Modular reducing valves type HG, KG, JPG-2 and JPG-3
spool type, ISO 4401 sizes 06, 10, 16 and 25

HG, KG, JPG are pressure reducing valves, spool type ①, designed to operate in oil hydraulic systems. HG are direct, three way valves; KG are double stage ① ②, three way valves; JPG are double stage ① ②, two way valves. Clockwise rotation increases the pressure.

Valve size and max flow:
HG = size 06 flow up to 50 l/min;
KG = size 10 flow up to 100 l/min;
JPG-2 = size 16 flow up to 250 l/min;
JPG-3 = size 25 flow up to 300 l/min;

Mounting surface:
ISO 4401 size 06, 10, 16 and 25
Max pressure: 350 bar for HG
315 bar for KG and JPG

### 1. MODEL CODE

**HG-0**  
31 / 210 / V **

<table>
<thead>
<tr>
<th>Pressure range</th>
<th>HG</th>
<th>KG</th>
<th>JPG</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 = 3 - 32 bar</td>
<td>100 = 20 - 100 bar</td>
<td>100 = 7 - 100 bar</td>
<td>100 = 6 - 100 bar</td>
</tr>
<tr>
<td>50 = 2 - 50 bar</td>
<td>210 = 50 - 210 bar</td>
<td>210 = 8 - 210 bar</td>
<td>210 = 70 - 210 bar</td>
</tr>
<tr>
<td>75 = 10 - 75 bar</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Seals material, see section 3:
- PE = FKM
- PT = HNBR

#### Options:
- V = setting adjustment by handwheel instead of a grub screw protected by cap
- Only for HG:
  - VF = regulating knob
  - VS = regulating knob with safety locking

### 2. HYDRAULIC CHARACTERISTICS

#### Hydraulic configuration

<table>
<thead>
<tr>
<th>Valve model</th>
<th>HG-03*32</th>
<th>HG-03*50</th>
<th>HG-03*75</th>
<th>HG-03*100</th>
<th>HG-03*210</th>
<th>HG-03*1100</th>
<th>HG-03*2100</th>
<th>HG-03*100</th>
<th>HG-03*2100</th>
<th>HG-03*100</th>
<th>HG-03*2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max flow [l/min]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max pressure range [bar]</td>
<td>3 = 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure range [bar]</td>
<td>2 = 50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max inlet pressure [bar]</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max pressure on port T [bar]</td>
<td>160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### MAIN CHARACTERISTICS, SEALS and HYDRAULIC FLUID

- 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 = -30°C + 80°C /PE option = -20°C + 70°C /BT option = -40°C + 70°C</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 mm/s - max allowed range 2.8 + 500 mm/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, HVLP, HVLPD</td>
<td>DIN 51524</td>
</tr>
<tr>
<td>Flame resistant without water</td>
<td>FKM</td>
<td>HFDU, HFDR</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>

### DIAGRAMS OF HG-03*

- based on mineral oil ISO VG 46 at 50°C

1 = regulated pressure variation versus flow:
- between use port and discharge port
- between inlet port and use port

2 = differential pressure variation versus flow between inlet port and use port

3 = differential pressure variation versus flow between use port and discharge port

### DIAGRAMS OF KG-03*

- based on mineral oil ISO VG 46 at 50°C

1 = regulated pressure variation versus flow:
- between use port and discharge port
- between inlet port and use port

2 = differential pressure variation versus flow between inlet port and use port

3 = differential pressure variation versus flow between use port and discharge port

### DIAGRAMS OF JPG-211

- based on mineral oil ISO VG 46 at 50°C

1 = regulated pressure variation versus flow between inlet port and use port

2 = differential pressure variation versus flow between use port and discharge port

### DIAGRAMS OF JPG-311

- based on mineral oil ISO VG 46 at 50°C

1 = regulated pressure variation versus flow between inlet port and use port

2 = differential pressure variation versus flow between use port and discharge port
### INSTALLATION DIMENSIONS OF HG-0 VALVES [mm]

**HG-03**

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

- **Adjustment device for option /V**

- **Adjustment device for option /VF and /VS**

- **Mass:** 2.3 kg

### INSTALLATION DIMENSIONS OF KG-0 VALVES [mm]

**KG-03**

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

- **Adjustment device for option /V**

- **Adjustment device for option /VF and /VS**

- **Mass:** 3.8 kg

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**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

- Mounting surface: 4401-05-04-0-05
- Diameter of ports A, B, P, T: Ø = 11.2 mm
- Seals: 5 OR 2050
**10 INSTALLATION DIMENSIONS OF JPG-2 VALVES [mm]**

**JPG-211**

Mass: 9 Kg

Fastening bolts: n° 4 socket head screws M10 and n° 2 M6. The length depends on number and type of modular elements associated.

Adjustment device for option /V

ISO 4401: 2005
Mounting surface: 4401-07-07-0-05
Diameter of ports A, B, P, T: Ø = 20 mm
Diameter of ports X, Y: Ø 7 mm
Seals: 4 OR 190: 2 OR 109

View from X

M = Pressure gauge port = G 1/8"

**11 INSTALLATION DIMENSIONS OF JPG-3 VALVES [mm]**

**JPG-311**

Mass: 9 Kg

Fastening bolts: n° 6 socket head screws M12. The length depends on number and type of modular elements associated.

Adjustment device for option /V

ISO 4401: 2005
Mounting surface: 4401-08-08-0-05 (without port L)
Diameter of ports A, B, P, T: Ø = 24 mm
Diameter of ports X, Y: Ø 7 mm
Seals: 4 OR 4112: 2 OR 3056

View from X

M = Pressure gauge port = G 1/4"