Solenoid directional valves type DHI
direct, spool type

Spool type, two or three position, direct operated valves with solenoids certified according the North American standard cURus.
Solenoids (②) are made by:
• wet type flanged tube, same for AC and DC power supply, with integrated manual override pin ④
• interchangeable coils, specific for AC or DC power supply, easily replaceable without tools - see section 5 for available voltages

Standard coils protection IP65, optional coils with IP67 AMP Junior Timer, XK Deutsch or Lead Wire connections.
Wide range of interchangeable spools ①.

The valve body ③ is 3 chamber type made by shell-moulding casting with wide internal passages.

Mounting surface: ISO 4401 size 06
Max flow: 60 l/min
Max pressure: 350 bar

---

1 MODEL CODE

| DHI - 0 | 61 | / A - | X | 24 DC | / *
|---------|----|-------|----|-------|-----|

Directional control valves size 06

Valve configuration, see section 2
61 = single solenoid, center plus external position, spring centered
63 = single solenoid, 2 external positions, spring offset
67 = single solenoid, center plus external position, spring offset
70 = double solenoid, 2 external positions, without springs
71 = double solenoid, 3 positions, spring centered
75 = double solenoid, 2 external positions, with detent
77 = double solenoid, center plus external position, without springs

Spool type, see section 2

Options, see note 1 at section 4

---

2 CONFIGURATIONS and SPOOLS (representation according to ISO 1219-1)

Configurations

<table>
<thead>
<tr>
<th>61</th>
<th>0</th>
<th>1</th>
<th>0</th>
<th>2</th>
<th>63</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>B</td>
<td>M</td>
<td>1</td>
<td>A</td>
<td>B</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>

Spools

Note: see also section 4, note 3, for special shaped spools

---

Table E010-21/E

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Note: see also section 4, note 3, for special shaped spools
Assembly position / location: Any position for all valves except for type - 70 and 77 (without springs) that must be installed with horizontal axis if operated by impulses.

Subplate surface finishing: Roughness index Ra 0.4 - flatness ratio 0.01/100 (ISO 1101).

MTTFd values according to EN ISO 13849: 150 years, for further details see technical table P007.

Ambient temperature: Standard = -30°C + 70°C / PE option = -20°C + 70°C / BT option = -40°C + 70°C

Storage temperature: Standard = -30°C + 80°C / PE option = -20°C + 80°C / BT option = -40°C + 80°C

Surface protection: Body: zinc coating with black passivation Coil: plastic incapsulation.

Corrosion resistance: Salt spray test (EN ISO 9227) > 200 h.


Seals, recommended fluid temperature: NBR seals (standard) = -20°C + 80°C, with HFC hydraulic fluids = -20°C + 50°C HNBR seals (BT option) = -40°C + 60°C, with HFC hydraulic fluids = -40°C + 50°C

Recommended viscosity: 15÷100 mm²/s - max allowed range 2.8 ÷ 500 mm²/s

Flame resistant without water: Flame resistant with water

Vapor pressure classification: HFDU, HFDR

Relative duty factor: 100%

Certification: cURUs

Supply voltage tolerance: ± 10%

Supply voltage and frequency: See electric feature

Relative duty factor: 100%

Supply voltage tolerance: ± 10%

Supply voltage and frequency: See electric feature

Relative duty factor: 100%

Supply voltage tolerance: ± 10%

Supply voltage and frequency: See electric feature

Relative duty factor: 100%

Supply voltage tolerance: ± 10%

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Relative duty factor: 100%

Supply voltage tolerance: ± 10%

Supply voltage and frequency: See electric feature

Relative duty factor: 100%

Supply voltage tolerance: ± 10%

Supply voltage and frequency: See electric feature

Relative duty factor: 100%

Supply voltage tolerance: ± 10%
Q/P DIAGRAMS based on mineral oil ISO VG 46 at 50°C

Flow rate [l/min]

阀压降 \( \Delta p \) [bar]

Flow direction

Spool type

Curve Spool type

A 0, 1, 1/2, 8
B 0/1, 0/2, 1/1, 1/9, 3, 3/1
C 4, 4/8, 5/1, 6, 7, 16, 17, 19, 39, 49, 58, 58/1, 93, 93, 94
D 2, 2/2

6 SWITCHING TIMES (average values in msec)

<table>
<thead>
<tr>
<th>Valve</th>
<th>Switch-on AC</th>
<th>Switch-on DC</th>
<th>Switch-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHI + 666</td>
<td>30</td>
<td>45</td>
<td>20</td>
</tr>
<tr>
<td>DHI + 667</td>
<td>45</td>
<td>—</td>
<td>80</td>
</tr>
<tr>
<td>DHI + E-SD</td>
<td>30</td>
<td>45</td>
<td>50</td>
</tr>
</tbody>
</table>

Test conditions:
- 36 l/min; 150 bar
- nominal voltage
- 2 bar of counter pressure on port T
- mineral oil: ISO VG 46 at 50°C.

The elasticity of the hydraulic circuit and the variations of the hydraulic characteristics and temperature affect the response time.

8 SWITCHING FREQUENCY

<table>
<thead>
<tr>
<th>Valve</th>
<th>AC (cycles/h)</th>
<th>DC (cycles/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHI + 666 / 667</td>
<td>7200</td>
<td>15000</td>
</tr>
</tbody>
</table>

9 COILS WITH SPECIAL CONNECTORS only for voltage supply 12, 14, 24, 28 Vdc

Note: For the electric characteristics refer to standard coils features - see section 5.
ISO 4401: 2005
Mounting surface: 4401-03-02-0-05
Fastening bolts:
4 socket head screws M5x50 class 12.9
Tightening torque = 8 Nm
Seals: 4 OR 108
Ports P,A,B,T: Ø = 7.5 mm (max).

DHI-06
View from X
Mass: 1.3 kg

DHI-07
Mass: 1.6 kg

Overall dimensions refer to valves with connectors type 666

PLUG-IN RESTRICTOR (to be ordered separately)
The use of plug-in restrictors in valve's ports P or A or B may be necessary in case of particular conditions as long flexible hoses or the presence of accumulators which could cause at the valve switching instantaneous high flow peaks over the valve's operating limits.

** PLUG-H - A
08, 10, 12, 15 calibrated orifice diameter in tenths of mm
Example PLUG-H-12 = orifice diameter 1.2 mm
Other orifice dimensions are available on request

Short calibrated orifice

ELECTRIC CONNECTORS ACCORDING TO DIN 43650 (to be ordered separately, see tech table K500)

666 = standard connector IP-65, suitable for direct connection to electric supply source
667 = as 666, but with built-in signal led. Available for power supply voltage 24 AC or DC, 110 AC or DC, 220 AC or DC
669 = with built-in rectifier bridge for supplying DC coils by alternate current (AC 110V and 230V - Imax 1A)
E-SD = electronic connector which eliminates electric disturbances when solenoid valves are de-energized

MOUNTING SUBPLATES

<table>
<thead>
<tr>
<th>Model</th>
<th>Ports location</th>
<th>GAS Ports A-B-P-T</th>
<th>Ø Counterbore [mm] A-B-P-T</th>
<th>Mass [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA-202</td>
<td>Ports A, B, P, T underneath;</td>
<td>3/8&quot;</td>
<td>-</td>
<td>1.2</td>
</tr>
<tr>
<td>BA-204</td>
<td>Ports P, T underneath; ports A, B on lateral side</td>
<td>3/8&quot;</td>
<td>25.5</td>
<td>1.8</td>
</tr>
<tr>
<td>BA-302</td>
<td>Ports A, B, P, T underneath</td>
<td>1/2&quot;</td>
<td>30</td>
<td>1.8</td>
</tr>
</tbody>
</table>

The subplates are supplied with 4 fastening bolts M5x50. Also available are multi-station subplates and modular subplates. For further details see table K280.