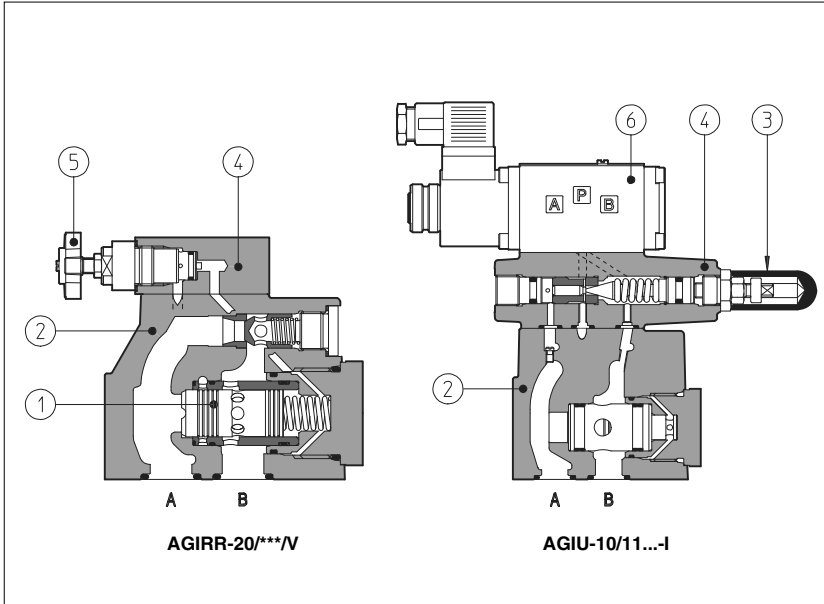


# Pressure control valves type AGIR, AGIS, AGIU

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



AGIR, AGIS and AGIU are double 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 ① of the main stage ② is regulated by means of a grub screw protected by cap ③ in the cover ④. Optional versions with setting adjustment by handwheel ⑤ instead of the grub screw are available on request. Clockwise rotation increases pressure.

Unloading valves AGIU can be equipped with a venting solenoid valve ⑥ (for normally open or normally closed valves).

Another setting control can be made through the independent pilot port.

Mounting surface: ISO 5781 sizes 10, 20 and 32.

Max flow:

for AGIR = 160, 300, 400 l/min

for AGIS = 200, 400, 600 l/min

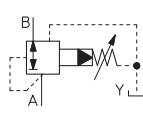
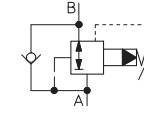
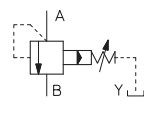
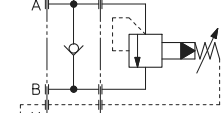
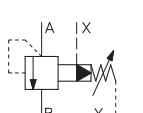
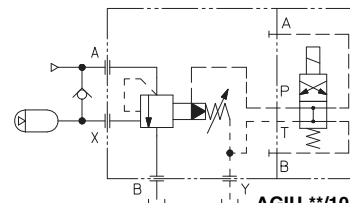
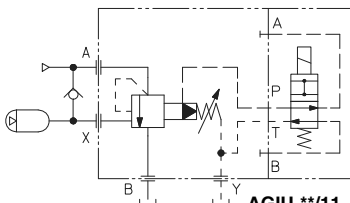
for AGIU = 100, 200, 300 l/min.

Pressure up to 350 bar.

## 1 MODEL CODE

|   |   |   |    |   |     |     |      |    |     |     |      |    |   |
|---|---|---|----|---|-----|-----|------|----|-----|-----|------|----|---|
| <b>AGIU</b>   | * | - | 20 | / | 1   | 0   | /210 | /V | -I  | X   | 24DC | ** | /*  |
| Pressure control valves subplate mounting<br><b>AGIR</b> = pressure reducing<br><b>AGIS</b> = sequence<br><b>AGIU</b> = unloading |   |   |    |   | (1) | (1) |      |    | (1) | (1) | (1)  |    | Synthetic fluids:<br><b>WG</b> = water-glycol<br><b>PE</b> = phosphate ester  |
| Only for AGIR and AGIS:<br><b>R</b> = with check valve<br><b>-</b> = without check valve  |   |   |    |   |     |     |      |    |     |     |      |    | Series number   |
| Size:<br><b>10</b><br><b>20</b><br><b>32</b>  |   |   |    |   |     |     |      |    |     |     |      |    | Voltage code, see section 7:<br><b>00</b> = solenoid valve without coils (only for OI solenoid)   |
| Number of different setting pressure<br><b>1</b> = one setting pressure   |   |   |    |   |     |     |      |    |     |     |      |    | <b>X</b> = without connector<br>See section 6 for available connectors, to be ordered separately  |
| <b>0</b> = venting with de-energized solenoid<br><b>1</b> = venting with energized solenoid                                       |   |   |    |   |     |     |      |    |     |     |      |    | Solenoid of pilot valve:<br><b>-I</b> = solenoid OI (DHI) for AC and DC supply  |
| Pressure range:<br><b>50</b> = 4÷50 bar (AGIR*); <b>100</b> = 6÷100 bar; <b>210</b> = 7÷210 bar; <b>350</b> = 8÷350 bar           |   |   |    |   |     |     |      |    |     |     |      |    | Options (2):<br><b>/V</b> = regulating handwheel instead of a grub screw protected by cap<br><b>/VF</b> = regulating knob instead of a grub screw protected by cap (only for AGIS, AGIU)<br><b>/VS</b> = manual override with safety locking instead of a grub screw protected by cap (only for AGIS, AGIU) |
| (1) Only for AGIU with solenoid valve for venting<br>(2) For handwheel features, see technical table K150                         |   |   |    |   |     |     |      |    |     |     |      |    | Only for AGIU:<br><b>/D</b> = internal drain<br><b>-</b> = standard unloading characteristics<br><b>/5, /6 and /7</b> = other unloading characteristics, see section 5  |

## 2 HYDRAULIC CHARACTERISTICS

|                      |   |   |  |   |                |                |                |                |                |
|----------------------|---|---|--|---|----------------|----------------|----------------|----------------|----------------|
|                      |  |  |   |  |                |                |                |                |                |
|                      |  |  |  |   |                |                |                |                |                |
| Valve model          | <b>AGIR-10</b>  | <b>AGIR-20</b>  | <b>AGIR-32</b>   | <b>AGIS-10</b>  | <b>AGIS-20</b> | <b>AGIS-32</b> | <b>AGIU-10</b> | <b>AGIU-20</b> | <b>AGIU-32</b> |
| Max flow [l/min]     | 160   | 300   | 400  | 200   | 400            | 600            | 100            | 200            | 300            |
| Pressure range [bar] | 4÷50 (AGIR*); 6÷100; 7÷210; 8÷350   |   |  |   |                |                |                |                |                |

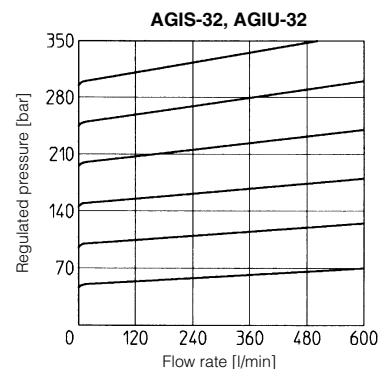
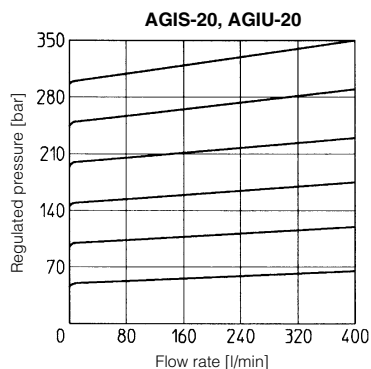
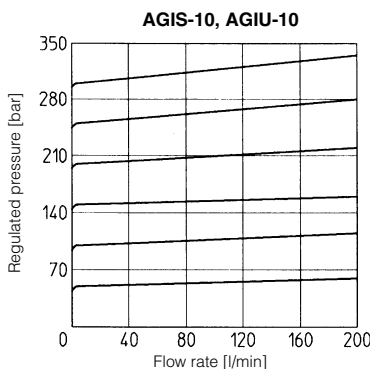
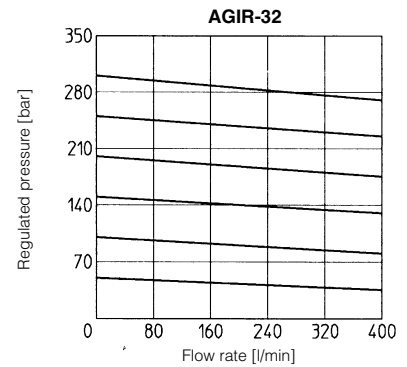
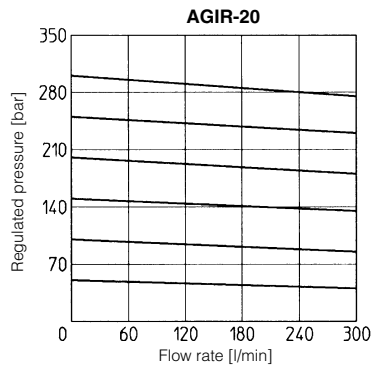
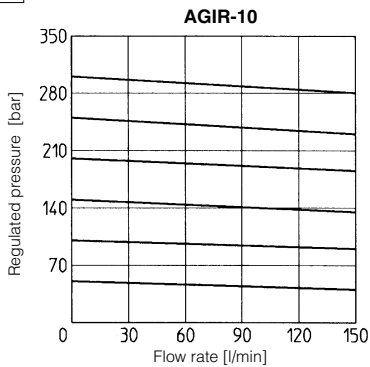
### 3 MAIN CHARACTERISTICS OF PRESSURE CONTROL VALVES TYPE AGIR, AGIS, AGIU

|                              |  |
|------------------------------|--|
| Assembly position / location | Any position   |
| Subplate surface finishing   | Roughness index $\sqrt{0.4}$ , flatness ratio 0,01/100 (ISO 1101)                              |
| Ambient temperature          | -20°C to + 70°C  |
| Fluid                        | Hydraulic oil as per DIN 51524 . . . 535; for other fluids see section 11                      |
| Recommended viscosity        | 15 ÷ 100 mm <sup>2</sup> /s at 40°C (ISO VG 15 ÷ 100)  |
| Fluid contamination class    | ISO 19/16, achieved with in line filters at 25 µm value and $\beta_{10} \geq 75$ (recommended) |
| Fluid temperature            | -20°C +60°C (standard and /MG seals) -20°C +80°C (/PE seals)                                   |

#### 3.1 Coils characteristics

|                              |                        |
|------------------------------|------------------------|
| Insulation class             | H                      |
| Connector protection degree  | IP 65                  |
| Relative duty factor         | 100%                   |
| Supply voltage and frequency | See electric feature 7 |
| Supply voltage tolerance     | ± 10%                  |

#### 4 REGULATED PRESSURE VERSUS FLOW DIAGRAMS based on mineral oil ISO VG 46 at 50°C



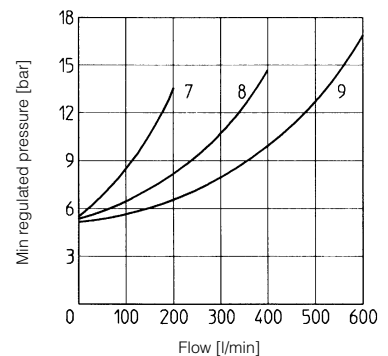
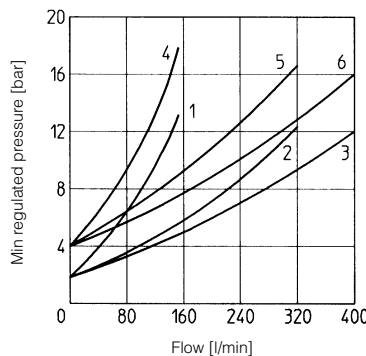
**Note:** for AGIU-10, the max flow rate is 100 l/min

**Note:** for AGIU-20, the max flow rate is 200 l/min

**Note:** for AGIU-32, the max flow rate is 300 l/min

#### 5 OPERATING DIAGRAM based on mineral oil ISO VG 46 at 50°C

- 1 = AGIR-10 A → B
- 2 = AGIR-20 A → B
- 3 = AGIR-32 A → B
- 4 = AGIR-10 B → A
- 5 = AGIR-20 B → A
- 6 = AGIR-32 B → A



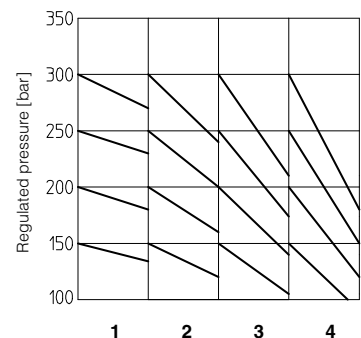
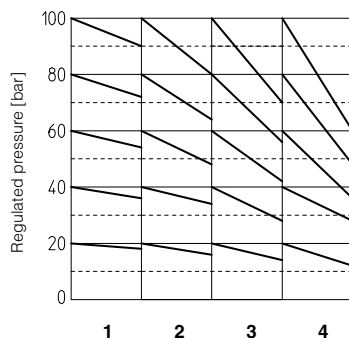
- 7 = AGIS-10
- 8 = AGIS-20
- 9 = AGIS-32

#### Opening/closing diagram for AGIU

- 1 = AGIU-\*/.../standard
- 2 = AGIU-\*/.../5
- 3 = AGIU-\*/.../6
- 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 pressure);
  - b) in applications with working frequencies < 10 Hz use subplates type BA-\*25/2 (spring with 2 bar of cracking pressure);



**6 ELECTRIC CONNECTORS ACCORDING TO DIN 43650 FOR AGIU WITH SOLENOID VALVE**

The connectors must be ordered separately

| Code of connector | Function   |
|-------------------|--|
| <b>SP-666</b>     | Connector IP-65, suitable for direct connection to electric supply source  |
| <b>SP-667</b>     | As SP-666 connector IP-65 but with built-in signal led, suitable for direct connection to electric supply source |

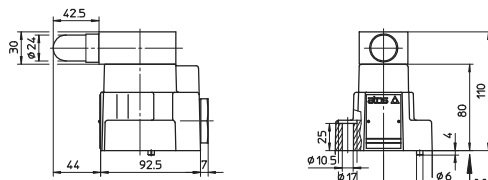
For other available connectors, see tab. E010 and K500.

**7 ELECTRIC FEATURES FOR AGIU WITH SOLENOID VALVE**

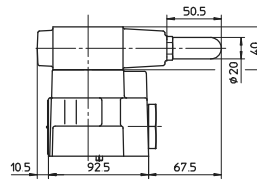
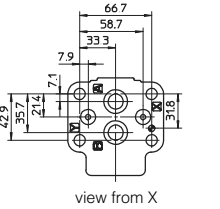
| Type of solenoid | External supply nominal voltage ± 10% (1) |                                 | Voltage code  | Type of connector  | Power consumption (3)  | Code of spare coil  | Colour of coil label   |
|------------------|---|---------------------------------|---|--|------------------------|---|--|
| OI               | DC  | 6 DC<br>12 DC<br>24 DC<br>48 DC | <b>6 DC</b><br><b>12 DC</b><br><b>24 DC</b><br><b>48 DC</b> | SP-666<br>or<br>SP-667   | 33 W                   | SP-COU-6DC /80<br>SP-COU-12DC /80<br>SP-COU-24DC /80<br>SP-COU-48DC /80 | brown<br>green<br>red<br>silver  |
|                  |   | AC                              | 110/50 AC (2)<br>120/60 AC<br>230/50 AC (2)<br>230/60 AC    | <b>110/50/60 AC</b><br><b>120/60 AC</b><br><b>230/50/60 AC</b><br><b>230/60 AC</b> | SP-666<br>or<br>SP-667 | 60 VA (4)   | SP-COI-110/50/60AC /80<br>SP-COI-120/60AC /80<br>SP-COI-230/50/60AC /80<br>SP-COI-230/60AC /80 |

- (1) For other supply voltages available on request see technical table E010.
- (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.
- (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. Inrush current values correspond to a power consumption of about 150 VA.

**8 DIMENSIONS [mm]**

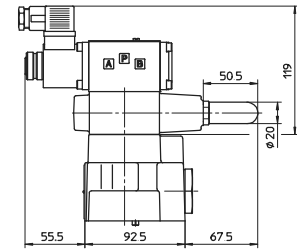


**AGIR-10;** Mass = 3,3 Kg  
**AGIRR-10;** Mass = 3,5 Kg

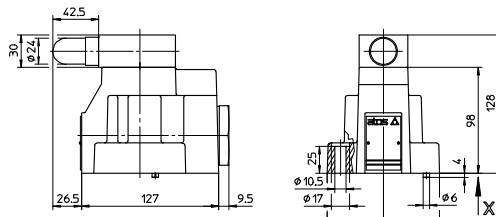


**AGIS-10;** Mass = 3,8 Kg  
**AGISR-10;** Mass = 4 Kg  
**AGIU-10;** Mass = 3,8 Kg

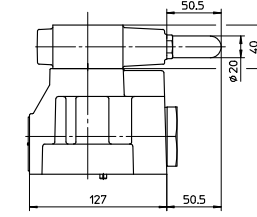
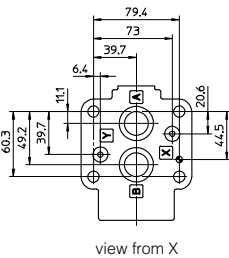
**ISO 5781: 2000**  
**Mounting surface: 5781-06-07-0-00**  
 Fastening bolts:  
 4 socket head screws M10x45 class 12.9  
 Tightening torque = 70 Nm  
 Seals: 2 OR 109/70, 2 OR 3068  
 Ports A, B: Ø = 14 mm  
 Ports X, Y: Ø = 5 mm



**AGIU-10/10\*\*-IX;** Mass = 5,3 Kg  
 The drawing shows AGIU with solenoid valve type DHI

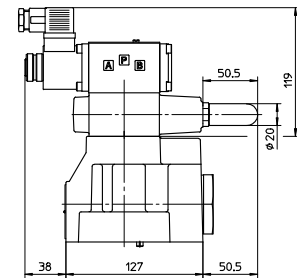


**AGIR-20;** Mass = 5,5 Kg  
**AGIRR-20;** Mass = 5,7 Kg

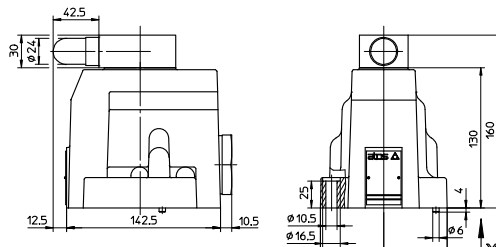


**AGIS-20;** Mass = 6 Kg  
**AGISR-20;** Mass = 6,2 Kg  
**AGIU-20;** Mass = 6 Kg

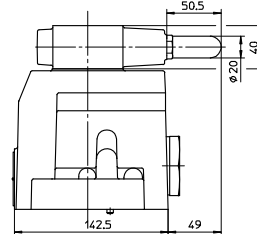
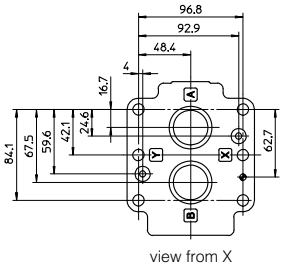
**ISO 5781: 2000**  
**Mounting surface: 5781-08-10-0-00**  
 Fastening bolts:  
 4 socket head screws M10x45 class 12.9  
 Tightening torque = 70 Nm  
 Seals: 2 OR 109/70, 2 OR 4100  
 Ports A, B: Ø = 22 mm  
 Ports X, Y: Ø = 5 mm



**AGIU-20/10\*\*-IX;** Mass = 7,5 Kg  
 The drawing shows AGIU with solenoid valve type DHI

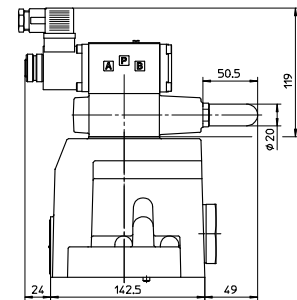


**AGIR-32;** Mass = 9,4 Kg  
**AGIRR-32;** Mass = 9,6 Kg



**AGIS-32;** Mass = 9,9 Kg  
**AGISR-32;** Mass = 10,1 Kg  
**AGIU-32;** Mass = 9,9 Kg

**ISO 5781: 2000**  
**Mounting surface: 5781-08-13-0-00**  
 Fastening bolts:  
 6 socket head screws M10x45 class 12.9  
 Tightening torque = 70 Nm  
 Seals: 2 OR 109/70, 2 OR 4131  
 Ports A, B: Ø = 28 mm  
 Ports X, Y: Ø = 5 mm



**AGIU-32/10\*\*-IX;** Mass = 11,4 Kg  
 The drawing shows AGIU with solenoid valve type DHI

Overall dimensions refer to valves with connectors type SP-666

**9 MOUNTING SUBPLATES**

| Valves         | Subplate model                         | Port location             | Ports    |          |        |          | Ø Counterbore [mm] |      |      |      | Mass [Kg] |
|----------------|--|---------------------------|----------|----------|--------|----------|--------------------|------|------|------|-----------|
|                |  |                           | A        | B        | X-Y    | OUT      | A                  | B    | X-Y  | OUT  |           |
| <b>AGI*-10</b> | BA-305                                 | Ports A, B, Y underneath; | G 1/2"   | G 1/2"   | G 1/4" | -        | 30                 | 30   | 21,5 | -    | 1         |
| <b>AGI*-20</b> | BA-505                                 |                           | G 1"     | G 1"     | G 1/4" | -        | 46                 | 46   | 21,5 | -    | 2         |
| <b>AGI*-32</b> | BA-705                                 |                           | G 1 1/2" | G 1 1/2" | G 1/4" | -        | 63,5               | 63,5 | 21,5 | -    | 7,5       |
| <b>AGIU-10</b> | BA-325 (with incorporated check valve) | Ports A, B, Y underneath; | G 1/2"   | G 3/4"   | G 1/4" | G 1/2"   | 30                 | 36,5 | 21,5 | 30   | 5         |
| <b>AGIU-20</b> | BA-425 (with incorporated check valve) |                           | G 1"     | G 1"     | G 1/4" | G 1"     | 46                 | 46   | 21,5 | 46   | 6,5       |
| <b>AGIU-32</b> | BA-625 (with incorporated check valve) |                           | G 1 1/2" | G 1 1/2" | G 1/4" | G 1 1/2" | 63,5               | 63,5 | 21,5 | 63,5 | 13        |

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