available setting:
From 0 to 60 psi (CI-30)
Axial Pressure Gauge

**Materials:**
- Case: Painted steel
- Window: Clear plastic
- Dial: Painted steel
- Pointer: Painted aluminum
- Pressure connection: Brass
- Pressure element: Bourdon tube cu-alloy soft soldered

**Technical data:**
- Indicator type: Axial pressure gauge
- Max working pressure: 40 psi
- Working temperature: From -40°F to 140°F
- Compatibility with fluids: Mineral oils

---

Electrical Pressure Indicator

**Materials:**
- Body: Brass
- Internal parts: Brass - Nylon
- Seals: NBR

**Technical data:**
- Indicator type: Electrical pressure indicator
- Max working pressure: 580 psi (40 bar)
- Proof pressure: 870 psi (60 bar)
- Working temperature: From -20°F to +180°F
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC fluids in according to ISO 2943

**Electrical data:**
- Resistive load: 5 A / 14 Vdc
  4 A / 30 Vdc
  5 A / 125 Vdc
  5 A / 250 Vdc
- Electrical connections: 50 - EN 175301-803
- Protection degree: IP 65 in according to EN 60529

---

Available setting:
From 0 to 40 psi (V1 COLOR)

**HYDRAULIC SYMBOL**

**GRADUATED DISPLAY**
- GREEN BACKGROUND (from 0 to 20 psi)
  - Clean filter element
- RED BACKGROUND (from 20 to 40 psi)
  - Bypass

**Available setting:**
22 psi (1.5 bar) ±10%
**BAROMETRIC INDICATORS**

**Electrical Pressure Indicator**

- **Materials:**
  - Body: Zinc plated steel
  - Internal parts: Silver Nickel alloy contact (Optional: Gold contact)
  - Seals: NBR (Optional: FPM, EPDM, HNBR)

- **Technical data:**
  - Indicator type: Electrical pressure indicator
  - Max overpressure: 9000 psi
  - Working temperature: From -20°F to +180°F Nitrile
  - Compatibility with fluids: Mineral oils, Synthetic fluids, HFA, HFB, HFC fluids in according to ISO 2943

- **Electrical data:**
  - Resistive load: 100 VA / 42 VDC
  - Switch type: Blade contact
  - Protection: IP 67
  - Mating connector: DT06-2S (Integrated Deutsch Receptacle)

**WIRING CODE**

<table>
<thead>
<tr>
<th>CONTACT</th>
<th>DEUTSCH RECEPTACLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td>Pin A</td>
</tr>
<tr>
<td>Normally Closed</td>
<td>Pin B</td>
</tr>
<tr>
<td>Normally Open</td>
<td>Pin B</td>
</tr>
</tbody>
</table>

**PRESSURE RANGE**

Set Point: 1.5 psi to 2175 psi

---

**Ordering information MPDF**

**Series**

<table>
<thead>
<tr>
<th>MPDF</th>
</tr>
</thead>
</table>

**Example:** MPDF - 30F - 2M - B - DR - 1

1 - **Pressure selection**

Field adjustable - Select model code

<table>
<thead>
<tr>
<th>Model</th>
<th>Adjustment Range (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.5 to 14.5</td>
</tr>
<tr>
<td>2</td>
<td>14.5 to 145</td>
</tr>
<tr>
<td>3</td>
<td>50 to 350</td>
</tr>
<tr>
<td>4</td>
<td>250 to 1000</td>
</tr>
<tr>
<td>5</td>
<td>500 to 2175</td>
</tr>
</tbody>
</table>

Insert set point value XXXX followed by: R, F, BR, BR

<table>
<thead>
<tr>
<th>Set Point</th>
<th>Direction</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXXX</td>
<td>R</td>
<td>PSI rising pressure</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>PSI falling pressure</td>
</tr>
<tr>
<td></td>
<td>BR</td>
<td>BAR rising pressure</td>
</tr>
<tr>
<td></td>
<td>BF</td>
<td>BAR falling pressure</td>
</tr>
</tbody>
</table>

2 - **Thread option**

2M 1/8 NPT male

3 - **Circuit**

- A  SPST (Normally Open)
- B  SPST (Normally Closed)

4 - **Electrical termination**

- DR  Integrated Deutsch Receptacle - Mates with DT06-2S

5 - **Options**

- 1  Viton diaphragm
- 2  EPDM diaphragm
- 4  HNBR diaphragm
- 7  Gold contact, 0.4 VA, 30 VDC
- 20 Seal Adjustment Screw
- 0C  Oxygen cleaned switches
- SR  Snubber
VACUUM INDICATORS

Axial Vacuum Gauge

Materials:
- Case: Black plastic
- Window: Clear plastic
- Dial: Painted steel
- Pointer: Painted aluminum
- Pressure connection: Brass
- Pressure element: Bourdon tube cu-alloy soft soldered

Technical data:
- Indicator type: Axial vacuum gauge
- Repeatability: +/- 2% at 70°F ambient temperature
- Max overpressure: 350 psi
- Working temperature: From -40°F to 140°F
- Compatibility with fluids: Mineral oils

Available setting: From -30 to 0 inHg (-76 to 0 cmHg)

Electrical Vacuum Indicator

Materials:
- Body: Brass
- Seals: NBR

Technical data:
- Indicator type: Electrical vacuum indicator
- Repeatability: +/- 2% at 70°F ambient temperature
- Max overpressure: 350 psi
- Working temperature: From -40°F to +180°F
- Compatibility with fluids: Mineral oils
- Resistive load: 7 A / 12/24Vdc
- 7 A / 125/250Vac
- 3 A / 250Vac
- Protection degree: DIN43650 IP65

Available setting: From 5 to 30 inHg (13 to 76 cmHg)

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### Differential Indicators

**Electrical Differential Indicator**

**Materials:**
- Body: Brass
- Internal parts: Brass - Nylon
- Seals: HNBR - FPM

**Technical data:**
- Indicator type: Electrical differential indicator
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -13°F to +230°F
- Compatibility with fluids: Mineral oils, Synthetic fluids
  - HFA, HFB, HFC fluids in accordance to ISO 2943

**Electrical data:**
- Resistive load: 0.2 A / 115 Vdc
- Electrical connections: 50 - EN 175301-803
- Switching type: Normally open contacts (N.C. on request)
- Thermal lockout: Normally open up to 30°C (F option)
- Protection degree: IP 66 in accordance to EN 60529
  - IP 69K in accordance to ISO 20653

**HYDRAULIC SYMBOL**

**ELECTRICAL SYMBOL**

**Available settings:**
- 18 psi (1.2 bar) ±10% (DEA12x10P01)
- 30 psi (2 bar) ±10% (DEA20x10P01)

---

**Electrical Differential Indicator**

**Materials:**
- Body: Brass
- Internal parts: Brass - Nylon
- Seals: HNBR - FPM

**Technical data:**
- Indicator type: Electrical differential indicator
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -13°F to +230°F
- Compatibility with fluids: Mineral oils, Synthetic fluids
  - HFA, HFB, HFC fluids in accordance to ISO 2943

**Electrical data:**
- Resistive load: 0.2 A / 115 Vdc
- Electrical connections: 20 - AMP Time junior
- Switching type: Normally open contacts (N.C. on request)
- Thermal lockout: Normally open up to 30°C (F option)
- Protection degree: IP 66 in accordance to EN 60529

**HYDRAULIC SYMBOL**

**ELECTRICAL SYMBOL**

**Available settings:**
- 18 psi (1.2 bar) ±10% (DEM12x10P01)
- 30 psi (2 bar) ±10% (DEM20x10P01)
## Differential Indicators

### Electrical/Visual Differential Indicator

**Materials:**
- **Body:** Brass
- **Internal parts:** Brass - Nylon
- **Seals:** HNBR - FPM

**Technical data:**
- **Indicator type:** Electrical/Visual differential indicator
- **Max working pressure:** 420 bar
- **Proof pressure:** 630 bar
- **Burst pressure:** 1260 bar
- **Working temperature:** From -13°F to +230°F
- **Compatibility with fluids:** Mineral oils, Synthetic fluids HFA, HFB, HFC fluids in according to ISO 2943

**Electrical data:**
- **Resistive load:** 51: 0.8 A / 24 Vdc
  52: 0.2 A / 115 Vdc
- **Electrical connections:** 51 - EN 175301-803 (24 Vdc lamps)
  52 - EN 175301-803 (110 Vdc lamps)
- **Switching type:** Normally open contacts (N.C. on request)
- **Thermal lockout:** Normally open up to 30°C (F option)
- **Protection degree:** IP 66 in according to EN 60529

Available settings:
- 18 psi (1.2 bar) ±10% (DLA12xx30P01)
- 30 psi (2 bar) ±10% (DLA20xx30P01)

### Electrical Differential Indicator

**Materials:**
- **Body:** Brass
- **Internal parts:** Brass - Nylon
- **Seals:** HNBR - FPM

**Technical data:**
- **Indicator type:** Electrical differential indicator
- **Max working pressure:** 420 bar
- **Proof pressure:** 630 bar
- **Burst pressure:** 1260 bar
- **Working temperature:** From -13°F to +230°F
- **Compatibility with fluids:** Mineral oils, Synthetic fluids HFA, HFB, HFC fluids in according to ISO 2943

**Electrical data:**
- **Resistive load:** 0.2 A / 115 Vdc
- **Electrical connections:** 25 - Deutsch DT-04-3-P
- **Switching type:** Normally open contacts (N.C. on request)
- **Thermal lockout:** Normally open up to 30°C (F option)
- **Protection degree:** IP 66 in according to EN 60529

Available settings:
- 18 psi (1.2 bar) ±10% (DEM12xx30P01)
- 30 psi (2 bar) ±10% (DEM20xx30P01)

### Electrical Differential Indicator

**Materials:**
- **Body:** Brass
- **Internal parts:** Brass - Nylon
- **Seals:** HNBR - FPM

**Technical data:**
- **Indicator type:** Electrical differential indicator
- **Max working pressure:** 420 bar
- **Proof pressure:** 630 bar
- **Burst pressure:** 1260 bar
- **Working temperature:** From -13°F to +230°F
- **Compatibility with fluids:** Mineral oils, Synthetic fluids HFA, HFB, HFC fluids in according to ISO 2943

**Electrical data:**
- **Resistive load:** 0.2 A / 115 Vdc
- **Electrical connections:** 25 - Deutsch DT-04-3-P
- **Switching type:** Normally open contacts (N.C. on request)
- **Thermal lockout:** Normally open up to 30°C (F option)
- **Protection degree:** IP 66 in according to EN 60529

Available settings:
- 18 psi (1.2 bar) ±10% (DEM12xx35P01)
- 30 psi (2 bar) ±10% (DEM20xx35P01)
Electrical/Visual Differential Indicator

Materials:
- Body: Brass
- Internal parts: Brass - Nylon
- Seals: HNBR - FPM

Technical data:
- Indicator type: Electrical/Visual differential indicator
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -13°F to +230°F
- Compatibility with fluids: Mineral oils, Synthetic fluids, HFA, HFB, HFC fluids in accordance to ISO 2943

Electrical data:
- Resistive load: 5 A / 250 Vdc
- Electrical connections: 50 - EN 175301-803
- Protection degree: IP 65 in accordance to EN 60529

Available DIN connector with lamps

Available settings:
- 18 psi (1.2 bar) ±10% (DLE12xA50P01)
- 30 psi (2 bar) ±10% (DLE20xA50P01)

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Electrical/Visual Differential Indicator

Materials:
- Body: Brass
- Internal parts: Brass - Nylon
- Seals: HNBR - FPM

Technical data:
- Indicator type: Electrical/Visual differential indicator
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -13°F to +230°F
- Compatibility with fluids: Mineral oils, Synthetic fluids, HFA, HFB, HFC fluids in accordance to ISO 2943

Electrical data:
- Resistive load: 5 A / 250 Vdc
- Electrical connections: 50 - EN 175301-803
- Protection degree: IP 65 in accordance to EN 60529

Available DIN connector with lamps

Available settings:
- 18 psi (1.2 bar) ±10% (DLE12xF50P01)
- 30 psi (2 bar) ±10% (DLE20xF50P01)

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**Visual Differential Indicator**

**Materials:**
- Body: Brass
- Internal parts: Brass - Nylon
- Seals: HNBR - FPM

**Technical data:**
- Indicator type: Visual differential indicator
- Reset: Automatic reset
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -13°F to +230°F
- Compatibility with fluids: Mineral oils, Synthetic fluids, HFA, HFB, HFC fluids in accordance to ISO 2943

**Available settings:**
- 18 psi (1.2 bar) ±10% (DVA12xP01)
- 30 psi (2 bar) ±10% (DVA20xP01)

**Visual Differential Indicator**

**Materials:**
- Body: Brass
- Internal parts: Brass - Nylon
- Seals: HNBR - FPM

**Technical data:**
- Indicator type: Visual differential indicator
- Reset: Manual reset
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -13°F to +230°F
- Compatibility with fluids: Mineral oils, Synthetic fluids, HFA, HFB, HFC fluids in accordance to ISO 2943

**Available settings:**
- 18 psi (1.2 bar) ±10% (DVM12xP01)
- 30 psi (2 bar) ±10% (DVM20xP01)

**Indicator Plug**

**Materials:**
- Body: Phospthated Steel
- Seals:
  - T2H (green): HNBR
  - T2V (black): FPM
  - T2E (purple): EPDM
  - T2F (blue): MFQ

**Display**

- 1.54" (39) A/F 28
- Max tightening torque: 65 Nm

**Display**

- 1.34" (34) SQR 30
- Max tightening torque: 65 Nm

**Display**

- 0.39" (10) A/F 30
- Max tightening torque: 65 Nm
Ordering Information DE - DL - DV

<table>
<thead>
<tr>
<th>Series</th>
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1 - Series
- **DE** Electrical indicator
- **DL** Electrical/Visual indicator
- **DV** Visual indicator
- **T2** Indicator plug

2 - Type
- **DE series**
  - **A** Standard type
  - **M** With wired connector
- **DL series**
  - **E** Standard type for high power supply
- **DV series**
  - **A** Automatic reset
  - **M** Manual reset

3 - Setting pressure
- **12** 18 psi (1.5 bar)
- **20** 30 psi (2 bar)

4 - Seals
- **H** HNBR
- **V** FPM
- **P01** On request

5 - Thermostat (excluded for DV)
- **A** Without thermostat
- **F** With thermostat (Normally open up to 30°C) Option available only for DEM series

6 - Electrical connection

**DEA - DLE series**
- **50** EN 175301-803 connector

**DEM series**
- **10** AMP Superseal series 1.5 (Normally open contacts)
- **20** AMP Timer Junior (Normally open contacts)
- **30** Deutsch DT-04-2-P (Normally open contacts)
- **35** Deutsch DT-04-3-P (Normally open contacts)
- **51** EN175301-803 clear connector with 24 V lamps
- **52** EN175301-803 clear connector with 110 V lamps

7 - Option
- **P01** MP Filtri standard
- **Pxx** Customer request
Long working life of the hydraulic components and correct use of the hydraulic systems can be assured only when maintenance is performed correctly and at regular intervals. Filtration products will only be guaranteed if original MP Filtri replacements elements and spares are used. In order to prevent the filter elements from collapsing due to excessive hydraulic pressure it is essential to use clogging & differential indicators that serve to inform the user of the need to change the cartridge. Effective contamination control can be assured only by the correct use of clogging indicators.

**INSTALLATION**

A: Check that the pressure value of the selected filter is higher than the system’s maximum operating pressure (the maximum pressure value is shown on the dataplate).

B: Check that the filter body contains the filter cartridge.

C: Check that the operating fluid is compatible with the material of the body, cartridge and seals.

D: Secure the filter using the relevant threaded holes, to rigid brackets.
   Rigid installation makes it possible to unscrew the housing without introducing flexing of the hydraulic fittings, limiting any points of stress transfer.

E: Install the filter in an accessible position for correct and trouble-free maintenance and visibility.

F: Start the machine and check for absence of oil leak from the filter and relative fittings.

G: Repeat the visual inspection when the system arrives at the operating temperature of the oil.

**MAINTENANCE**

A: All maintenance operations must be performed only by suitably trained personnel.

B: The hydraulic system must be depressurised before performing maintenance operations (except for duplex filter).

C: Maintenance must be carried out using suitable tools and containers to collect the fluid contained in the filter body.
   Spent fluids must be disposed of in compliance with statutory legislation.

D: Do not use naked flames during maintenance operations.

E: Use the utmost caution in relation to the temperature of the fluid. High temperature can lead to residual pressure with resulting undesirable movements of mechanical parts.

**CHANGING THE FILTER ELEMENT**

A: The data on which the filter elements are changed must be entered in the machine datasheet.

B: Spare parts installed must be in compliance with the specifications given in the machine operating and maintenance manual.

C: Filter bodies and tools must be thoroughly cleaned prior to each maintenance operation.

D: After having opened the filter to change the filter element, check the condition of the seals and renew them if necessary.
   Clean thoroughly before reassembling.
1 Depressurise the system and clean the filter.

2 Unscrew the filter element (Fig. 1).

3 Collect the spent oil and cartridge in a suitable container and dispose of them in compliance with statutory legislation (Fig. 2).

4 Lubricate the filter element seal with the operating fluid (Fig. 3).

5 Screw the cover into the head when the seal comes in contact with the head, rotate half a turn (Fig. 4).

6 Start the machine and check for the absence of leaks. Repeat the check when the machine has reached its operating temperature.

CHANGING THE FILTER ELEMENT FILTERS MPS 200

1 Depressurise the system and clean the filter.

2 Unscrew first the bottom filter element (Fig. 5).
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