Pressure control valves type AGIR, AGIS, AGIU

two stage, subplate mounting, ISO 5781 sizes 10, 20 and 32

Two stage pressure control valves with balanced poppet designed to operate in oil hydraulic systems.
- AGIR: pressure reducing;
- AGIS: sequence;
- AGIU: unloading.

In standard versions the piloting pressure of the poppet is regulated by means of a grub screw protected by cap in the cover. Optional versions with setting adjustment by handwheel instead of the grub screw are available on request. Clockwise rotation increases pressure.

Unloading valves AGIU can be equipped with a venting solenoid valve DHE type:
- DHI for AC and DC supply, with CURUs certified solenoids
- DHE for AC and DC supply, high performances with CURUs certified solenoids

Mounting surface: ISO 5781 size 10, 20 and 32
Max flow:
- AGIR = 160, 300, 400 l/min
- AGIS = 200, 400, 600 l/min
- AGIU = 100, 200, 300 l/min
Pressure up to 350 bar

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### MODEL CODE

<table>
<thead>
<tr>
<th>AGIU</th>
<th>*</th>
<th>20</th>
<th>/</th>
<th>10</th>
<th>/</th>
<th>210</th>
<th>/</th>
<th>V</th>
<th>-</th>
<th>I</th>
<th>X</th>
<th>24DC</th>
<th>**</th>
<th>/</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure control valves subplate mounting AGIR = pressure reducing AGIS = sequence AGIU = unloading Only for AGIR and AGIS: R = with check valve * = without check valve</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Size: 10 20 32

Optional solenoid valve for venting (1)
10 = venting with de-energized solenoid
11 = venting with energized solenoid

Pressure range:
- 50 = 4÷50 bar (AGIR*);
- 100 = 6÷100 bar;
- 210 = 7÷210 bar;
- 350 = 8÷350 bar

Options (2):
- V = regulating handwheel instead of a grub screw protected by cap
- VF = regulating knob instead of a grub screw protected by cap (only for AGIS, AGIU)
- VS = manual override with safety locking instead of a grub screw protected by cap (only for AGIS, AGIU)

Only for AGIU:
- D = internal drain
- WP = prolonged manual override protected by rubber cap (1)
- = standard unloading characteristics
- 5, 6, 7 = other unloading characteristics, see section 5

(1) Only for AGIU with solenoid valve for venting (2) For handwheel features, see technical table K150

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Series number

**Seals material, see section 3:**
- N = NBR
- PE = FKM
- BT = HNBR

Voltage code, see section 7 (1)

X = without connector (1):

- 00 = solenoid valve without coils (for -I)
- 00-AC = AC solenoid valve without coils (for -E)
- 00-DC = DC solenoid valve without coils (for -E)

Pilot valve (1):
- I = DHI for AC and DC supply, with CURUs certified solenoids
- E = DHE for AC and DC supply, high performances with CURUs certified solenoids
3 MAIN CHARACTERISTICS, SEALS AND FLUIDS - for other fluids not included in below table, consult our technical office

<table>
<thead>
<tr>
<th>Assembly position</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>
</tbody>
</table>
| Ambient temperature        | Standard execution = -30°C ÷ +70°C  
                            /PE option = -20°C ÷ +70°C  
                            /BT option = -40°C ÷ +70°C |
| Seals, recommended fluid temperature | NBR seals (standard) = -20°C ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C  
                                      FKM seals (/PE option) = -20°C ÷ +80°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 |
| Fluid contamination class | ISO 4406 class 21/19/16 NAS 1638 class 10, in line filters of 25 μm (β25 ≥ 75 recommended) |

### Hydraulic fluid

<table>
<thead>
<tr>
<th>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 12992</td>
</tr>
<tr>
<td>Flame resistant with water</td>
<td>NBR, HNBR</td>
<td>HFC</td>
<td></td>
</tr>
</tbody>
</table>

3.1 Coils characteristics

<table>
<thead>
<tr>
<th>Insulation class</th>
<th>DHI pilot H (180°C)</th>
<th>DHE pilot H (180°C) for DC coils F (155°C) for AC coils due to the occurring surface temperatures of the solenoid coils, the European standards EN ISO 13732-1 and EN ISO 4413 must be taken into account</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection degree to DIN EN 60529</td>
<td>IP 65 (with connectors 666, 667, 669 or E-SD correctly assembled)</td>
<td></td>
</tr>
<tr>
<td>Relative duty factor</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Supply voltage and frequency</td>
<td>See electric feature</td>
<td></td>
</tr>
<tr>
<td>Supply voltage tolerance</td>
<td>± 10%</td>
<td></td>
</tr>
<tr>
<td>Certification</td>
<td>cURus North American standard</td>
<td></td>
</tr>
</tbody>
</table>
5 OPERATING DIAGRAM
based on mineral oil ISO VG 46 at 50°C

1 = AGIR-10 A Ø B
2 = AGIR-20 A Ø B
3 = AGIR-32 A Ø B
4 = AGIR-10 B Ø A
5 = AGIR-20 B Ø A
6 = AGIR-32 B Ø A
7 = AGIS-10
8 = AGIS-20

Opening/closing diagram for AGIU
1 = AGIU-**/*...(standard) 3 = AGIU-**/*6
2 = AGIU-**/*5 4 = AGIU-**/*7

NOTES
1) Short pipes with low resistance must be
   used between the unloading valve and
   the accumulator;
2) When the resistance is high, the hydraulic
   pilot signal must be taken as closed as
   possible to the accumulator;
3) With high pump flow and small valve
   differential pressure of intervention it is
   unadvisable to use the version with
   external drain;
4) When to use the BA-*25 subplates:
   a) in applications with working frequencies
      >10 Hz use subplates type BA-*25/4
      (spring with 4 bar of cracking pressur-
      re);
   b) in applications with working frequencies
      <10 Hz use subplates type BA-*25/2
      (spring with 2 bar of cracking pressure);
**ELECTRIC CONNECTORS ACCORDING TO DIN 43650 FOR AGIU WITH SOLENOID VALVE**

The connectors must be ordered separately.

<table>
<thead>
<tr>
<th>Code of connector</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>666</td>
<td>Connector IP-65, suitable for direct connection to electric supply source</td>
</tr>
<tr>
<td>667</td>
<td>As 666 connector IP-65 but with built-in signal led, suitable for direct connection to electric supply source</td>
</tr>
</tbody>
</table>

For other available connectors, see tab. E010 and K500.

**ELECTRIC FEATURES FOR AGAM WITH SOLENOID VALVE**

<table>
<thead>
<tr>
<th>Solenoid valve type</th>
<th>External supply nominal voltage ± 10% (1)</th>
<th>Voltage code</th>
<th>Type of connector</th>
<th>Power consumption (3) DHI</th>
<th>DHE</th>
<th>Code of spare coil DHI</th>
<th>Code of spare coil DHE</th>
<th>Colour of coil label</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC</td>
<td>12 DC</td>
<td>666</td>
<td>or 667</td>
<td>33 W</td>
<td>30 W</td>
<td>COU-12DC</td>
<td>COU-24DC</td>
<td>green</td>
</tr>
<tr>
<td></td>
<td>24 DC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>COU-110DC</td>
<td>COU-220DC</td>
<td>red</td>
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<tr>
<td></td>
<td>110 DC</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>black</td>
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<tr>
<td></td>
<td>220 DC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>black</td>
</tr>
<tr>
<td></td>
<td>110/50 AC (2)</td>
<td>666</td>
<td>or 667</td>
<td>60 VA</td>
<td>58 VA</td>
<td>COI-110/50/60AC</td>
<td>COE-110/50/60AC</td>
<td>yellow</td>
</tr>
<tr>
<td></td>
<td>115/60 AC (5)</td>
<td></td>
<td></td>
<td></td>
<td>80 VA</td>
<td>COI-120/60AC</td>
<td>COE-110/50/60AC</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>230/50 AC (6)</td>
<td></td>
<td></td>
<td></td>
<td>80 VA</td>
<td>COI-230/50/60AC</td>
<td>COE-230/50/60AC</td>
<td>white</td>
</tr>
<tr>
<td></td>
<td>230/60 AC</td>
<td></td>
<td></td>
<td></td>
<td>80 VA</td>
<td>COI-230/60AC</td>
<td>COE-230/60AC</td>
<td>light blue</td>
</tr>
<tr>
<td>AC</td>
<td>110/50 AC</td>
<td>667</td>
<td>or 667</td>
<td>60 VA</td>
<td>58 VA</td>
<td>COI-110/50/60AC</td>
<td>COE-110/50/60AC</td>
<td>silver</td>
</tr>
<tr>
<td></td>
<td>110/60 AC (2)</td>
<td></td>
<td></td>
<td></td>
<td>80 VA</td>
<td>COI-120/60AC</td>
<td>COE-110/50/60AC</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>115/60 AC (5)</td>
<td></td>
<td></td>
<td></td>
<td>80 VA</td>
<td>COI-230/50/60AC</td>
<td>COE-230/50/60AC</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>120/60 AC (6)</td>
<td></td>
<td></td>
<td></td>
<td>80 VA</td>
<td>COI-230/60AC</td>
<td>COE-230/60AC</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>230/60 AC</td>
<td></td>
<td></td>
<td></td>
<td>80 VA</td>
<td>COI-230/60AC</td>
<td>COE-230/60AC</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) For other supply voltages available on request see technical tables E010, E015.
(2) Coil can be supplied also with 60 Hz of voltage frequency: in this case the performances are reduced by 10 ÷ 15% and the power consumption is 55 VA (DHI) and 58 VA.
(3) Average values based on tests performed at nominal hydraulic condition and ambient/coil temperature of 20°C.
(4) When solenoid is energized, the inrush current is approx 3 times the holding current.
(5) Only for DHE.
(6) Only for DHI.

**DIMENSIONS [mm]**

**AGIR, AGIS, AGIU size 10**

ISO 5781: 2000
Mounting surface: 5781-06-07-0-00
Fastening bolts:
4 socket head screws M10x45 class 12.9
Tightening torque = 70 Nm
Seals: 2 OR 109/70, 2 OR 3068
Ports A, B: Ø = 14 mm
Ports X, Y: Ø = 5 mm

**AGIR-10:** Mass = 3.3 Kg
**AGIR-10:** Mass = 3.5 Kg

**AGIS-10:** Mass = 3.8 Kg
**AGIS-10:** Mass = 3.8 Kg

**AGIU-10:** Mass = 3.8 Kg
**AGIU-10:** Mass = 3.8 Kg

**AGIU-10/10/**-IX**
Mass = 5.3 Kg

**AGIU-10/10/**-EX**
Mass = 5.6 Kg
AGIR, AGIS, AGIU size 20
ISO 5781: 2000
Mounting surface: 5781-08-10-0-00
Fastening bolts:
4 socket head screws M10x45 class 12.9
Tightening torque = 70 Nm
Seals: 2 OR 109/70, 2 OR 4100
Ports A, B: Ø = 22 mm
Ports X, Y: Ø = 5 mm

Overall dimensions refer to valves with connectors type 666

9 MOUNTING SUBPLATES

<table>
<thead>
<tr>
<th>Valves</th>
<th>Subplate model</th>
<th>Port location</th>
<th>Ports</th>
<th>Ø Counterbore [mm]</th>
<th>Mass [Kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGIR*-10</td>
<td>BA-305</td>
<td>Ports A, B, Y underneath;</td>
<td>A 1/2&quot;</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>AGIR*-20</td>
<td>BA-505</td>
<td></td>
<td>A 1&quot;</td>
<td>46</td>
<td>2</td>
</tr>
<tr>
<td>AGIR*-32</td>
<td>BA-705</td>
<td></td>
<td>A 1/2&quot;</td>
<td>63.5</td>
<td>7.5</td>
</tr>
<tr>
<td>AGIU-10</td>
<td>BA-325</td>
<td>G 1/2&quot;</td>
<td>A 3/4&quot;</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>AGIU-20</td>
<td>BA-425</td>
<td>Ports A, B, Y underneath;</td>
<td>A 1&quot;</td>
<td>46</td>
<td>6.5</td>
</tr>
<tr>
<td>AGIU-32</td>
<td>BA-625</td>
<td>Ports A, B, Y underneath;</td>
<td>A 1/2&quot;</td>
<td>63.5</td>
<td>13</td>
</tr>
</tbody>
</table>

The subplates are supplied with fastening bolts. For further details see table K280