Modular relief valves type HMP, HM, KM
ISO 4401 sizes 06 and 10

HMP are direct operated pressure relief valves. HM and KM are double stage pressure relief valves with balanced poppet ①.

The pressure adjustment is operated by loosening the locking nut ② and turning the screw ③ protected by cap ④. Optional versions with setting adjustment by handwheel ⑤ instead of the screw are available on request. Clockwise rotation increases the pressure.

Valve size and max flow:
- HMP = size 06, max flow: 35 l/min
- HM = size 06, max flow: 60 l/min
- KM = size 10, max flow: 120 l/min

Mounting surface: ISO 4401 size 06, 10
Max pressure: up to 350 bar

<table>
<thead>
<tr>
<th>MODEL CODE</th>
<th>HMP</th>
<th>HM</th>
<th>KM</th>
</tr>
</thead>
<tbody>
<tr>
<td>HM-011</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HM-013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KM-012</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Options:
- V = setting adjustment by handwheel instead of a grub screw protected by cap
- R = reduced leakage for special applications
- VF = regulating knob
- VS = regulating knob with safety locking

Pressure range
- HMP: 50 = 2÷50 bar
- HM: 50 = 4÷50 bar
- KM: 100 = 5÷100 bar
- 100 = 5÷100 bar
- 210 = 5÷210 bar
- 350 = 5÷350 bar

Valve model | HMP | HM | KM |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max flow</td>
<td>35</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>Pressure range</td>
<td>2÷50; 3÷100; 10÷210; 15÷350</td>
<td>4÷50; 5÷100; 5÷210; 5÷350</td>
<td></td>
</tr>
</tbody>
</table>
3 MAIN CHARACTERISTICS, SEALS and HYDRAULIC FLUIDS - for other fluids not included in below table, consult our technical office

<table>
<thead>
<tr>
<th>Assembly position / location</th>
<th>Any position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subplate surface finishing</td>
<td>Roughness index Ra 0.4 - flatness ratio 0.01/100 (ISO 1101)</td>
</tr>
<tr>
<td>MTTFd values according to EN ISO 13849</td>
<td>150 years, for further details see technical table P007</td>
</tr>
<tr>
<td>Compliance</td>
<td>RoHS Directive 2011/65/EU as last update by 2015/65/EU</td>
</tr>
<tr>
<td>REACH Regulation (EC) n°1907/2006</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>Standard execution = -30°C ÷ +70°C</td>
</tr>
<tr>
<td>/PE option = -20°C ÷ +70°C</td>
<td></td>
</tr>
<tr>
<td>/BT option = -40°C ÷ +70°C</td>
<td></td>
</tr>
<tr>
<td>Seals, recommended fluid temperature</td>
<td>NBR seals (standard) = -20°C ÷ +80°C, with HFC hydraulic fluids = -20°C ÷ +50°C</td>
</tr>
<tr>
<td>FKM seals (PE option) = -20°C ÷ +80°C</td>
<td></td>
</tr>
<tr>
<td>HNBR seals (BT option) = -40°C ÷ +60°C, with HFC hydraulic fluids = -40°C ÷ +50°C</td>
<td></td>
</tr>
<tr>
<td>Recommended viscosity</td>
<td>15 = 100 mm²/s - max allowed range 2.8 ÷ 500 mm²/s</td>
</tr>
<tr>
<td>Max fluid contamination level</td>
<td>ISO4406 class 20/18/15 NAS1638 class 9, see also filter section at <a href="http://www.atos.com">www.atos.com</a> or KTF catalog</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic fluid</th>
<th>Suitable seals type</th>
<th>Classification</th>
<th>Ref. Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral oils</td>
<td>NBR, FKM, HNBR</td>
<td>HL, HLP, HLPD, HVL, HVL-P</td>
<td>DIN 51524</td>
</tr>
<tr>
<td>Flame resistant without water</td>
<td>FKM</td>
<td>HF-DU, HF-DR</td>
<td>ISO 12922</td>
</tr>
<tr>
<td>Flame resistant with water</td>
<td>NBR, HNBR</td>
<td>HFC</td>
<td></td>
</tr>
</tbody>
</table>

4 REGULATED PRESSURE VERSUS FLOW DIAGRAMS (Based on mineral oil ISO VG 46 at 50°C)

5 MINIMUM PRESSURE VERSUS FLOW DIAGRAMS (Based on fluid viscosity of 25 mm²/s at 40°C)
6 INSTALLATION DIMENSIONS OF HMP VALVES [mm]

HMP-011

HMP-012

HMP-013
HMP-014

HMP-015

Adjustment device for option /V

ISO 4401: 2005
Mounting surface: 4401-03-02-0-05
Diameter of ports A, B, P, T: Ø = 7,5 mm
Seals: 4 OR 108

View from X

In the version -014 the regulating element is on side of port B (dotted line) instead of side of port A.

Adjustment device for option /VF and /VS

Fastening bolts: n° 4 socket head screws M5. The length depends on number and type of modular elements associated.

7 INSTALLATION DIMENSIONS OF HM VALVES [mm]

HM-011
HM-014

HM-012
HM-015

HM-013

Adjustment device for option /V

ISO 4401: 2005
Mounting surface: 4401-03-02-0-05
Diameter of ports A, B, P, T: Ø = 7,5 mm
Seals: 4 OR 108

View from X

Fastening bolts: n° 4 socket head screws M5. The length depends on number and type of modular elements associated.
INSTALLATION DIMENSIONS OF KM VALVES [mm]

**KM-011**
- Mass: 2.5 Kg

**KM-012**
- Mass: 2.8 Kg

**KM-013**
- Mass: 2.5 Kg

**KM-014**
- Mass: 2.5 Kg

**KM-015**
- Mass: 2.5 Kg

Adjustment device for option IV

ISO 4401: 2005
Mounting surface: 4401-05-04-0-05
Diameter of ports A, B, P, T: Ø = 11.2 mm
Seals: 5 OR 2050

Fastening bolts: n° 4 socket head screws M6. The length depends on number and type of modular elements associated.