WARNING!

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**WALVOIL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN INCORRECT USE OF THE PRODUCT.**
Fluid: best use mineral oil with viscosity ranging between 10 and 200 cSt.
Filter: dirty oil is the main reason for failure and troubles of hydraulic parts and systems.

The table below contains OLEOSTAR S.p.A. recommendations about the minimum oil contamination level according to individual specifications of different items. For further safety of your hydraulic equipment and of all valves assembled on it, we either recommend use suction filters (rather than return filters) or separated filter lines.

### General Information

<table>
<thead>
<tr>
<th>TYPE OF EQUIPMENT - TYPE OF VALVE</th>
<th>CONTAMINATION LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Heavy duty equipment</td>
<td>/-16/13</td>
</tr>
<tr>
<td>- Equipment running at 210-350 bar (3050-5100 psi) working pressure</td>
<td></td>
</tr>
<tr>
<td>- Equipment using proportional controls</td>
<td></td>
</tr>
<tr>
<td>- Equipment with high frequency cycles</td>
<td></td>
</tr>
<tr>
<td>- Equipment running up to 210 bar (3050 psi) working pressure</td>
<td>/-18/14</td>
</tr>
<tr>
<td>- Spool-type valves</td>
<td></td>
</tr>
<tr>
<td>- Valves with calibrated ports</td>
<td></td>
</tr>
<tr>
<td>- Equipment running at low working pressure</td>
<td>/-19/15</td>
</tr>
<tr>
<td>- Pilot plants and equipment</td>
<td></td>
</tr>
<tr>
<td>- Equipment with low frequency cycles</td>
<td></td>
</tr>
</tbody>
</table>

**Installation:** make sure to provide suitable gasket lubrication with clean oil before screwing the cartridge on the valve body. Also make sure to screw the cartridge manually in to reach against the gaskets in the valve body.

**Material:** internal components made out of high grade steel duly treated and fabricated.

For more information please ask our technical office.

**Working temperature:**
- min. -25°C (-13°F) max. 90°C (194°F) with standard BUNA N seals.
- min. -20°C (-4°F) max. 200°C (392°F) with optional VITON seals.

**Rating diagrams:** all rating diagrams of this catalogue are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

All drawings dimensions are defined as \( \frac{mm}{in} \).

---

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<tbody>
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<tr>
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<tr>
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All drawings dimensions are defined as \( \frac{mm}{in} \).
## PRESSURE RELIEF VALVES

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<tr>
<th>Hydraulic diagram</th>
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<th>Description</th>
<th>Maximum flow up to</th>
<th>Maximum pressure</th>
<th>Page</th>
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<tbody>
<tr>
<td><img src="image1" alt="Hydraulic diagram" /></td>
<td>VMP</td>
<td>Direct acting, poppet type</td>
<td>100 l/min</td>
<td>400 bar</td>
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<tr>
<td></td>
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<td></td>
<td>26 US gpm</td>
<td>5800 psi</td>
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<td>VMP Y</td>
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<td>160 l/min</td>
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<td>42 US gpm</td>
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<td>MC</td>
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<td>350 bar</td>
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<td>5100 psi</td>
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<tr>
<td><img src="image2" alt="Hydraulic diagram" /></td>
<td>MC..Y</td>
<td>Proportional direct acting valves, poppet type</td>
<td>1 l/min</td>
<td>350 bar</td>
<td>27</td>
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<tr>
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<td>0.26 US gpm</td>
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<td><img src="image3" alt="Hydraulic diagram" /></td>
<td>MC..T</td>
<td>pilot operated proportional pressure relief valve with inverse function, spool type</td>
<td>3 l/min</td>
<td>350 bar</td>
<td>31</td>
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<td>0.79 US gpm</td>
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<td><img src="image5" alt="Hydraulic diagram" /></td>
<td>VMPD</td>
<td>Differential-control, poppet type</td>
<td>180 l/min</td>
<td>350 bar</td>
<td>43</td>
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<td>48 US gpm</td>
<td>5100 psi</td>
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<td>MG..A</td>
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<td>100 l/min</td>
<td>350 bar</td>
<td>43</td>
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<td>26 US gpm</td>
<td>5100 psi</td>
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### PRESSURE RELIEF VALVES

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Maximum flow up to</th>
<th>Maximum pressure</th>
<th>Page</th>
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<tr>
<td></td>
<td></td>
<td>l/min</td>
<td>US gpm</td>
<td>bar</td>
</tr>
<tr>
<td>VMPD/B</td>
<td>Differential-control, poppet type</td>
<td>180</td>
<td>48</td>
<td>350</td>
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<td>VMPP</td>
<td>Pilot-operated valves, spool type</td>
<td>120</td>
<td>32</td>
<td>350</td>
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<tr>
<td>MP..A</td>
<td></td>
<td>180</td>
<td>48</td>
<td>350</td>
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<tr>
<td>VMPP/B/L</td>
<td>Pilot-operated valves, spool type</td>
<td>120</td>
<td>32</td>
<td>350</td>
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<tr>
<td>MP..Y</td>
<td>Proportional relief valve, pilot-operated, spool-type</td>
<td>150</td>
<td>40</td>
<td>350</td>
</tr>
<tr>
<td>MP..T</td>
<td>Proportional relief valve, pilot-operated, spool-type</td>
<td>50</td>
<td>13</td>
<td>350</td>
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</table>
## Pressure Relief Valves

### Index

<table>
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<tr>
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<th>Description</th>
<th>Maximum flow up to</th>
<th>Maximum pressure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMP/VE 14 (38)</td>
<td>Pressure relief valve with electric bypass</td>
<td>35</td>
<td>9.2</td>
<td>77</td>
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<tr>
<td>VMP/VE 100 (114)</td>
<td>Pressure relief valve with electric bypass</td>
<td>90</td>
<td>24</td>
<td>73</td>
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<tr>
<td>PBL</td>
<td>Basic block (NG 06 or 10) with conical pressure relief valve, direct acting</td>
<td>60</td>
<td>16</td>
<td>81</td>
</tr>
<tr>
<td>VAIL</td>
<td>Dual cross-line relief valve. Direct acting, poppet type, line mounting.</td>
<td>180</td>
<td>48</td>
<td>85</td>
</tr>
<tr>
<td>VADDL</td>
<td>Dual cross-line relief valve. Differential control, poppet type, line mounting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAIL/VA</td>
<td>Dual cross-line relief valve. Direct acting, poppet type, line mounting.</td>
<td>80</td>
<td>21</td>
<td>93</td>
</tr>
<tr>
<td>VADDL/VA</td>
<td>Dual cross-line relief valve with anti cavitation. Differential control, poppet type, line mounting</td>
<td>180</td>
<td>48</td>
<td>5100</td>
</tr>
</tbody>
</table>

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**Hydraulic Diagrams**

![Diagram 1](image1)

![Diagram 2](image2)

![Diagram 3](image3)

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**Walvoil**

**Hydraulic Control Systems**

**OLEOSTAR DIVISION**
## Hydraulic diagram

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Maximum flow up to</th>
<th>Maximum pressure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAA/RU/DL</td>
<td>Antishock valve with anti cavitation and single pressure adjustment. Differential control, poppet type line mounting</td>
<td>180 l/min</td>
<td>350 bar</td>
<td>5100 psi</td>
</tr>
</tbody>
</table>

### Proportional Coils

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Cavity VSE/P/2/150 .....................................................................page 113

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Cavity VMPD 12..........................................................................page 120

Cavity VMPD 34..........................................................................page 121

Cavity VMPD 100.........................................................................page 122
**Operation**

Allows oil flow from P (1) to T (2) when pressure in P (1) reaches the setting of the spring.

**Performance**

**Body Valves**

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum flow</th>
<th>Maximum pressure</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Weight</th>
<th>CAVITIES and tools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>l/min US gpm</td>
<td>bar psi</td>
<td></td>
<td></td>
<td></td>
<td>kg</td>
<td></td>
</tr>
</tbody>
</table>
| VMP 02 | 5     | 1.32           | TV) 5÷80 bar - 72.5÷1150 psi  
TS) 50÷220 bar - 725÷3200 psi  
TR) 180÷350 bar - 2600÷5100 psi | 90% of the setting value for flow capacity 1 l/min. (0.26 US gpm) |                      | 0.05 0.11   | Cavity VSE/ P2/150 see page 113 |
| VMP 5 | 35   | 9.2            | TB) 5÷40 bar - 72.5÷580 psi  
TV) 20÷80 bar - 290÷1150 psi  
TS) 50÷220 bar - 725÷3200 psi  
TR) 180÷350 bar - 2600÷5100 psi |                      |                       | 0.14 0.31   | Cavity VMP 5 see page 114 |
| VMP 5Y | 35  | 9.2            | TB) 5÷80 bar - 72.5÷1150 psi  
TV) 40÷150 bar - 580÷2200 psi  
TS) 140÷190 bar - 2050÷2750 psi  
TR) 180÷350 bar - 2600÷5100 psi |                      |                       |                      |                    |
| VMP 5J | 35   | 9.2            | TV) 40÷80 bar - 580÷1150 psi  
TS) 63÷200 bar - 910÷2900 psi  
TR) 160÷315 bar - 2300÷4600 psi |                      |                       |                      |                    |
| VMP 10 | 60  | 16             | See VMP 5                   |                      |                       |                      |                    |
| VMP 10Y | 100 | 26             | TV) 100÷160 bar - 1450÷2400 psi  
TS) 125÷250 bar - 1800÷3600 psi  
TR) 200÷315 bar - 2900÷4600 psi |                      |                       | 0.25 0.55   | Cavity VMP 10 see page 115 |
| VMP 20 | 100  | 26             | See VMP 5                   |                      |                       | 0.45 0.99   | Cavity VMP 20 see page 116 |
| VMP 20Y | 160 | 42             | See VMP 10Y                  |                      |                       |                      |                    |
| VMP 12 | 35   | 9.2            | 5÷40 bar - 72.5÷580 psi (test setting: 30 bar - 430 psi at 5 l/min. -1.32 US gpm)  
20÷100 bar - 290÷1450 psi (test setting: 70 bar - 1010 psi at 5 l/min. - 1.32 US gpm)  
50÷200 bar - 725÷2900 psi (test setting: 140 bar - 2050 psi at 5 l/min. - 1.32 US gpm)**  
100÷300 bar - 1450÷4350 psi (test setting: 210 bar - 3050 psi at 5 l/min. - 1.32 US gpm)** |                      |                       | 0.20 0.44   | Cavity VMP 12 see page 120 |
| VMP 34 | 80   | 21             | 300 4350                    |                      |                       | 0.33 0.73   | Cavity VMP 34 see page 121 |

*To perform setting of the valve see the pressure drop/ flow diagram

** (Only for VMP34) when the valve is ordered by itself max adjustable pressure is 150 bar (2200 psi). Cartridge may be set higher than 150 bar (2200 psi) when installed in the machine or into a proper body
## Type VMP and MC

### Cartridges

<table>
<thead>
<tr>
<th>Type</th>
<th>MC</th>
<th>Maximum flow</th>
<th>Max. pres</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from 1 to 2</th>
<th>Weight</th>
<th>Cavities and tools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>l/min US gpm</td>
<td>bar psi</td>
<td></td>
<td></td>
<td></td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>MC08A</td>
<td>10</td>
<td>2.6</td>
<td></td>
<td>1) 5÷50 bar - 72.5÷725 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 11,5 bar - 165 psi per screw turn 2) 50÷200 bar - 725÷2900 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 31.5 bar - 450 psi per screw turn 3) 150÷350 bar - 2175÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 74 bar - 1070 psi per screw turn</td>
<td>90% of the setting value for flow capacity 1 l/min. -0.26 US gpm-</td>
<td></td>
<td>0.19</td>
<td>0.42</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>MC08D</td>
<td>20</td>
<td>5.3</td>
<td></td>
<td>1) 20÷80 bar - 290÷1150 psi (test setting 50 bar - 725 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 26.6 bar - 380 psi per screw turn 2) 50÷200 bar - 725÷2900 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) pressure increase 60.3 bar - 870 psi per screw turn 3) 150÷350 bar - 2200÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm) pressure increase 121.2 bar - 1750 psi per screw turn 5) 5÷50 bar - 72.5÷725 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm) pressure increase 11.3 bar - 160 psi per screw turn</td>
<td>85% of the setting value for flow capacity 1 l/min. -0.26 US gpm-</td>
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<td>0.13</td>
<td>0.29</td>
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<tr>
<td>MC10A</td>
<td>40</td>
<td>10.5</td>
<td></td>
<td>1) 20÷100 bar - 290÷1450 psi (test setting 50 bar - 725 psi at 5 l/min. - 1.32 US gpm) pressure increase 7 bar - 100 psi per screw turn 2) 50÷200 bar - 725÷2900 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) pressure increase 24 bar - 345 psi per screw turn 3) 150÷350 bar - 2200÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm) pressure increase 72 bar - 1040 psi per screw turn</td>
<td>90% of the setting value for flow capacity 1 l/min. -0.26 US gpm-</td>
<td></td>
<td>0.33</td>
<td>0.73</td>
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<tr>
<td>MC12A</td>
<td>100</td>
<td>26</td>
<td></td>
<td>1) 20 + 100 bar - 290÷1450 psi (test setting 50 bar - 725 psi at 5 l/min. - 1.32 US gpm) pressure increase 5.7 bar - 80 psi per screw turn 2) 50 + 200 bar - 725÷2900 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) pressure increase 26.5 bar - 380 psi per screw turn 3) 150 + 350 bar - 2200÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm) pressure increase 35 bar - 505 psi per screw turn</td>
<td>95% of the setting value for flow capacity 1 l/min. -0.26 US gpm-</td>
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<td>0.86</td>
<td>1.89</td>
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</table>

*To perform setting of the valve see the pressure drop/ flow diagram

*The cavity have to report also the features of variation “A” see page 112
Direct acting valve, poppet type

**Type VMP 02**

**Dimensions and hydraulic circuit**

**Rating diagrams**

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

**Order code**

**Pressure settings**

TV) 5÷80 bar (72.5÷1150 psi)

TS) 50÷220 bar (725÷3200 psi)

TR) 180÷350 bar (2600÷5100 psi)

TB) 0÷50 bar (0÷725 psi)

Adjustment

S (screw)

V (handknob)
Type VMP 5

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P(bar)</th>
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<th>6</th>
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<td>200</td>
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</table>

Typical pressure drop vs. flow characteristic

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<th>P(bar)</th>
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<th>2</th>
<th>4</th>
<th>6</th>
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<tr>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Order code

VMP5 / □  □

Pressure settings

- TB) 5÷40 bar (72.5÷80 psi)
- TV) 20÷80 bar (290÷1150 psi)
- TS) 50÷220 bar (725÷3200 psi)
- TR) 180÷350 bar (2600÷5100 psi)

Adjustment

- (see page 105)
- S (screw)
- V (handknob)
- W (capped adjustment)
- P (panel mount)
- PV (panel mount+handknob)
Type VMP 5Y

Dimensions and hydraulic circuit

Order code

VMP5Y / [ ] . [ ]

Pressure settings
- **TB** 5÷80 bar (72.5÷1150 psi)
- **TV** 40÷150 bar (580÷2200 psi)
- **TS** 140÷190 bar (2050÷2750 psi)
- **TR** 180÷350 bar (2600÷5100 psi)

Adjustment
- (see page 105)
- **S** (screw)
- **V** (handknob)
- **W** (capped adjustment)
- **P** (panel mount)
- **PV** (panel mount+handknob)

Typical pressure drop vs. flow characteristic

![Typical pressure drop vs. flow characteristic](image)

Typical pressure drop vs. flow characteristic

![Typical pressure drop vs. flow characteristic](image)

Direct acting valve, poppet type
Type VMP 5J

Dimensions and hydraulic circuit

Rating diagrams

Order code

Typical pressure drop vs. flow characteristic

Order code

VMP5J / [ ] . [ ]

Pressure settings

TV) 40+80 bar (580÷1150 psi)
TS) 63+200 bar (910÷2900 psi)
TR) 160+315 bar (2300÷4600 psi)

Adjustment

(see page 105)
S (screw)
V (handknob)
W (capped adjustment)
P (panel mount)
PV (panel mount+handknob)
Direct acting valve, poppet type

Dimensions and hydraulic circuit

Typical pressure drop vs. flow characteristic

Order code

VMP 10 / □ . □

Pressure settings (bar)

<table>
<thead>
<tr>
<th>TB</th>
<th>5÷40 (72.5÷590 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>20÷80 (290÷1150 psi)</td>
</tr>
<tr>
<td>TS</td>
<td>50÷220 (725÷3200 psi)</td>
</tr>
<tr>
<td>TR</td>
<td>180÷350 (2600÷5100 psi)</td>
</tr>
</tbody>
</table>

Adjustment

<table>
<thead>
<tr>
<th>S</th>
<th>(screw)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>(handknob)</td>
</tr>
<tr>
<td>W</td>
<td>(capped adjustment)</td>
</tr>
<tr>
<td>PV</td>
<td>(panel mount+handknob)</td>
</tr>
</tbody>
</table>

Rating diagrams
Type VMP 10Y

Dimensions and hydraulic circuit

Rating diagrams

Order code

VMP 10Y / □ . □

Pressure settings (bar)  Adjustment
TV 100÷160 (1450÷2320 psi) □ (capped adjustment)
TS 125÷250 (1800÷3600 psi)
TR 200÷315 (2900÷4600 psi)

(see page 105)
Direct acting valve, poppet type

Dimensions and hydraulic circuit

Rating diagrams

Order code

VMP 20 / [ ] . [ ]

Pressure settings (bar)

Adjustment

(see page 105)

**TB** 5÷40 (72.5÷580 psi)  
**TV** 20÷80 (290÷1150 psi)  
**TS** 50÷220 (725÷3200 psi)  
**TR** 180÷350 (2600÷5100 psi)  
**S** (screw)  
**V** (handknob)  
**W** (capped adjustment)  
**P** (panel mount)  
**PV** (panel mount+handknob)
**Type VMP 20Y**

Direct acting valve, poppet type

**Dimensions and hydraulic circuit**

**Rating diagrams**

**Order code**

**VMP 20Y / □ □**

- **Pressure settings (bar)**
  - TV: 100÷160 (1450÷2320 psi)
  - TS: 125÷250 (1800÷3600 psi)
  - TR: 200÷315 (2900÷4800 psi)

- **Adjustment** (see page 105)
  - TV (capped adjustment)
General information

Rating diagrams

Dimensions and hydraulic circuit

Order code

Direct acting valve, poppet type

Type VMP 12

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

VMP 12 /

Pressure settings

Adjustment

TB) 5÷40 bar (72.5÷580 psi)
TV) 20÷100 bar (290÷1450 psi)
TS) 50÷200 bar (725÷2900 psi)
TR) 100÷300 bar (1450÷4350 psi)

(see page 105)

S (screw)
V (handknob)
P (panel mount)
PV (panel mount+handknob)
Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

VMP 34 / □□ . □

Pressure settings
- TB) 5÷40 bar (72.5÷580 psi)
- TV) 20÷100 bar (290÷1450 psi)
- TS) 50÷200 bar (725÷2900 psi)
- TR) 100÷300 bar (1450÷4350 psi)

Adjustment
- S (screw)
- V (handknob)
- P (panel mount)
- PV (panel mount+handknob)

* when the valve is ordered by itself max adjustable pressure is 150 bar - 2200 psi.
Cartridge may be set higher than 150 bar - 2200 psi when instelled in the machine or into a proper body.
Dimensions and hydraulic circuit

Section

Rating diagrams

Order code

**Type MC08A**

Direct acting valve, poppet type

**Dimensions and hydraulic circuit**

**Adjustments**

- **S** (screw)
- **V** (handknob)
- **W** (capped adjustment)

**Pressure settings**

- 1) 5-50 bar (72.5-725 psi)
- 2) 50-200 bar (725-2900 psi)
- 3) 150-350 bar (2200-5100 psi)

**Seals**

- **B** (Buna)
- **V** (Viton)

**MC08A / 0**

**Typical pressure drop vs. flow characteristic**

<table>
<thead>
<tr>
<th>Q(l/min.)</th>
<th>MC08A</th>
<th>0</th>
<th>0.5</th>
<th>1</th>
<th>1.5</th>
<th>2</th>
<th>2.5</th>
<th>3</th>
<th>3.5 (US gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
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<td>0</td>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
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<tr>
<td>6</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
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<td>8</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
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<tr>
<td>10</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
</tr>
<tr>
<td>12</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
</tr>
</tbody>
</table>
Type MCO8D

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

MC08D/0_1

Typical pressure drop vs. flow characteristic

MC08D/0_2

Typical pressure drop vs. flow characteristic

MC08D/0_3

Typical pressure drop vs. flow characteristic

MC08D/0_5
Type MC08D

Adjustments
(see page 105)
V (handknob)
W (capped adjustment)

Pressure settings
1) 5÷50 bar (72.5÷725 psi)
2) 50÷200 bar (725÷2900 psi)
3) 150÷350 bar (2200÷5100 psi)
4) 50÷350 bar (725÷5100 psi)

Seals
B) Buna
V) Viton

MC08D / 0 -☐ -☐ -☐

Order code
Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

MC10A / 0 - □ - □ - □

Adjustments
(see page 105)
S (screw)
V (handknob)
W (capped adjustment)

Pressure settings
1) 20÷100 bar (290÷1450 psi)
2) 50÷200 bar (725÷2900 psi)
3) 150÷350 bar (2200÷5100 psi)

Seals
B) Buna
V) Viton

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

Type MC10A
Direct acting valve, poppet type
Direct acting valve, poppet type

**Type MC12A**

### Dimensions and hydraulic circuit

![Diagram of the valve and hydraulic circuit](image)

**Adjustments**
- **S** (screw)
- **V** (handknob)
- **W** (capped adjustment)

**Pressure settings**
1. 20÷100 bar (290÷1450 psi)
2. 50÷200 bar (725÷2900 psi)
3. 150÷350 bar (2200÷5100 psi)

**Seals**
- **B** Buna
- **V** Viton

**Rating diagrams**

**Typical pressure drop vs. flow characteristic**

<table>
<thead>
<tr>
<th>Pressure (psi)</th>
<th>Flow (US gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>900</td>
</tr>
<tr>
<td>1800</td>
<td>1800</td>
</tr>
<tr>
<td>2600</td>
<td>2600</td>
</tr>
<tr>
<td>3500</td>
<td>3500</td>
</tr>
</tbody>
</table>

**Typical pressure drop vs. flow characteristic**

<table>
<thead>
<tr>
<th>Pressure (psi)</th>
<th>Flow (US gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5010</td>
<td>5010</td>
</tr>
<tr>
<td>10 15 25 30</td>
<td>15 20 25 30</td>
</tr>
</tbody>
</table>

**Order code**

**MC12A / 0 -☐ -☐ -☐**

- **S** (screw)
- **V** (handknob)
- **W** (capped adjustment)
### Operation

Allows oil flow from 1 to 2 when pressure in 1 reaches the setting regulated by the proportional coil. Bottom manual override available as option (notice: if it’s activated with energised coil, the setting established will be effected).

### Performance

#### Cartridges

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. flow Q</th>
<th>Max.pres. &amp; max current</th>
<th>Dither frequency</th>
<th>Hysteresis with dither</th>
<th>Oil leaks from 1 to 2</th>
<th>Cavities and tools</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC08Y</td>
<td>1 0.26 bar</td>
<td>350 5100</td>
<td>150 Hz</td>
<td>0.5 l/min.</td>
<td>disregardable</td>
<td>SAE 8-2</td>
<td>0.55</td>
</tr>
</tbody>
</table>

* the cavity have to report also the features of variation “A” see page 112

* cavities SAE 8-2 see page 112

**Disregardable oil leaks from 1 to 2**

- 0.13 US gpm remainig pressure with no voltage 5 bar - 72.5 psi
- 150 Hz
- 5÷40 bar - 72.5÷580 psi
- 0.5 l/min. - 0.13 US gpm remainig pressure with no voltage 3 bar - 43.5 psi
Type MC08Y

Dimensions and hydraulic circuit

Rating diagrams

Pressure range 10/100 bar (145/1450 US gpm)

Pressure range 50/200 bar (725/2900 US gpm)

Pressure range 80/350 bar

Pressure range 5/40 bar
Type MC08Y

Order code

- Voltage
  2) 12V
  4) 24V

- Pressure settings
  1) 10÷100 bar (145÷1450 psi)
  2) 50÷200 bar (725÷2900 psi)
  3) 80÷350 bar (1150÷5100 psi)
  4) 5÷40 bar (725÷580 psi)

- Seals
  B) Buna
  V) Viton

MC08Y /0 - [ ] - [ ] - [ ]
PILOT OPERATED PROPORTIONAL PRESSURE RELIEF VALVE WITH INVERSE FUNCTION, SPOOL TYPE

Operation

This kind of valve allows oil flow from 1 to 2 when pressure in 1 reaches the setting regulated by the proportional coil. Bottom manual override available as option (notice: if it's activated with energised coil, the setting established will be effected).

Performance

Cartridges

<table>
<thead>
<tr>
<th>Type MC..T</th>
<th>Flow Q max.</th>
<th>Max. press.</th>
<th>Rated and max current</th>
<th>Dither frequency</th>
<th>Pressure range bar (psi)</th>
<th>Oil leaks</th>
<th>Cavities and tools</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC10T</td>
<td>3</td>
<td>0.79</td>
<td>350</td>
<td>5100</td>
<td>130 Hz</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*the cavity have to report also the features of variation “A” see page 112*
Tipo MC10T

Dimensions and hydraulic circuit

Rating diagrams

Relief Pressure vs. % of the Maximum Control Current
Q=1 l/min (0.26 US gpm) - Power supply 12 Vdc

Typical Relief Pressure vs. Flow Characteristic 1–2
At various %'s of maximum control current
Pressure setting 2 - Power supply 12 Vdc

Typical Relief Pressure vs. Flow Characteristic 1–2
At various %'s of maximum control current
Pressure setting 3 - Power supply 12 Vdc

Order code

MC10T/0 - □ - □ - □

Adjustment

Pressure range

1) 15–130 bar
2) 15–170 bar
3) 15–210 bar

Seals

B) Buna
V) Viton

2) Square coil 12Vdc connector DIN (In=1,25A)
3) Round coil 12Vdc connector DIN (In=1,8A)
4) Square coil 24Vdc connector DIN (In=0,63A)
5) Round coil 12Vdc connector DIN (In=0,9A)
### Operation

Allows oil flow from P to T when pressure in P reaches the setting of the spring.

### Performance

#### Body Valves

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. flow</th>
<th>Max. pres.</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Cartr.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMP/B/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02-14</td>
<td>5</td>
<td>1.32</td>
<td>5±80 bar - 72.5±1150 psi (test setting 50 bar - 725 psi at 3 l/min. - 0.79 US gpm) 50±220 bar - 725±3200 psi (test setting 150 bar - 2200 psi at 3 l/min. - 0.79 US gpm) 180±350 bar - 2600±5100 psi (test setting 250 bar - 3600 psi at 3 l/min. - 0.79 US gpm)</td>
<td>90% of the setting value for flow capacity 1 l/min. - 0.26 US gpm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03-14</td>
<td>10</td>
<td>2.6</td>
<td>5±50 bar - 72.5±725 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 11.5 bar - 160 psi per screw turn 50±200 bar - 725±2900 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 31.5 bar - 450 psi per screw turn 180±350 bar - 2600±5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 74 bar - 1000 psi per screw turn</td>
<td></td>
<td></td>
<td>VMP 02</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - YY</td>
<td>35</td>
<td>9.2</td>
<td>5±40 bar - 72.5±580 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm) 20±80 bar - 290±1150 psi (test setting 60 bar - 870 psi at 5 l/min. - 1.32 US gpm) 50±220 bar - 725±3200 psi (test setting 160 bar - 2300 psi at 5 l/min. - 1.32 US gpm) 180±350 bar - 2600±5100 psi (test setting 280 bar - 4000 psi at 5 l/min. - 1.32 US gpm)</td>
<td>85% of the setting value for flow capacity 1 l/min. - 0.26 US gpm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5Y - YY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>VMP 02</td>
<td></td>
</tr>
</tbody>
</table>

*To perform setting of the valve see the pressure drop/flow diagram*
## Body Valves

<table>
<thead>
<tr>
<th>Type VMP</th>
<th>Max. flow</th>
<th>Max. pres.</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Cartridges</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>l/min</td>
<td>US gpm</td>
<td>bar</td>
<td>psi</td>
<td></td>
<td></td>
<td>kg</td>
</tr>
<tr>
<td>VMP /B /L 10</td>
<td>60</td>
<td>16</td>
<td></td>
<td></td>
<td>aluminium body 0.77</td>
<td>VMP 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(VMP/B/L 10-12) 0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>steel body 1.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(VMP/B/L 10-34) 1.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VMP /B /L 20</td>
<td>100</td>
<td>26</td>
<td></td>
<td></td>
<td>aluminium body 1.70</td>
<td>VMP 20</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(VMP/B/L 20-100) 3.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>steel body 2.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(VMP/B/L 20-34) 5.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VMP /B 12</td>
<td>35</td>
<td>9.2</td>
<td></td>
<td></td>
<td>aluminium body 0.65</td>
<td>VMP 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>steel body 1.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VMP /B 34</td>
<td>80</td>
<td>21</td>
<td></td>
<td></td>
<td>aluminium body 1.00</td>
<td>VMP 34</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>steel body 2.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Type VMP /B /L 02-14

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>Pressure (bar)</th>
<th>Flow (l/min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>60</td>
<td>150</td>
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<tr>
<td>80</td>
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<td>100</td>
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<td>120</td>
<td>300</td>
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<td>140</td>
<td>350</td>
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<td>160</td>
<td>400</td>
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<td>180</td>
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<td>220</td>
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<td>900</td>
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<tr>
<td>380</td>
<td>950</td>
</tr>
<tr>
<td>400</td>
<td>1000</td>
</tr>
</tbody>
</table>

Cross section

Order code

VMP/B/L 02-14 / □□ □ / □□

Pressure settings

TV) 5÷80 bar (72.5÷1150 psi)
TS) 50÷220 bar (725÷3200 psi)
TR) 180÷350 bar (2600÷5100 psi)

Adjustment

(see pag.105)
S (screw)
V (hand knob)

Body material

Aluminium
Steel
Type VMP /B /L 03-14

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

Order code

VMP/B/L 03-14 / □ . □ / □

Pressure settings

Adjustment

Body material

TB) 5+50 bar (72.5÷725 psi)
TS) 50+200 bar (725÷2900 psi)
TR) 150÷350 bar (2200÷5100 psi)

(see page 105)
S (screw)
V (handknob)
W (capped adjustment)
Aluminium
Steel
Direct acting valve, poppet type

Dimensions and hydraulic circuit

Rating diagrams

Order code

<table>
<thead>
<tr>
<th>Port size</th>
<th>Pressure settings</th>
<th>Adjustment</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>38) G 3/8</td>
<td>TB] 5÷40 bar (725÷580 psi)</td>
<td>(see page 105)</td>
<td>S (screw)</td>
</tr>
<tr>
<td>12) G 1/2</td>
<td>TV] 20÷80 bar (290÷1150 psi)</td>
<td>V (handknob)</td>
<td>ac Steel</td>
</tr>
<tr>
<td></td>
<td>TS) 50÷220 bar (725÷3200 psi)</td>
<td>W (capped adjustment)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TR) 180÷350 bar (2600÷5100 psi)</td>
<td>P (panel mount)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PV (panel mount+handknob)</td>
<td></td>
</tr>
</tbody>
</table>
Type VMP/B/L 5Y - [ ]

Dimensions and hydraulic circuit

Rating diagrams

Order code

VMP /B /L 5Y- [ ] / [ ] . [ ] /[ ]

Port size | Pressure settings | Adjustment | Body material
---|---|---|---
38) G 3/8 | TB) 5÷80 bar (72.5÷1150 psi) | S (screw) | Aluminium
12) G 1/2 | TV) 40÷150 bar (580÷2200 psi) | V (handknob) | ac Steel
 | TS) 140÷190 bar (2050÷2750 psi) | W (capped adjustment) | | E
 | TR) 180÷320 bar (2600÷4650 psi) | P (panel mount) | | F
 | | PV (panel mount+handknob) | | G

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

0 2 4 6 8 (US gpm) 0 2 4 6 8 (US gpm)
**Type VMP/B/L 10 -□□**

**Dimensions and hydraulic circuit**

**General Information**

**Rating diagrams**

**Order code**

**Cross section**

### Typical pressure drop vs. flow characteristic

![Typical Pressure Drop Graph](image)

**Pressure settings**

- **TB**: 5÷40 bar (72.5÷580 psi)
- **TV**: 20÷80 bar (290÷1150 psi)
- **TS**: 50÷220 bar (725÷3200 psi)
- **TR**: 180÷350 bar (2600÷5100 psi)

**Adjustment**

- **S** (screw)
- **V** (handknob)
- **W** (capped adjustment)
- **P** (panel mount)
- **PV** (panel mount+handknob)

**Body material**

- Aluminium
- Steel

---

**VMP/B/L 10 -□□**

**Dimensions**

<table>
<thead>
<tr>
<th>B</th>
<th>C</th>
<th>C1</th>
<th>D</th>
<th>F</th>
<th>G</th>
<th>P</th>
<th>T</th>
<th>U</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>78</td>
<td>3.07</td>
<td>1.38</td>
<td>17.5</td>
<td>15.5</td>
<td>58</td>
<td>2.28</td>
<td>G1/2</td>
<td>6.0</td>
</tr>
<tr>
<td>34</td>
<td>90</td>
<td>3.54</td>
<td>1.57</td>
<td>20.0</td>
<td>1.77</td>
<td>54</td>
<td>2.12</td>
<td>G3/4</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*Dimensions are in mm - in*

---

**Typical pressure drop vs. flow characteristic**

![Typical Pressure Drop Graph](image)

---

**Order code**

<table>
<thead>
<tr>
<th>Port size</th>
<th>Pressure settings</th>
<th>Adjustment</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>12) G 1/2</td>
<td>TB: 5÷40 bar</td>
<td>S (screw)</td>
<td>Aluminium</td>
</tr>
<tr>
<td>34) G 3/4</td>
<td>TV: 20÷80 bar</td>
<td>V (handknob)</td>
<td>Steel</td>
</tr>
<tr>
<td></td>
<td>TS: 50÷220 bar</td>
<td>W (capped adjustment)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TR: 180÷350 bar</td>
<td>P (panel mount)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PV (panel mount+handknob)</td>
<td></td>
</tr>
</tbody>
</table>
### Dimensions and hydraulic circuit

**Cross section**

**Rating diagrams**

**Order code**

---

<table>
<thead>
<tr>
<th>WMP/B/L 20</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>C1</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>P</th>
<th>T</th>
<th>U</th>
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</thead>
<tbody>
<tr>
<td>34</td>
<td>70</td>
<td>2.75</td>
<td>100</td>
<td>3.94</td>
<td>50</td>
<td>1.97</td>
<td>25</td>
<td>0.98</td>
<td>50</td>
<td>1.97</td>
<td>22</td>
</tr>
<tr>
<td>100</td>
<td>85</td>
<td>3.34</td>
<td>120</td>
<td>4.72</td>
<td>60</td>
<td>2.36</td>
<td>50</td>
<td>1.18</td>
<td>65</td>
<td>2.48</td>
<td>50</td>
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</tbody>
</table>

Dimensions are in mm - in

**Rating diagrams**

**Order code**

---

**Dimensions and hydraulic circuit**

**Direct acting valve, poppet type**

**Order code**

---

<table>
<thead>
<tr>
<th>Port size</th>
<th>Pressure settings</th>
<th>Adjustment</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>34 G 3/4</td>
<td>TB 5+40 bar (72.5÷580 psi)</td>
<td>S (screw)</td>
<td>Aluminium</td>
</tr>
<tr>
<td>100 G 1</td>
<td>TV 20+80 bar (290÷1150 psi)</td>
<td>V (handknob)</td>
<td>Steel</td>
</tr>
<tr>
<td></td>
<td>TS 50+220 bar (725÷3200 psi)</td>
<td>W (capped adjustment)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TR 180+350 bar (2600÷5100 psi)</td>
<td>P (panel mount)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PV (panel mount+handknob)</td>
<td></td>
</tr>
</tbody>
</table>
Type VMP /B 12

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

Cross section

Order code

VMP /B 12 / ☐ ☐ . ☐ / ☐ ☐

Pressure settings

| TB | 5÷40 bar (72.5÷580 psi) |
| TV | 20÷100 bar (290÷1450 psi) |
| TS | 50÷200 bar (725÷2900 psi) |
| TR | 100÷300 bar (1450÷4350 psi) |

Adjustment

| (see page 105) |
| S (screw) |
| V (handknob) |
| P (panel mount) |
| PV (panel mount+handknob) |

Body material

- Aluminium
- Steel
Type VMP /B 34

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

Order code

VMP /B 34 / □□ . □ / □□

Pressure settings

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV) 20÷100 bar (290÷1450 psi)</td>
<td>S (screw)</td>
</tr>
<tr>
<td>TS) 50÷200 bar (725÷2900 psi)</td>
<td>V (handknob)</td>
</tr>
<tr>
<td>TR) 100÷300 bar (1450÷4350 psi)</td>
<td>P (panel mount)</td>
</tr>
<tr>
<td></td>
<td>PV (panel mount+handknob)</td>
</tr>
</tbody>
</table>
Series VMPD and MG..A

**Operation**

Allows oil flow from 2 to 1 when pressure in 2 reaches the setting of the spring.

**Performance**

**Body Valves**

<table>
<thead>
<tr>
<th>Type VMPD</th>
<th>Max. flow l/min</th>
<th>Max. pres. bar</th>
<th>Application range with standard spring</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Cavities and tools</th>
<th>Weight kg</th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMPD 38</td>
<td>35</td>
<td>9.2</td>
<td>5÷50 bar - 72.5÷725 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm)</td>
<td>85% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td>disregardable</td>
<td>VMPD 38</td>
<td>0.25</td>
<td>0.55</td>
</tr>
<tr>
<td>VMPD 12</td>
<td>60</td>
<td>16</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td>VMPD 12</td>
<td>0.33</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>VMPD 34</td>
<td>100</td>
<td>26</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td>VMPD 34</td>
<td>0.60</td>
<td>1.32</td>
<td></td>
</tr>
<tr>
<td>VMPD 100</td>
<td>180</td>
<td>48</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td>VMPD 100</td>
<td>0.62</td>
<td>1.37</td>
<td></td>
</tr>
</tbody>
</table>

**Cartridges**

<table>
<thead>
<tr>
<th>Type MG..A</th>
<th>Max. flow l/min</th>
<th>Max. pres. bar</th>
<th>Application range with standard spring</th>
<th>Hysteresis</th>
<th>Oil leaks from 2 to 1</th>
<th>Cavities and tools</th>
<th>Weight kg</th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG10A</td>
<td>60</td>
<td>16</td>
<td>7÷40 bar - 101.5÷580 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 1.6 bar - 23.2 psi per screw turn</td>
<td>90% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td>disregidable</td>
<td></td>
<td>0.34</td>
<td>0.75</td>
</tr>
<tr>
<td>MG12A</td>
<td>100</td>
<td>26</td>
<td>2÷100 bar - 29÷1450 psi (test setting 50 bar - 725 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 7 bar -101.5 psi per screw turn</td>
<td></td>
<td></td>
<td></td>
<td>0.87</td>
<td>1.92</td>
</tr>
</tbody>
</table>

*To perform setting of the valve see the pressure drop/flow diagram

---

\* the cavity have to report also the features of variation “A” see page 112
Type VMPD 38
Differential-control valve, poppet type

Dimensions and hydraulic circuit

Rating diagrams

Order code

VMPD 38 / □□ . S

Pressure settings

TB) 5÷50 bar (72.5÷580 psi)
TV) 20÷100 bar (290÷1450 psi)
TS) 5÷210 bar (72.5÷3050 psi)
TR) 50÷350 bar (725÷5100 psi)
General information

Rating diagrams

Dimensions and hydraulic circuit

Pressure settings

Order code

Differential-control valve, poppet type

Type VMPD 12

Typical pressure drop vs. flow characteristic

VMPD 12 / □□ . S

Pressures settings

TS) 5÷210 bar (72.5÷3050 psi)
TR) 50÷350 bar (725÷5100 psi)
**Type VMPD34**

**Dimensions and hydraulic circuit**

![Cross section of the valve](image)

**Rating diagrams**

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P (bar)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25 (US gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6000 (psi)</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>0</td>
<td>1500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>200</td>
<td></td>
<td>3000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td></td>
<td>4500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>400</td>
<td></td>
<td>TR, S</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Order code**

VMPD 34 / □□ . S

**Pressure settings**

TS) 5÷210 bar (72.5÷3050 psi)
TR) 50÷350 bar (725 ÷5100 psi)
Differential-control valve, poppet type

**Type VMPD 100**

Dimensions and hydraulic circuit

**Rating diagrams**

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P(bar) 500</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50 (US gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>300</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pressure settings

**TS** 5÷210 bar (72.5÷3050 psi)

**TR** 50÷350 bar (725 ÷5100 psi)

**Order code**

**VMPD 100 / □□ . S**

Cross section
Type MG10A

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

Adjustments (see pag.105)

Pressure settings

Seals

MG10A / 0 - □ - □

B) Buna

V) Viton

S (screw)

V (handknob)

W (capped adjustment)

1) 20÷100 bar (290÷1450 psi)
2) 50÷200 bar (725÷2900 psi)
3) 150÷350 bar (2200÷5100 psi)
4) 7÷40 bar (101.5÷580 psi)
Differential piston valve, poppet type

Type MG12A

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>Q (l/min.)</th>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
<th>120</th>
<th>140</th>
</tr>
</thead>
<tbody>
<tr>
<td>P (bar)</td>
<td>0</td>
<td>40</td>
<td>80</td>
<td>120</td>
<td>160</td>
<td>200</td>
<td>240</td>
<td>280</td>
</tr>
</tbody>
</table>

MG12A / 0 -□ -□ -□

Adjustments (see pag.105)
- S (screw)
- V (handknob)
- W (capped adjustment)

Pressure settings
1) 20÷100 bar (290÷1450 psi)
2) 50÷200 bar (725÷2900 psi)
3) 150÷350 bar (2200÷5100 psi)

Seals
- B) Buna
- V) Viton
Differential-control, poppet type

Type VMPD/B

Operation

Allows oil flow from P to T when pressure in P reaches the setting of the spring.

Performance

Body Valves

<table>
<thead>
<tr>
<th>Type VMPD/B</th>
<th>Max. flow l/min</th>
<th>Max. pres. bar</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Cartridges</th>
<th>Weight kg</th>
<th>Weight lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMPD/B 38</td>
<td>35</td>
<td>9.2</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) 50÷350 bar - 72.5÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm)</td>
<td>85% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td>disregarable</td>
<td>VMPD 38</td>
<td>alum. body 0,50</td>
<td>alum. body 1,10</td>
</tr>
<tr>
<td>VMPD/B 12</td>
<td>60</td>
<td>16</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) 50÷250 bar - 72.5÷3600 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm)</td>
<td>85% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td>disregarable</td>
<td>VMPD 12</td>
<td>steel body 1,28</td>
<td>steel body 2,82</td>
</tr>
<tr>
<td>VMPD/B 34</td>
<td>100</td>
<td>26</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) 50÷350 bar - 72.5÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm)</td>
<td>85% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td>disregarable</td>
<td>VMPD 34</td>
<td>steel body 2,04</td>
<td>steel body 4,50</td>
</tr>
<tr>
<td>VMPD/B 100</td>
<td>180</td>
<td>48</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) 50÷250 bar - 72.5÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm)</td>
<td>85% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td>disregarable</td>
<td>VMPD 100</td>
<td>steel body 2,72</td>
<td>steel body 6,00</td>
</tr>
</tbody>
</table>

*To perform setting of the valve see the pressure drop/flow diagram
Type VMPD/B 38

Dimensions and hydraulic circuit

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

P(bar) 500 400 300 200 100 0

Q(l/min.) 35 30 25 20 15 10 5 0

Order code

VMPD /B 38 / □□ . S / □□

Pressure settings
TS) 5÷210 bar (72.5÷3050 psi)
TR) 50÷350 bar (725÷5100 psi)

Body material
Aluminium
Steel

Differential-control, poppet type
Type VMPD/B 12

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P(bar)</th>
<th>0</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>6000 (psi)</td>
<td>0</td>
<td>2.24</td>
<td>1.88</td>
<td>1.60</td>
<td>1.38</td>
<td>1.16</td>
</tr>
<tr>
<td>4500</td>
<td>2.25</td>
<td>1.88</td>
<td>1.60</td>
<td>1.38</td>
<td>1.16</td>
<td>1.00</td>
</tr>
<tr>
<td>3000</td>
<td>2.55</td>
<td>2.00</td>
<td>1.70</td>
<td>1.40</td>
<td>1.19</td>
<td>1.08</td>
</tr>
<tr>
<td>1500</td>
<td>3.00</td>
<td>2.50</td>
<td>2.00</td>
<td>1.70</td>
<td>1.40</td>
<td>1.19</td>
</tr>
</tbody>
</table>

Order code

VMPD/B 12 / □□ . S / □□

Pressure settings

TS 5÷210 bar (72.5÷3050 psi)
TR 50÷350 bar (725 ÷5100 psi)

Body material

Aluminium
Steel
Type VMPD/34

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

VMPD /B 34 / □□ . S / □□

Pressure settings

TS) 5÷210 bar (72.5÷3050 psi)
TR) 50÷350 bar (725÷5100 psi)

Body material

- Aluminium
- Steel
Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

VMPD /B 100 / S /  

Pressure settings

| TS | 5÷210 bar (72.5÷3050 psi) |
| TR | 50÷350 bar (725÷5100 psi) |

Body material

- Aluminium
- Steel
PILOT-OPERATED VALVES, SPOOL TYPE

**Operation**

Allows oil flow from P to T when pressure in P reaches the setting of the spring.

**Performance**

**Body Valves**

<table>
<thead>
<tr>
<th>Type</th>
<th>Flow max.</th>
<th>Pressure max.</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Cavities and tool</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I/min</td>
<td>US gpm</td>
<td>bar</td>
<td>psi</td>
<td></td>
<td></td>
<td>kg</td>
</tr>
<tr>
<td>VMPP 10</td>
<td>70</td>
<td>18</td>
<td>350</td>
<td>5100</td>
<td>5÷40 bar - 72.5÷580 psi (test setting 20 bar - 290 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 8 bar - 116 psi per screw turn</td>
<td>95% of the setting value for flow capacity 1 l/min. - 0.26 US gpm</td>
<td>VMP 10</td>
</tr>
<tr>
<td>VMPP 20</td>
<td>120</td>
<td>32</td>
<td>5÷40 bar - 72.5÷580 psi (test setting 20 bar - 290 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 15 bar - 217.5 psi per screw turn</td>
<td></td>
<td></td>
<td>VMP 20</td>
<td>0.55</td>
</tr>
</tbody>
</table>

**Cartridges**

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. flow</th>
<th>Max. pres.</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from 1 to 2</th>
<th>Cavities and tool</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I/min</td>
<td>US gpm</td>
<td>bar</td>
<td>psi</td>
<td></td>
<td></td>
<td>kg</td>
</tr>
<tr>
<td>MP10A</td>
<td>60</td>
<td>16</td>
<td>350</td>
<td>5100</td>
<td>5÷50 bar - 72.5÷725 psi (test setting 20 bar - 290 psi at 5 l/min. - 1.32 gpm) pressure increase by steps 10 bar - 145 psi per screw turn 50÷220 bar - 725÷3200 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 42 bar - 609 psi per screw turn 150÷350 bar - 2200÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 104 bar - 1508 psi per screw turn</td>
<td>80% of the setting value for flow capacity 1 l/min. - 0.26 US gpm</td>
<td>25 cm³/min. - 1.52 in³/mm² at 100 bar - 1450 psi</td>
</tr>
<tr>
<td>MP12A</td>
<td>100</td>
<td>26</td>
<td>350</td>
<td>5100</td>
<td>10÷50 bar - 145÷725 psi (test setting 20 bar - 290 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 10 bar - 145 psi per screw turn 50÷220 bar - 725÷3200 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 37 bar - 536.5 psi per screw turn 150÷350 bar - 2200÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 92 bar - 1334 psi per screw turn</td>
<td>95% of the setting value for flow capacity 1 l/min. - 0.26 US gpm</td>
<td>25 cm³/min. - 1.52 in³/mm² at 100 bar - 1450 psi</td>
</tr>
<tr>
<td>MP16A</td>
<td>180</td>
<td>47.55</td>
<td>5÷50 bar - 72.5÷725 psi (test setting 20 bar - 290 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 10 bar - 145 psi per screw turn</td>
<td></td>
<td></td>
<td>Cavity SAE 16-2 see page 112</td>
<td>0.44</td>
</tr>
</tbody>
</table>

* The cavity have to report also the features of variation “A” see page 112

* To perform setting of the valve see the pressure drop/flow diagram
Type VMPP 10

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

VMPP 10 / □ . □

Pressure settings

TB) 5÷40 bar (72.5÷580 psi)
TS) 20÷400 bar (290÷5800 psi)

Adjustment

(see pag.105)
V (handknob)
W (capped adjustment)
General Information

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

VMPP 20 / □

Pressure settings
TB) 5÷40 bar (72.5÷580 psi)
TS) 20÷400 bar (290÷5800 psi)

Adjustment
(see pag. 105)
V (handknob)
W (capped adjustment)
Type MP10A

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic
Type MP10A

Order code

MP10A / 0 -☐-☐-☐

Adjustments (see pag.105)

S (screw)
V (handknob)
W (capped adjustment)

Pressure settings

1) 5÷50 bar (72.5÷725 psi)
2) 50÷220 bar (725 ÷3200 psi)
3) 150÷350 bar (2200 ÷5100 psi)

Seals

B) Buna
V) Viton

(see pag.105)
Type MP12A

Dimensions and hydraulic circuit

Rating diagrams

Order code

Differential-control, poppet type

Typical pressure drop vs. flow characteristic

MP12A / 0 - □ - □ - □

Adjustments

Pressure settings

Seals

S (screw)
V (handknob)
W (capped adjustment)

1) 10÷50 bar (145÷725 psi)
2) 50÷200 bar (725÷2900 psi)
3) 150÷350 bar (2200÷5100 psi)

B) Buna
V) Viton
Differential-control, poppet type

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic
MP16A/0_1 (5-50 bar / 72.5-725 psi)

Typical pressure drop vs. flow characteristic
MP16A/0_2 (50-220 bar / 725-3190 psi)

Typical pressure drop vs. flow characteristic
MP16A/0_3 (150-350 bar / 2175-5075 psi)
Type MP16A

Order code

Adjustments
(see page 105)
S (screw)
V (handknob)
W (capped adjustment)

Pressure settings
1) 5÷50 bar (72.5÷725 psi)
2) 50÷220 bar (725÷3200 psi)
3) 150÷350 bar (2200÷5100 psi)

Seals
B) Buna
V) Viton

(see page 105)
Operation

Allows oil flow from P (1) to T (2) when pressure in P (1) reaches the setting of the spring.

Performance

Body Valves

<table>
<thead>
<tr>
<th>Type</th>
<th>Flow max.</th>
<th>Press. max</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Cavities and tool</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>l/min</td>
<td>bar</td>
<td>psi</td>
<td></td>
<td></td>
<td></td>
<td>kg</td>
</tr>
<tr>
<td></td>
<td>US gpm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>lb</td>
</tr>
<tr>
<td>VMPP/B/L 10</td>
<td>70</td>
<td>5-40</td>
<td>72.5-580 psi (test setting 20 bar - 290 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 8 bar -116 psi per screw turn</td>
<td>95% of the setting value for flow capacity 1 l/min. -0.26 US gpm.</td>
<td>Cavity VMP 10 see page 115</td>
<td>Steel 1.4, Alum. 0.5</td>
<td>3.09</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20-400</td>
<td>270-5800 psi (test setting 15 bar - 2200 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 10 bar -1750 psi per screw turn</td>
<td></td>
<td></td>
<td></td>
<td>1.10</td>
</tr>
<tr>
<td>VMPP/B/L 20</td>
<td>120</td>
<td>350</td>
<td>5-400 psi (test setting 20 bar - 290 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 15 bar -217 psi per screw turn</td>
<td></td>
<td>25 cm³/min. - 1.52 in³/mm at 100 bar -1450 psi</td>
<td>Cavity VMP 20 see page 116</td>
<td>Steel 4, Alum. 1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20-400</td>
<td>270-5800 psi (test setting 15 bar - 2200 psi at 5 l/min. - 1.32 US gpm) pressure increase by steps 12 bar -1667 psi per screw turn</td>
<td></td>
<td></td>
<td></td>
<td>3.31</td>
</tr>
</tbody>
</table>

*To perform setting of the valve see the pressure drop/flow diagram
Type VMPP/B/L 10-12

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

VMPP/B/L 10-12/ " "/ " "

Pressure setting
TB) 5÷40
TS) 20÷400

Adjustments
(see page 105)
V (handknob)
W (copped adjustment)

Body material
Aluminium
Steel

Walvoil
Hydraulic Control Systems

OLEOSTAR DIVISION
Type VMPP/B/L 20-34 (100)

Dimensions and hydraulic circuit

Rating diagrams

Order code

VMPP/B/L 20- Ø8.1/Ø8.1/Ø8.1/Ø8.1

Port Size
34) G 3/4"
100) G 1"

Pressure settings
TB) 5÷40
TS) 20÷400

Adjustments
V (handknob)
W (copped adjustment)

Body Material
Alum.
Ac Steel
**Operation**

These valves permit free oil flow from 1 to 2 when the pressure in 1 exceeds the setting of the magnet.
Push-button operation allowed. (If used with energized magnet, the valve will change the actual pressure setting).

**Performance**

**Cartridges**

*For further informations see page 99 MP35X35

<table>
<thead>
<tr>
<th>Type MP..Y</th>
<th>Max.flow l/min</th>
<th>Max.pres. bars</th>
<th>Max.pres. psi</th>
<th>Max. control current*</th>
<th>Current dither frequency</th>
<th>Hysteresis with 200 Hz current dither frequency</th>
<th>Relieving pressure range from zero threshold to max. control current</th>
<th>Weight kg</th>
<th>Cavity and tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP10Y</td>
<td>50</td>
<td>13.2</td>
<td>350</td>
<td>1.25 A for coils 12 V</td>
<td>200</td>
<td>1.32 US gpm 350 bar - 145+1450 psi at 5 l/min. - 1.32 US gpm 50+200 bar - 725÷2900 psi at 5 l/min. - 1.32 US gpm 80÷350 bar - 1150÷5100 psi at 5 l/min. - 1.32 US gpm 5÷40 bar - 72.5÷580 at 5 l/min. at 1.32 US gpm</td>
<td>0.67</td>
<td>see cavity SAE 10-2 page 112</td>
<td></td>
</tr>
<tr>
<td>MP16Y</td>
<td>150</td>
<td>40</td>
<td>350</td>
<td>1.25 A for coils 12 V</td>
<td>150</td>
<td>1.32 US gpm 80+350 bar - 1150÷5100 psi at 5 l/min. - 1.32 US gpm 5+40 bar - 72.5÷580 at 5 l/min. at 1.32 US gpm</td>
<td>0.96</td>
<td>see cavity SAE 16-2 page 112</td>
<td></td>
</tr>
</tbody>
</table>
Type MP10Y

Proportional relief valves, pilot-operated, spool-type

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Relief Pressure vs. % of the Maximum Control Current
Power supply 12/24Volt

Typical Pressure drop vs. Flow Characteristic
Flow 1→2 with de-energized coil

Typical Relief Pressure vs. Flow Characteristic 1→2
At various %'s of maximum control current
Pressure setting 2 (50-200 bar) - Power supply 12/24 Volt

See D47 cartridges catalogue
Type MP10Y

Order code

MP10Y / 0 -□ -□ -□

Power supply (Volt)

2) 12Vcc
4) 24Vcc

Pressure range

1) 10÷100 bar (145÷1450 psi)
2) 50÷200 bar (725÷2900 psi)
3) 80÷350 bar (2200÷5100 psi)
4) 5÷40 bar (72.5÷580 psi)

Seals

B) Buna
V) Viton

Seals

(145÷1450 psi)
(725÷2900 psi)
(2200÷5100 psi)
(72.5÷580 psi)

Order code

see SAE cartridges catalogue
Type MP16Y

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Relief Pressure vs. % of the Maximum Control Current
Power supply 12/24Volt

Typical Pressure drop vs. Flow Characteristic
Flow 1→2 with de-energized coil

Typical Relief Pressure vs. Flow Characteristic 1→2
At various % of maximum control current
Pressure setting 2 (50-200 bar) - Power supply 12/24 Volt

Dimensions and hydraulic circuit

Proportional relief valves, pilot-operated, spool-type
Type MP16Y

Order code

Power supply (Volt)

2) 12Vcc
4) 24Vcc

Pressure range

1) 10+100 bar (145÷1450 psi)
2) 50+200 bar (725÷2900 psi)
3) 80+350 bar (2200 ÷5100 psi)
4) 5+40 bar (72.5÷580 psi)

Seals

B) Buna
V) Viton

Guarnizioni

B) Buna
V) Viton

(145÷1450 psi)
(725÷2900 psi)
(2200 ÷5100 psi)
(72.5÷580 psi)
**Operation**

This kind of valve Allows oil flow from 1 to 2 when pressure in 1 reaches the setting regulated by the proportional coil.
Bottom manual override available as option (notice: if it’s activated with energised coil, the setting established will be effected).

---

**Performance**

**Cartridges**

<table>
<thead>
<tr>
<th>Type</th>
<th>Flow Q max.</th>
<th>Max. press.</th>
<th>Rated and max current</th>
<th>Dither frequency</th>
<th>Pressure range bar (psi)</th>
<th>Oil leaks</th>
<th>Cavities and tools</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP10T</td>
<td>50</td>
<td>13.2</td>
<td>350</td>
<td>5100</td>
<td>2) Square-coil 12Vcc connector DIN (In=1,25A)</td>
<td>180 Hz</td>
<td>-</td>
<td>Cavity SAE 10-2 page112</td>
</tr>
</tbody>
</table>

1) 8-130 (116-1885)
2) 8-180 (116-2465)
3) 8-240 (116-3045)

- The cavity have to report also the features of variation “A” see page 112.
Type MP10T

Dimensions and hydraulic circuit

Rating diagrams

Relief Pressure vs. % of the Maximum Control Current
Q=5 l/min (1.32 US gpm) - Power supply 12 Vdc

Typical Relief Pressure vs. Flow Characteristic 1->2
At various %’s of maximum control current
Pressure setting 1 - Power supply 12 Vdc

Typical Relief Pressure vs. Flow Characteristic 1->2
At various %’s of maximum control current
Pressure setting 2 - Power supply 12 Vdc

Typical Relief Pressure vs. Flow Characteristic 1->2
At various %’s of maximum control current
Pressure setting 3 - Power supply 12 Vdc

Order code

MP 10T/0 - □ - □ - □

Adjustment
2) Square coil 12Vcc connector DIN (In=1,25A)
3) Round coil 12Vcc connector DIN (In=1,8A)
4) Square coil 24Vcc connector DIN (In=0,63A)
5) Round coil 12Vcc connector DIN (In=0,9A)

Pressure range
bar (psi)
1) 8-130 (116-1885)
2) 8-180 (116-2465)
3) 8-240 (116-3045)

Seals
B) Buna
V) Viton

Dimensions and hydraulic circuit

Rating diagrams

Relief Pressure vs. % of the Maximum Control Current
Q=5 l/min (1.32 US gpm) - Power supply 12 Vdc

Typical Relief Pressure vs. Flow Characteristic 1->2
At various %’s of maximum control current
Pressure setting 1 - Power supply 12 Vdc

Typical Relief Pressure vs. Flow Characteristic 1->2
At various %’s of maximum control current
Pressure setting 2 - Power supply 12 Vdc

Typical Relief Pressure vs. Flow Characteristic 1->2
At various %’s of maximum control current
Pressure setting 3 - Power supply 12 Vdc

Order code

MP 10T/0 - □ - □ - □

Adjustment
2) Square coil 12Vcc connector DIN (In=1,25A)
3) Round coil 12Vcc connector DIN (In=1,8A)
4) Square coil 24Vcc connector DIN (In=0,63A)
5) Round coil 12Vcc connector DIN (In=0,9A)

Pressure range
bar (psi)
1) 8-130 (116-1885)
2) 8-180 (116-2465)
3) 8-240 (116-3045)

Seals
B) Buna
V) Viton
### Type VMP/VE

#### Operation

Pilot operated with venting for the 12 (34) and direct acting for the 14 (38). The valve allows oil flow from P to T when pressure in P reaches the setting of the spring. Pick the solenoid UP (for NC types) or DOWN (for NA types) to allow for free oil flow from P into T.

#### Performance

**Body Valves**

<table>
<thead>
<tr>
<th>Type VMP/VE</th>
<th>Max. flow l/min</th>
<th>Max. pres. bar</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Coils</th>
<th>Oil leaks from P to T</th>
<th>Weight kg</th>
<th>Cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMP/VE 14 (38)</td>
<td>(14)</td>
<td>20</td>
<td>5-40 bar - 72.5-150 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm)</td>
<td>VMP/VE 14</td>
<td>aluminium body</td>
<td>VMP/VE 14 (350 bar - 5100 psi) and VMP/VE 38: see BT</td>
<td>0.60</td>
<td>VMP5Y</td>
</tr>
<tr>
<td></td>
<td>(38)</td>
<td>35</td>
<td>5-220 bar - 72.5-3200 psi (test setting 60 bar - 870 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td>steel body</td>
<td></td>
<td>1.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>180-350 bar - 2600-5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VMP/VE 12 (34)</td>
<td></td>
<td>90</td>
<td>210 aluminium body</td>
<td>3050</td>
<td>90% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td>aluminium body</td>
<td>1.20</td>
<td>aluminium body</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>350 steel body</td>
<td>5100</td>
<td></td>
<td></td>
<td>2.50</td>
<td>2.64</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.51</td>
<td></td>
</tr>
<tr>
<td>VMP/VE 100 (114)</td>
<td>(100)</td>
<td>150</td>
<td>220 aluminium body</td>
<td>60-500 bar - 72.5-225 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td>VMP/VE 12-34 (350 bar - 5100 psi) see BT</td>
<td></td>
<td>MC08A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>250</td>
<td>200 steel body</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*To perform setting of the valve see the pressure drop/ flow diagram.*
Type VMP/VE 14 (38)

Dimensions and hydraulic circuit

Rating diagrams

Order code

<table>
<thead>
<tr>
<th>Port size</th>
<th>Assembly scheme</th>
<th>Pressure settings</th>
<th>Adjustment</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>14) G 1/4</td>
<td>NA) Normally opened</td>
<td>TB) 5÷40 bar (72.5÷580 psi)</td>
<td>S (screw)</td>
<td>Aluminium</td>
</tr>
<tr>
<td>38) G 3/8</td>
<td>NC) Normally closed</td>
<td>TV) 20÷80 bar (290÷1150 psi)</td>
<td>V (handknob)</td>
<td>Steel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TS) 50÷220 bar (725÷3200 psi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TR) 180÷350 bar (2600÷5100 psi)</td>
<td>W (capped adjustment)</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions are in mm - in

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

Dimensions and hydraulic circuit
Pressure relief valve
with electric bypass

---

**Type VMP/VE 12 (34)**

### Dimensions and hydraulic circuit

#### Rating diagrams

Typical pressure drop vs. flow characteristic

![Pressure drop graph](image)

- **P** (bar) 0 3 6 9 12 15 18 (US gpm)
- Pressure settings (psi)
- **Q** (/min.)

- **P** (handknob) 5÷50 bar (72.5÷725 psi)
- **P** (screw) 50÷220 bar (725÷3200 psi)
- **P** (capped adjustment) 180÷350 bar (2600÷5100 psi)

#### Order code

- **VMP/VE**
- **P**
- **T**

<table>
<thead>
<tr>
<th>Port size</th>
<th>Assembly scheme</th>
<th>Pressure settings</th>
<th>Adjustment</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>12) G 1/2</td>
<td>NA) Normally opened</td>
<td>TB) 5÷50 bar (72.5÷725 psi)</td>
<td>(see page 105)</td>
<td>Aluminium</td>
</tr>
<tr>
<td>34) G 3/4</td>
<td>NC) Normally closed</td>
<td>TS) 50÷220 bar (725÷3200 psi)</td>
<td></td>
<td>ac Steel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TR) 180÷350 bar (2600÷5100 psi)</td>
<td></td>
<td>(handknob)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>W (capped adjustment)</td>
</tr>
</tbody>
</table>

---

**General information**

- **Rating diagrams**
- **Order code**
- **Dimensions and hydraulic circuit**

---

**Cross section**

---

**Assembly scheme**

- Normally opened
- Normally closed

---

**Pressure settings**

- TB) 5÷50 bar (72.5÷725 psi)
- TS) 50÷220 bar (725÷3200 psi)
- TR) 180÷350 bar (2600÷5100 psi)
Type VMP/VE 100 (114)

Dimensions and hydraulic circuit

![Diagram of valve and cross section]

<table>
<thead>
<tr>
<th>VMP/VE</th>
<th>P</th>
<th>T</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>C1</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>L</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>G1</td>
<td>G1</td>
<td>10</td>
<td>-4.33</td>
<td>100</td>
<td>-3.84</td>
<td>25</td>
<td>-0.98</td>
<td>10</td>
<td>-0.04</td>
<td>90</td>
<td>-3.54</td>
<td>50</td>
</tr>
<tr>
<td>114</td>
<td>G1 1/4</td>
<td>G1 1/4</td>
<td>130</td>
<td>-5.12</td>
<td>130</td>
<td>-5.12</td>
<td>70</td>
<td>-2.75</td>
<td>35</td>
<td>-4.17</td>
<td>72</td>
<td>-2.83</td>
<td>65</td>
</tr>
</tbody>
</table>

Dimensions are in mm - in

Rating diagrams

![Graphs showing typical pressure drop vs. flow characteristic]

Order code

- **Port size**
  - 100) G 1
  - 114) G 1 1/4

- **Assembly scheme**
  - NA) Normally opened
  - NC) Normally closed

- **Pressure settings**
  - TB) 5÷50 bar (72.5÷725 psi)
  - TS) 50÷220 bar (725÷3200 psi)
  - TR) 180÷350 bar (2610÷5100 psi)

- **Adjustment**
  - S (screw)
  - V (handnob)
  - W (capped adjustment)

- **Body material**
  - Aluminium
  - Steel
BASIC BLOCKS WITH CONICAL PRESSURE RELIEF VALVE, DIRECT ACTING

Type PBL

Operation

The valve allows oil flow from P to T when pressure in P reaches the setting of the spring. “PBL” are normally used as pressure relief valves for modular systems.

Performance

Body Valves

<table>
<thead>
<tr>
<th>Tipo PBL</th>
<th>Max. flow</th>
<th>Max. pres.</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Weight</th>
<th>Cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>l/min</td>
<td>bar</td>
<td>psi</td>
<td></td>
<td>disregarable</td>
<td>kg</td>
<td>VMP 5</td>
</tr>
<tr>
<td>PBL6/VMP 38</td>
<td>35</td>
<td>9.2</td>
<td>5÷40 bar -14.5÷580 psi (test setting 30 bar - 435 psi) at 5 l/min. - 1.32 US gpm</td>
<td>85% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td></td>
<td>VMP 5Y</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20÷80 bar -290÷1150 psi (test setting 60 bar - 870 psi) at 5 l/min. - 1.32 US gpm</td>
<td></td>
<td>disregarable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50÷220 bar -725÷3200 psi (test setting 160 bar - 2300 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>180÷350 bar -2600÷5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBL6/VMP 5Y-38</td>
<td>35</td>
<td>16</td>
<td>see setting PBL6/VMP 38</td>
<td></td>
<td>disregarable</td>
<td></td>
<td>VMP 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,70</td>
</tr>
<tr>
<td>PBL10/VMP 12</td>
<td>60</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*To perform setting of the valve see the pressure drop/flow diagram.
Type PBL6/VMP 38

Basic blocks NG06 with conical pressure relief valve, direct acting

Dimensions and hydraulic circuit

Rating diagrams

Order code

PBL6 /VMP38 /5 / ☐ ☐ ☐ ☐ ☐ ☐ ☐

<table>
<thead>
<tr>
<th>Pressure settings</th>
<th>Adjustment</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB) 5÷40 bar (72.5÷580 psi)</td>
<td>(see page 105)</td>
<td>_Aluminium</td>
</tr>
<tr>
<td>TV) 20÷80 bar (290÷1150 psi)</td>
<td>S (screw)</td>
<td>ac Steel</td>
</tr>
<tr>
<td>TS) 50÷220 bar (725÷3200 psi)</td>
<td>V (handknob)</td>
<td></td>
</tr>
<tr>
<td>TR) 180÷350 bar (2600÷5100 psi)</td>
<td>W (capped adjustment)</td>
<td></td>
</tr>
</tbody>
</table>
Type PBL6/VMP 5Y-38

Dimensions and hydraulic circuit

Adjustment

Pressure settings

Typical pressure drop vs. flow characteristic

Rating diagrams

Order code

Body material

Basic blocks NG06 with conical pressure relief valve, direct acting

PBL6 /VMP38 /5Y / ○○ ○ / ○○

Pressure settings

Adjustment

Body material

Aluminium

Steel

(see page 105)

models

40 - 150 bar (290 - 1150 psi)

140 - 190 bar (2030 - 2750 psi)

180 - 320 bar (2600 - 4650 psi)

TB) 5 - 80 bar (72.5 - 580 psi)

TV) 40 - 150 bar (290 - 1150 psi)

TS) 140 - 190 bar (2030 - 2750 psi)

TR) 180 - 320 bar (2600 - 4650 psi)

S (screw)

V (handknob)

W (capped adjustment)
Type PBL10/VMP 12

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P(bar)</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>Q(l/min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>80</td>
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<td>10</td>
</tr>
<tr>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P(bar)</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>Q(l/min.)</th>
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<td>0</td>
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<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>100</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>20</td>
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<tr>
<td>150</td>
<td>30</td>
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<td></td>
<td>30</td>
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<tr>
<td>200</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

Order code

PBL6 /VMP12 / ☐ ☐ / ☐ ☐ . ☐ / ☐ ☐

Pressure settings

- TB) 5÷40 bar (72.5÷580 psi)
- TV) 20÷80 bar (290÷1150 psi)
- TS) 50÷220 bar (725÷3200 psi)
- TR) 180÷350 bar (2600÷5100 psi)

Adjustment

- S (screw)
- V (handknob)
- W (capped adjustment)

Body material

- Aluminium
- Steel
**DUAL CROSS-LINE RELIEF VALVES**

**Type VAIL and VADDL**

### Operation

Direct acting (differential control for the VADDL), poppet type, line mounting. Allows pressure relief on delivery pipes to engines and cylinders. Actuator close mount is recommended to assure a more rapid valve action.

### Performance

**Body Valves**

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. flow</th>
<th>Max. pres.</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Weight</th>
<th>Cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>l/min</td>
<td>US gpm</td>
<td>bar</td>
<td>psi</td>
<td></td>
<td></td>
<td>kg</td>
</tr>
<tr>
<td>VAIL 5</td>
<td>(38) 25</td>
<td>6.6</td>
<td>aluminium body 210 3050</td>
<td>5±40 bar - 72.5±580 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm)</td>
<td>-</td>
<td>alum. body 0.67 steel body 1.29</td>
<td>VMP 5</td>
</tr>
<tr>
<td></td>
<td>(12) 35</td>
<td>9.2</td>
<td>steel body 350 5100</td>
<td>20±80 bar - 290±1150 psi (test setting 60 bar - 870 psi at 5 l/min. - 1.32 US gpm)</td>
<td>-</td>
<td>steel body 1.84</td>
<td></td>
</tr>
<tr>
<td>VAIL 10</td>
<td>150 40</td>
<td></td>
<td>aluminium body 210 3050</td>
<td>5±40 bar - 72.5±580 psi (test setting 30 bar - 435 psi at 5 l/min. - 1.32 US gpm)</td>
<td>-</td>
<td>steel body 2.47</td>
<td>VMP 10</td>
</tr>
<tr>
<td></td>
<td>(34) 26</td>
<td>100</td>
<td>steel body 350 5100</td>
<td>50±220 bar - 1725±3200 psi (test setting 60 bar - 2300 psi at 5 l/min. - 1.32 US gpm)</td>
<td>-</td>
<td>steel body 4.85</td>
<td>VMP 20</td>
</tr>
<tr>
<td>VAIL 20</td>
<td>(34) 120</td>
<td>(100) 48</td>
<td>steel body 350 5100</td>
<td>85% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td>-</td>
<td>steel body 3.55</td>
<td>VMPD 38</td>
</tr>
<tr>
<td>VADDL 38</td>
<td>35 9.2</td>
<td></td>
<td>aluminium body 210 3050</td>
<td>50±210 bar - 725±3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm)</td>
<td>-</td>
<td>steel body 1.89</td>
<td>VMPD 12</td>
</tr>
<tr>
<td>VADDL 12</td>
<td>60 16</td>
<td></td>
<td>steel body 350 5100</td>
<td>50±350 bar - 725±5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm)</td>
<td>-</td>
<td>steel body 2.65</td>
<td>VMPD 34</td>
</tr>
<tr>
<td>VADDL 34</td>
<td>(34) 120</td>
<td>(100) 48</td>
<td>steel body 350 5100</td>
<td>85% of the setting value for flow capacity 1 l/min. -0.26 US gpm</td>
<td>-</td>
<td>steel body 4.41</td>
<td></td>
</tr>
<tr>
<td>VADDL 34 (100)</td>
<td>(34) 120</td>
<td>(100) 48</td>
<td></td>
<td>50±350 bar - 725±5100 psi (test setting 250 bar - 3600 psi at 5 l/min. - 1.32 US gpm)</td>
<td>-</td>
<td>steel body 10.52</td>
<td></td>
</tr>
</tbody>
</table>

*To perform setting of the valve see the pressure drop/flow diagram.*
Type VAIL 5  
Dual cross-line relief valve. Direct acting, poppet type, line mounting

Dimensions and hydraulic circuit

- Dimensions are in mm - in

Rating diagrams

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P(bar)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>(US gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>16</td>
<td>20</td>
<td>24</td>
<td>28</td>
<td>Q(l/min.)</td>
</tr>
<tr>
<td>160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
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<td></td>
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</tr>
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<td>40</td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Pressure settings

- 5-38 70-2.75 35-1.58 34-1.84 25-0.98 0.5/8 G 3/8
- 5-12 76-2.95 37.5-1.48 39-1.53 24.5-0.98 0.5/12 G 1/2

Adjustment

- S (screw)
- W (capped adjustment)

Body material

- Aluminium
- Steel

Order code

- VAIL 5 - [☐] [☐] / [☐] [☐] . [☐] / [☐]

Port size

- 38) G 3/8
- 12) G 1/2

Body material

- Aluminium
- Steel

Pressure settings

- TB) 5–40 bar (72.5–580 psi)
- TV) 20–80 bar (290–1150 psi)
- TS) 50–220 bar (725–3200 psi)
- TR) 180–350 bar (2600–5100 psi)
Dual cross-line relief valve. Direct acting, poppet type, line mounting

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P(bar)</th>
<th>0</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14 (US gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>0</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td>32</td>
<td>40</td>
<td>48</td>
<td>56</td>
</tr>
<tr>
<td>160</td>
<td>2500</td>
<td>2000</td>
<td>1500</td>
<td>1000</td>
<td>500</td>
<td>0</td>
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<tr>
<td>120</td>
<td>2000</td>
<td>1500</td>
<td>1000</td>
<td>500</td>
<td>0</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>80</td>
<td>1500</td>
<td>1000</td>
<td>500</td>
<td>0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>1000</td>
<td>500</td>
<td>0</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P(bar)</th>
<th>0</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14 (US gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>0</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td>32</td>
<td>40</td>
<td>48</td>
<td>56 Q(l/min.)</td>
</tr>
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<td>320</td>
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<td>1500</td>
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<td>500</td>
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Order code

<table>
<thead>
<tr>
<th>Port size</th>
<th>Pressure settings</th>
<th>Adjustment</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>12) G 1/2</td>
<td>TB) 5÷40 bar (72.5÷580 psi)</td>
<td>S (screw)</td>
<td>Aluminium</td>
</tr>
<tr>
<td>34) G 3/4</td>
<td>TV) 20÷80 bar (290÷1150 psi)</td>
<td>W (capped adjustment)</td>
<td>Steel</td>
</tr>
<tr>
<td></td>
<td>TS) 50÷220 bar (725÷3200 psi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TR) 180÷350 bar (2600÷5100 psi)</td>
<td></td>
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</tbody>
</table>
Type VAIL 20

Dual cross-line relief valve. Direct acting, poppet type, line mounting

Dimensions and hydraulic circuit

Rating diagrams

Order code

VAIL 20 - □□ / □□ . □ / □□

- Port size
  - 34) G 3/4
  - 100) G 1

- Pressure settings
  - TB) 5÷40 bar (72.5÷580 psi)
  - TV) 20÷80 bar (290÷1150 psi)
  - TS) 50÷220 bar (725÷3200 psi)
  - TR) 180÷350 bar (2600÷5100 psi)

- Adjustment
  - S (screw)
  - W (capped adjustment)

- Body material
  - Aluminium
  - Steel

Dimensions are in mm - in

Typical pressure drop vs. flow characteristic

Typical pressure drop vs. flow characteristic

(see page 105)
Type VADDL 38

Dual cross-line relief valve. Direct acting, poppet type, line mounting

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>P(bar)</th>
<th>0</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>(US gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>320</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5000 (psi)</td>
</tr>
<tr>
<td>240</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4000</td>
</tr>
<tr>
<td>160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3000</td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2000</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>1000</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Order code

VADDL 38 / □□ . S / □□

Pressure settings

TS) 5×210 bar (72.5÷580 psi)
TR) 50×350 bar (725÷5100 psi)

Body material

Aluminium
Steel
Type VADDL 12

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

VADDL 12 / [□□] . S / [□□]

Pressure settings

- **TS**: 5÷210 bar (72.5÷3050 psi)
- **TR**: 50÷350 bar (725÷5100 psi)

Body material

- Aluminium
- Steel
Dual cross-line relief valve. Direct acting, poppet type, line mounting

Type VADDL 34 (100)

Dimensions and hydraulic circuit

Cross section

Typical pressure drop vs. flow characteristic

<table>
<thead>
<tr>
<th>VADDL</th>
<th>A</th>
<th>B</th>
<th>BB</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>G</th>
<th>D1</th>
<th>D2</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>40</td>
<td>1.57</td>
<td>0.79</td>
<td>27</td>
<td>1.05</td>
<td>1.04</td>
<td>1.22</td>
<td>1.27</td>
<td>2.60</td>
</tr>
<tr>
<td>100</td>
<td>40</td>
<td>1.97</td>
<td>0.88</td>
<td>25</td>
<td>1.05</td>
<td>1.04</td>
<td>1.22</td>
<td>1.34</td>
<td>2.60</td>
</tr>
</tbody>
</table>

Dimensions are in mm - in

Rating diagrams

Order code


- Port size: 34) G 3/4, 100) G 1
- Pressure settings: TS) 5÷210 bar (72.5÷3050 psi), TR) 50÷350 bar (725÷5100 psi)
- Body material: _Aluminium, ac Steel_
**Operation**

Direct acting (differential control for the VADDL/VA), poppet type, line mounting. The valve allows pressure relief on delivery pipes to engines and cylinders. When the actuator is braking, two check valves allow for anti cavitation on delivery side. Actuator close mount is recommended to assure a more rapid valve action.

**Performance**

**Body Valves**

*To perform setting of the valve see the pressure drop/flow diagram*

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. flow</th>
<th>Max. pres.</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Weight</th>
<th>Cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>l/min</td>
<td>bar/psi</td>
<td></td>
<td></td>
<td></td>
<td>kg/lb</td>
<td></td>
</tr>
<tr>
<td>VAIL/VA</td>
<td>12</td>
<td>35/9.2</td>
<td>5-40 bar - 72.5-580 psi (test setting 30 bar -435 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td>VMP 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20-100 bar - 290-1450 psi (test setting 70 bar -1015 psi - at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50-200 bar - 725-2900 psi (test setting 140 bar -2050 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100-300 bar - 1450-4350 psi (test setting 210 bar -3050 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAIL/VA</td>
<td>34</td>
<td>80/21</td>
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<td></td>
<td></td>
<td>VMP 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5-40 bar - 72.5-580 psi (test setting 30 bar -435 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20-100 bar - 290-1450 psi (test setting 70 bar -1015 psi - at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50-200 bar - 725-2900 psi (test setting 140 bar -2050 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100-300 bar - 1450-4350 psi (test setting 210 bar -3050 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VADDL/VA</td>
<td>38</td>
<td>35/9.2</td>
<td>5-40 bar - 72.5-3050 psi (test setting 150 bar -2200 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td>VMPD 38</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50-350 bar - 72.5-5100 psi (test setting 250 bar -3600 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50-200 bar - 72.5-3050 psi (test setting 150 bar -2200 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50-250 bar - 725-3600 psi (test setting 250 bar -3600 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VADDL/VA</td>
<td>12</td>
<td>60/16</td>
<td>5-40 bar - 72.5-3050 psi (test setting 150 bar -2200 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td>VMPD 12</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>50-300 bar - 72.5-5100 psi (test setting 250 bar -3600 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50-250 bar - 725-3600 psi (test setting 250 bar -3600 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VADDL/VA</td>
<td>34 (100)</td>
<td>120/32</td>
<td>5-40 bar - 72.5-3050 psi (test setting 150 bar -2200 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td>VMPD 34</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50-300 bar - 72.5-5100 psi (test setting 250 bar -3600 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50-250 bar - 725-3600 psi (test setting 250 bar -3600 psi at 5 l/min. -1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Type VAIL/VA 12

Dimensions and hydraulic circuit

Rating diagrams

Cross section

Order code

VAIL/VA 12 / □□ . S / □□

Pressure settings

TB) 5÷50 bar (72.5÷725 psi)
TV) 20÷100 bar (290÷1450 psi)
TS) 50÷200 bar (725÷2900 psi)
TR) 100÷300 bar (1450÷4350 psi)

Body material

Aluminium
Steel
### General Information

**Dimensions and hydraulic circuit**

**Cross section**

#### Rating diagrams

**Typical pressure drop vs. flow characteristic**

<table>
<thead>
<tr>
<th>P(bar)</th>
<th>0</th>
<th>4</th>
<th>8</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>2500 (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>12</td>
<td>24</td>
<td>36</td>
<td>48</td>
<td>60</td>
<td>84</td>
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<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2500</td>
<td>1500</td>
<td>1000</td>
<td>500</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>P(bar)</th>
<th>0</th>
<th>4</th>
<th>8</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>5000 (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>12</td>
<td>24</td>
<td>36</td>
<td>48</td>
<td>60</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5000</td>
<td>3000</td>
<td>2000</td>
<td>1000</td>
</tr>
</tbody>
</table>

**Order code**

**VAIL/VA 34 / □□ . S / □□**

**Pressure settings**

- **TB)** 5÷50 bar (72.5÷725 psi)
- **TV)** 20÷100 bar (290÷1450 psi)
- **TS)** 50÷200 bar (725÷2900 psi)
- **TR)** 100÷300 bar (1450÷4350 psi)

**Body material**

- Aluminium
- Steel

---

Dual cross-line relief valves with anti cavitation

---
**Dimensions and hydraulic circuit**

![Cross section diagram]

**Rating diagrams**

![Typical pressure drop vs. flow characteristic graphs]

**Order code**

**VADDL / VA 38 / ☐ ☐ . S / ☐ ☐**

- **Pressure settings**
  - **TS** 5÷210 bar (72.5÷580 psi)
  - **TR** 50÷350 bar (725÷5100 psi)

- **Body material**
  - aluminium
  - steel

Dual cross-line relief valve with anti cavitation. Differential control, poppet type, line mounting.
Dual cross-line relief valve with anti cavitation. 
Differential control, poppet type, line mounting 

**Type VADDL/VA 12**

---

**Dimensions and hydraulic circuit**

---

**Cross section**

---

**Rating diagrams**

---

**Typical pressure drop vs. flow characteristic**

---

**Order code**

---

**VADDL/VA 12 / □□ . S / □□**

---

**Pressure settings**

**Body material**

- **TS** 5÷210 bar (72.5÷3050 psi)
- **TR** 50÷350 bar (725÷5100 psi)

- Aluminium
- Steel
Type VADDL/VA 34 (100)  
Dual cross-line relief valve with anti cavitation.  
Differential control, poppet type, line mounting

Dimensions and hydraulic circuit

Rating diagrams

Order code

VADDL/VA □□ / □□ . S / □□

Port size  | Pressure settings  | Body material
--- | --- | ---
34) G 3 | TS 5÷210 bar (72.5÷3050 psi) | Aluminium
100) G 1 | TR 50÷350 bar (725÷5100 psi) | Steel
**Operation**

Antishock valve with anti cavitation and single pressure adjustment. Differential control, poppet type line mounting.
The valve allows pressure relief on delivery pipes to engines and cylinders. When the actuator is braking, two check valves allow for anti cavitation on delivery side.
Actuator close mount is recommended to assure a more rapid valve action.

**Performance**

**Body Valves**

<table>
<thead>
<tr>
<th>Type</th>
<th>Max.flow</th>
<th>Max. pres.</th>
<th>Application range with standard spring*</th>
<th>Hysteresis</th>
<th>Oil leaks from P to T</th>
<th>Weight</th>
<th>Cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>l/min</td>
<td>US gpm</td>
<td></td>
<td>bar</td>
<td>psi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAA/RU/DL 38</td>
<td>35</td>
<td>9.2</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm)</td>
<td>85% of the setting value for flow capacity 1 l/min. - 0.26 US gpm-</td>
<td></td>
<td>VMPD 38</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50÷350 bar - 725÷3000 psi (test setting 250 bar - 2600 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAA/RU/DL 12</td>
<td>60</td>
<td>16</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td>VMPD 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50÷250 bar - 725÷3000 psi (test setting 250 bar - 2600 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAA/RU/DL 34 (100)</td>
<td>(34)</td>
<td>(34)</td>
<td>5÷210 bar - 72.5÷3050 psi (test setting 150 bar - 2200 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td>VMPD 38</td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(100)</td>
<td>50÷350 bar - 725÷3000 psi (test setting 250 bar - 2600 psi at 5 l/min. - 1.32 US gpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

* To perform setting of the valve see the pressure drop/ flow diagram.
Type VAA/RU/DL 38

Antishock valve with anti cavitation and single pressure adjustment. Differential control, poppet type line mounting.

Dimensions and hydraulic circuit

Rating diagrams

Cross section

Order code

VAA /RU /DL 38/ □□ . S / □□

<table>
<thead>
<tr>
<th>Pressure settings</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS: 5÷210 bar (72.5÷3050 psi)</td>
<td>Aluminium</td>
</tr>
<tr>
<td>TR: 50÷350 bar (725÷5100 psi)</td>
<td>Steel</td>
</tr>
</tbody>
</table>
Antishock valve with anti cavitation and single pressure adjustment.
Differential control, poppet type line mounting

Type VAA/RU/DL 12

Dimensions and hydraulic circuit

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

VAA /RU /DL 12/ □□ . S / □□

Pressure settings

- **TS**: 5÷210 bar (72.5÷3050 psi)
- **TR**: 50÷350 bar (725÷5100 psi)

Body material

- Aluminium
- Steel
Type VAA/RU/DL 34 (100)

Antishock valve with anti cavitation and single pressure adjustment.
Differential control, poppet type line mounting

Dimensions and hydraulic circuit

Cross section

Rating diagrams

Typical pressure drop vs. flow characteristic

Order code

VAA / RU / DL ☐ ☐ / ☐ . S / ☐ ☐

<table>
<thead>
<tr>
<th>Port size</th>
<th>Pressure settings</th>
<th>Body material</th>
</tr>
</thead>
<tbody>
<tr>
<td>34) G 3/4</td>
<td>TS) 5÷210 bar (72.5÷3050 psi)</td>
<td>Aluminium</td>
</tr>
<tr>
<td>100) G 1</td>
<td>TR) 50÷350 bar (725÷5100 psi)</td>
<td>ac Steel</td>
</tr>
</tbody>
</table>

Dimensions are in mm - in

Dimensions and hydraulic circuit

<table>
<thead>
<tr>
<th>VAA/RU/DL</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>CC</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>HH</th>
<th>L</th>
<th>M</th>
<th>MM</th>
<th>O</th>
<th>D1</th>
<th>D2</th>
<th>T</th>
<th>Z</th>
<th>OR</th>
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</thead>
<tbody>
<tr>
<td>34</td>
<td>110</td>
<td>4.33</td>
<td>110</td>
<td>4.33</td>
<td>55</td>
<td>2.16</td>
<td>27.5</td>
<td>1.08</td>
<td>8</td>
<td>0.31</td>
<td>5.3</td>
<td>2.08</td>
<td>31</td>
<td>1.22</td>
<td>62</td>
<td>2.44</td>
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<td>2.60</td>
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<tr>
<td>100</td>
<td>140</td>
<td>5.51</td>
<td>140</td>
<td>5.51</td>
<td>60</td>
<td>2.36</td>
<td>30</td>
<td>1.18</td>
<td>11</td>
<td>0.43</td>
<td>6.5</td>
<td>2.56</td>
<td>37</td>
<td>1.46</td>
<td>66</td>
<td>3.38</td>
<td>46</td>
<td>1.69</td>
</tr>
</tbody>
</table>

Dimensions are in mm - in

Dimensions and hydraulic circuit

<table>
<thead>
<tr>
<th>VAA/RU/DL</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>CC</th>
<th>E</th>
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<tbody>
<tr>
<td>34</td>
<td>110</td>
<td>4.33</td>
<td>110</td>
<td>4.33</td>
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<td>2.16</td>
<td>27.5</td>
<td>1.08</td>
<td>8</td>
<td>0.31</td>
<td>5.3</td>
<td>2.08</td>
<td>31</td>
<td>1.22</td>
<td>62</td>
<td>2.44</td>
<td>66</td>
<td>2.60</td>
</tr>
<tr>
<td>100</td>
<td>140</td>
<td>5.51</td>
<td>140</td>
<td>5.51</td>
<td>60</td>
<td>2.36</td>
<td>30</td>
<td>1.18</td>
<td>11</td>
<td>0.43</td>
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<td>37</td>
<td>1.46</td>
<td>66</td>
<td>3.38</td>
<td>46</td>
<td>1.69</td>
</tr>
</tbody>
</table>

Dimensions are in mm - in
Proportional coils 35X35 and 45x45

Operation

Proportional coil. 12 and 24 coils direct voltage, supply a force proportional to the current amount.

- **Thermal insulation class**: F (TMAX = 155°C - 303°F) - (VDE 0580).
- **Relative duty cycle**: ED = 100 % (VDE 0580).

To assure ED=100% and perform continuous coil operation, the following conditions should be met:

- TA + ΔT < TMAX
- TA = ambient temperature; ΔT = a temperature increase due to operation; TMAX = maximum admissible temperature according to insulation class.

We therefore recommend always checking that the maximum ambient temperature is same as Tmax-ΔT (providing no special operating requirement are there).

**Safety standards (DIN40050)**: IP 54 without connector
- IP 65 with connector

Admissible voltage range for long lasting and trouble free operations life: nominal voltage± 10 %
- Current Hysteresis: <2,5%
- Force Hysteresis: <2%

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<td>4CN1009990</td>
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Solenoid connectors

There are 3 types of different solenoid connectors:

**“CC-CA”** 2-poles + GROUND electric connectors in compliance with DIN and A/ISO standards 43650 and 4400.
Electric connectors suitable for connection of DC and AC current coils. Type of current must be same as for the coil used.

**“CL”** 2-poles + rectifier + GROUND electric connectors in compliance with DIN and A/ISO standards 43650 and 4400.
Electric connectors suitable for connection of DC current coils BE...RAC. AC current operation only. Use of these poles depends on the type of valve used.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>Maximum capacity of in-built diode</th>
<th>Nominal poles voltage</th>
<th>Max pole voltage</th>
<th>Poles resistance</th>
<th>Max poles section</th>
<th>Cable size options</th>
<th>Cable diameter</th>
<th>Safety standards</th>
<th>Insulation index</th>
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<td>10 A</td>
<td>16 A</td>
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<td>6-8</td>
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<td>DC max 300 V</td>
<td>3 A</td>
<td></td>
<td></td>
<td>≤ 4 m Ohm</td>
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**Order code:** CC-CA Connector

**Code number:** CL Connector

**Order code:** CP Connector
Description and operation

This chapter shows main adjusting devices for the valves listed in this catalog. These regulations are used to adjust flow rate between inlet and working ports.

Performance

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<th>Adjustment Type</th>
<th>Screw “S”</th>
<th>Copped adjustment “W”</th>
<th>Handknob “V”</th>
<th>Panel mount “P”</th>
<th>Panel mount+handknob “PV”</th>
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## 2, 3 and 4 way Valves Bodies

### Dimensions

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| Cavità | Attacchi | A | B | C | E | F | G | H | I | L | M | Z |
|--------|----------|---|---|---|---|---|---|---|---|---|---|---|---|
| SAE 8/2 | G 1/2  | 70 | 65 | 35 | 7 | 56 | 53 | 12 | 14,5 | 35 | 35 | 6,5 |
|         | in       | 2.75 | 2.56 | 1.38 | 0.27 | 2.20 | 2.09 | 0.47 | 0.57 | 1.38 | 1.38 | 0.25 |
|         | G 1/4    | 50 | 50 | 30 | 6 | 38 | 44 | 6 | 14,8 | 20 | 30 | 6,5 |
|         | in       | 1.97 | 1.97 | 1.18 | 0.24 | 1.50 | 1.73 | 0.24 | 0.58 | 0.79 | 1.18 | 0.25 |
|         | G 3/8    | 50 | 50 | 30 | 6 | 38 | 44 | 6 | 14,8 | 20 | 30 | 6,5 |
|         | in       | 1.97 | 1.97 | 1.18 | 0.24 | 1.50 | 1.73 | 0.24 | 0.58 | 0.79 | 1.18 | 0.25 |
| SAE 10/2 | G 1/2   | 60 | 60 | 35 | 6 | 48 | 54 | 6 | 18,8 | 25 | 35 | 6,5 |
|         | in       | 2.36 | 2.36 | 1.38 | 0.24 | 1.89 | 2.12 | 0.24 | 0.74 | 0.98 | 1.38 | 0.25 |
|         | G 3/8    | 60 | 60 | 35 | 6 | 48 | 54 | 6 | 18,8 | 25 | 35 | 6,5 |
|         | in       | 2.36 | 2.36 | 1.38 | 0.24 | 1.89 | 2.12 | 0.24 | 0.74 | 0.98 | 1.38 | 0.25 |
| SAE 12/2 | G 1/2   | 70 | 80 | 40 | 8 | 54 | 72 | 8 | 25 | 30 | 40 | 8,5 |
|         | in       | 2.75 | 3.15 | 1.57 | 0.31 | 2.12 | 2.83 | 0.31 | 0.98 | 1.18 | 1.57 | 0.33 |

[Diagram of 2, 3 and 4 way Valves Bodies]
## 2, 3 and 4 way Valves Bodies

### Cavity Ports Materials

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<th>B</th>
<th>C</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>L</th>
<th>M</th>
<th>Z</th>
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### Order Code

3/CC /- □ □ /20/□- □-1

- **Cavity**: 08, 10, 12, 16
- **Ports**: B) G 1/4, C) G 3/8, D) G 1/2, E) G 3/4, F) G 1
- **Materials**: 1) Aluminium, 2) Steel

---

See SAE Cartridges Catalogue
2, 3 and 4 way Valves Bodies

Dimensions

<table>
<thead>
<tr>
<th>Material</th>
<th>Max. pressure</th>
</tr>
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<td></td>
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### Cavity Ports Materials

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**Order code**

3/CC /- □ □ /30/□- □-1

- **Cavity**
- **Ports**
- **Materials**
  - 1) Aluminium
  - 2) Steel
### 2, 3 and 4 way Valves Bodies

#### Dimensions

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#### Cavity Ports

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<th>F (mm/in)</th>
<th>G (mm/in)</th>
<th>H (mm/in)</th>
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#### 3/CC /- □ □ /40/□- □-1

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**Informations**

How to order valves with body

**CARTRIDGE CODE**

**BILLET CODE**

**MP-10-Y/0-4-1V/ C- 1-1**

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VARIATION "A": the dimensions with ★ are related to the variation "A". Features of variation "A" are required only if noted on specific product catalogue page.

### Dimensions

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Rougher tool  | Finisher tool  | Cavity plugs  |

**VARIATION "A":** the dimensions with ★ are related to the variation "A". Features of variation "A" are required only if noted on specific product catalogue page.
CAVITY VSE/P/2-150

Dimensions

Rougher tool
Cod.3UT00050870A

Finisher tool
Cod.3UTO6A3000N

Tap
Cod.3UT09A10F11G

D1WWEM01E
Cavities, tool and tap

Dimensions

Rougher tool
Code 3UT00054660

Finisher tool
Code 3UT00055530

Tap
Code 3UT08A22F150
CAVITY VMP 10

Dimensions

Cavities, tool and tap

Rougher tool
Code 3UT00052210

Finisher tool
Code 3UT00055030

Tap
Code 3UT08A24F150
Cavities, tool and tap

Dimensions

Rougher tool
Code 3UT00052200

Finisher tool
Code 3UT06A2600P

Tap
Code 3UT08A30F150
CAVITY VMP 12

Dimensions

Rougher tool
Code 3UT00055540

Finisher tool
Code 3UT06A2300N

Tap
Code 3UT08A22F150

D1WWEM01E
Cavities, tool and tap

Dimensions

Rougher tool
Code 3UT00055550

Finisher tool
Code 3UT06A2500N

Tap
Code 3UT08A24F150

Ø 0.98 20x10⁻⁴
Ø 0.35
Ø 1.38
Ø 0.51
Ø 0.67
Ø 0.87
1.77
2.8
45°
23.8
A
9
45°
25
Ø 0.67 20x10⁻⁴
Ø 0.88 39x10⁻⁵
24x1.5
35
A
1.38
74 mm
Cavities, tool and tap

Dimensions

Rougher tool
Code 3UT00050050

Finisher tool
Code 3UT00055040

Tap
Code 3UT08A20F150
Cavities, tool and tap

Dimensions

Rougher tool
Code 3UT00050070

Finisher tool
Code 3UT06A22000P

Tap
Code 3UT08A24F150
Cavities, tool and tap

Dimensions

Rougher tool
Code 3UT00050070

Finisher tool
Code 3UT06A2000P

Tap
Code 3UT08A24F150
Cavities, tool and tap

Dimensions

Rougher tool
Code 3UT00050070

Finisher tool
Code 3UT06A22000P

Tap
Code 3UT08A24F150

Cavities, tool and tap