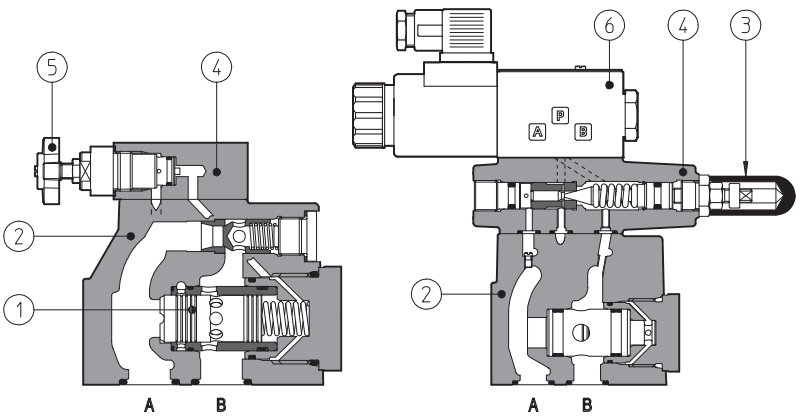
Pressure control valves type AGIR, AGIS, AGIU

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



AGIRR-20/*/V** **AGIU-10/11...-E**

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 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 type:

- DHE for AC and DC supply, high performances with **cURus** certified solenoids
- DHL for AC and DC supply, compact execution

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**

1 MODEL CODE

AGIU	*	-	20	/	10	/	210	/	V	-	E	X	24DC	**	/	*

AGIU
Pressure control valves subplate mounting
AGIR = pressure reducing
AGIS = sequence
AGIU = unloading

*
Only for AGIR and AGIS:
R = with check valve
- = without check valve

20
Size: **10** **20** **32**

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

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

V
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 **(2)**
- = standard unloading characteristics
5, 6, 7 = other unloading characteristics, see section 8

E
Pilot valve **(1)**:
E = DHE for AC and DC supply, high performances with **cURus** certified solenoids
L = DHL for AC and DC supply, compact execution

X
X = without connector **(1):**
See section 9 for available connectors, to be ordered separately
-00-AC = AC solenoid valve without coils
-00-DC = DC solenoid valve without coils

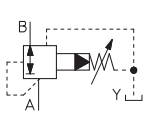
24DC
Voltage code, see section 10 **(1)**

**
Series number

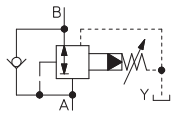
*
Seals material, see section 6:
- = NBR
PE = FKM
BT = HNBR **(3)**

(1) Only for AGIU with solenoid valve for venting
(2) For handwheel features, see technical table K150
(3) Not available for -L version (DHL pilot valve)

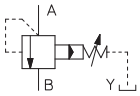
2 HYDRAULIC CHARACTERISTICS



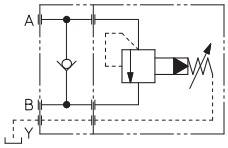
AGIR



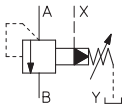
AGIRR



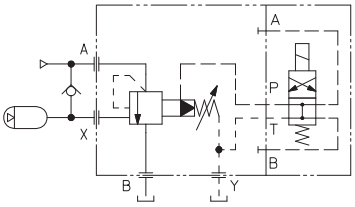
AGIS



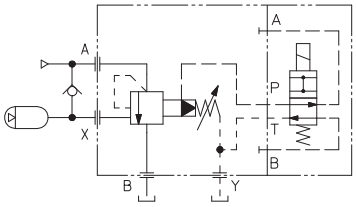
AGISR



AGIU



AGIU-/10**



AGIU-/11**

3 GENERAL CHARACTERISTICS

Assembly position	Any position
Subplate surface finishing to ISO 4401	Acceptable roughness index, Ra ≤0,8 recommended Ra 0,4 - flatness ratio 0,01/100
MTTFd valves according to EN ISO 13849	75 years for standard version, 75 years for venting option, see technical table P007
Ambient temperature range	**Standard** = -30°C ÷ +70°C **/PE** option = -20°C ÷ +70°C **/BT** option = -40°C ÷ +70°C
Storage temperature range	**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: zinc nickel coating (DC version) plastic incapsulation (AC version)
Corrosion resistance	Salt spray test (EN ISO 9227) > 200 h
Compliance	CE to Low Voltage Directive 2014/35/EU RoHS Directive 2011/65/EU as last update by 2015/863/EU REACH Regulation (EC) n°1907/2006

4 HYDRAULIC CHARACTERISTICS

Valve model	**AGIR-10**	**AGIR-20**	**AGIR-32**	**AGIS-10**	**AGIS-20**	**AGIS-32**	**AGIU-10**	**AGIU-20**	**AGIU-32**
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								
Max pressure [bar]	Ports A, B, X = 350 bar Port Y = 0								

5 ELECTRICAL CHARACTERISTICS (for AGAM with pilot solenoid valve)

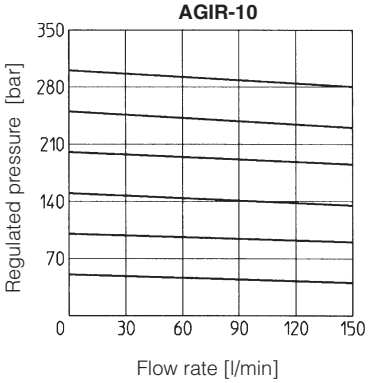
Insulation class	**H** (180°C) for DC coils; **F** (155°C) for AC coils Due to the occurring surface temperatures of the solenoid coils, the European standards EN ISO 13732-1 and EN ISO 4413 must be taken into account
Protection degree to DIN EN 60529	**IP 65** (with connectors correctly assembled)
Relative duty factor	100%
Supply voltage and frequency	See section 10
Supply voltage tolerance	± 10%
Certification	**cURus** North American standard - only for DHE pilot valve

6 SEALS AND HYDRAULIC FLUID - for other fluids not included in below table, consult our technical office

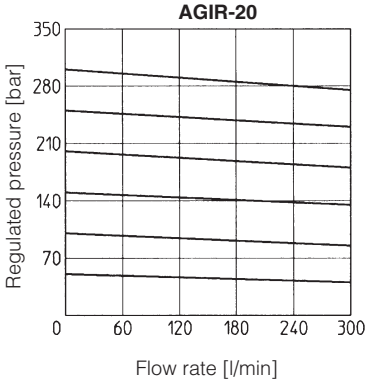
Seals, recommended fluid temperature	NBR seals (standard) = -20°C ÷ +80°C, with HFC hydraulic fluids = -20°C ÷ +50°C FKM seals (/PE option) = -20°C ÷ +80°C HNBR seals (/BT option) = -40°C ÷ +60°C, with HFC hydraulic fluids = -40°C ÷ +50°C		
Recommended viscosity	15÷100 mm²/s - max allowed range 2,8 ÷ 500 mm²/s		
Max fluid contamination level	ISO4406 class 20/18/15 NAS1638 class 9, see also filter section at www.atos.com or KTF catalog		
Hydraulic fluid	**Suitable seals type**	**Classification**	**Ref. Standard**
Mineral oils	NBR, FKM, HNBR	HL, HLP, HLPD, HVLP, HVLPD	DIN 51524
Flame resistant without water	FKM	HFDU, HFDR	ISO 12922
Flame resistant with water	NBR, HNBR	HFC	

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

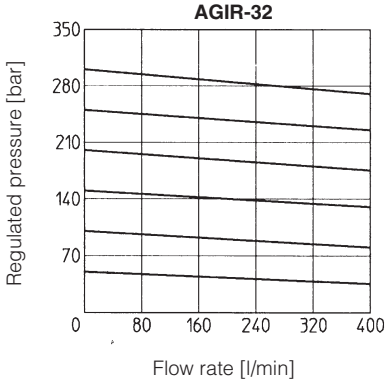
AGIR-10



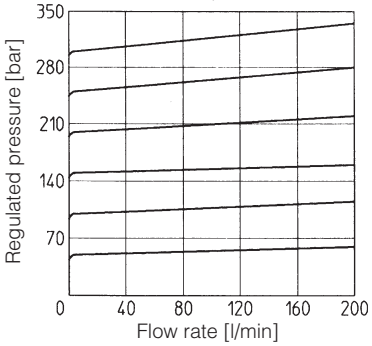
AGIR-20



AGIR-32

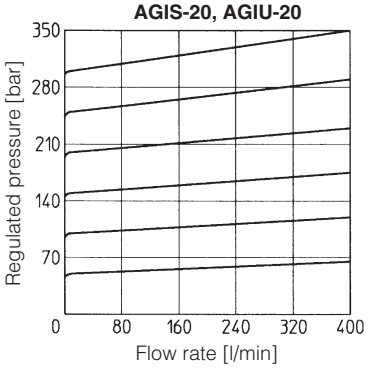


AGIS-10, AGIU-10



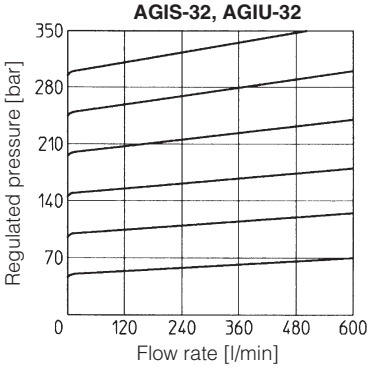
Note: for AGIU-10, the max flow rate is 100 l/min

AGIS-20, AGIU-20



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

AGIS-32, AGIU-32



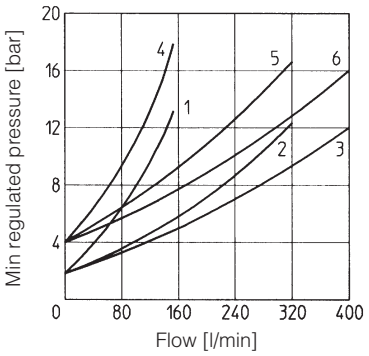
Note: for AGIU-32, the max flow rate is 300 l/min

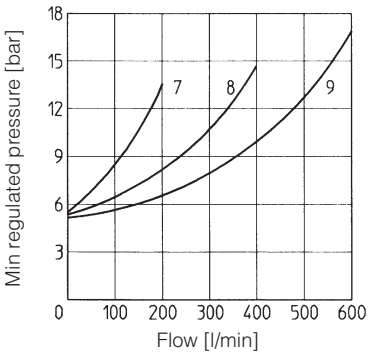
8 OPERATING DIAGRAM

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

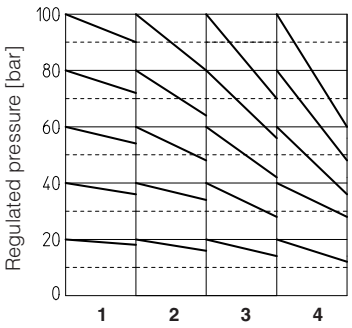
7 = AGIS-10
8 = AGIS-20
9 = AGIS-32

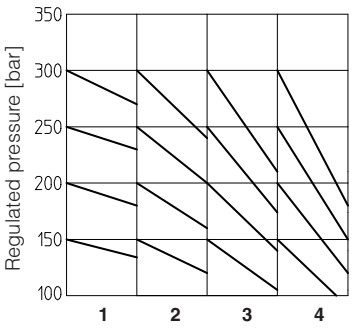




Opening/closing diagram for AGIU

1 = AGIU-**/...(standard) **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 advisable 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);

9 ELECTRIC CONNECTORS ACCORDING TO DIN 43650 for AGIU with solenoid valve (to be ordered separately, see tech table K800)

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

10 COIL VOLTAGE

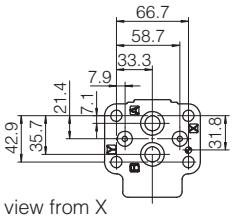
External supply nominal voltage ± 10%	**Voltage code**	Type of connector	-EX Power consumption (2)	-LX Power consumption (2)	Code of spare coil -EX	Code of spare coil -LX
12 DC	**12 DC**	666 or 667	30W	29W	COE-12DC	COL-12DC
14 DC	**14 DC**				COE-14DC	COL-14DC
110 DC	**110 DC**				COE-110DC	COL-110DC
220 DC	**220 DC**				COE-220DC	COL-220DC
110/50 AC (1)	**110/50/60 AC**	666 or 667	58VA (3)	58VA (3)	COE-110/50/60AC	COL-110/50/60AC
115/60 AC	**115/60 AC**		80VA (3)		COE-115/60AC	COL-115/60AC
230/50 AC (1)	**230/50/60 AC**		58VA (3		COE-230/50/60AC	COL-230/50/60AC
230/60 AC	**230/60 AC**		80VA (3)		COE-230/60AC	COL-230/60AC

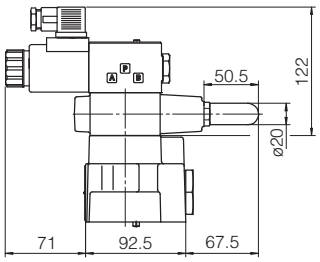
(1) For other supply voltages available on request see technical tables E015, E018.
(2) Coil can be supplied also with 60 Hz of voltage frequency: in this case the performances are reduced by 10 ÷ 15% and the power consumption is 55 VA (DHL) and 58 VA (DHE)
(3) Average values based on tests performed 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.

11 DIMENSIONS [mm]

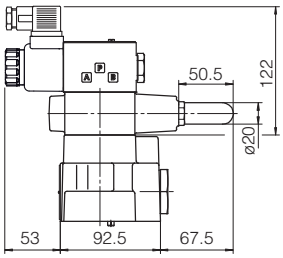
AGIR, AGIS, AGIU size 10

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

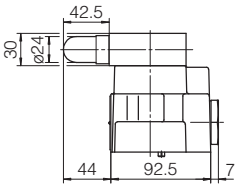


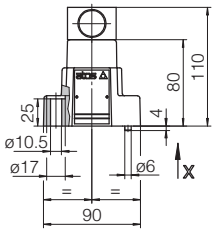


AGIU-10/10/-EX**
Mass = 5,6 Kg

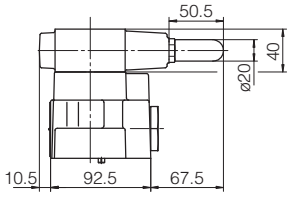


AGIU-10/10/-LX**
Mass = 5,4 Kg

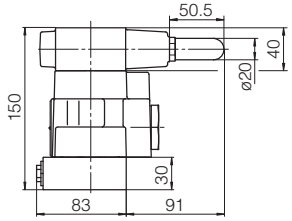




AGIR-10; Mass= 3,3 Kg
AGIRR-10; Mass= 3,5 Kg



AGIS-10; Mass= 3,8 Kg
AGIU-10; Mass= 3,8 Kg

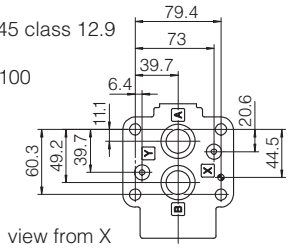


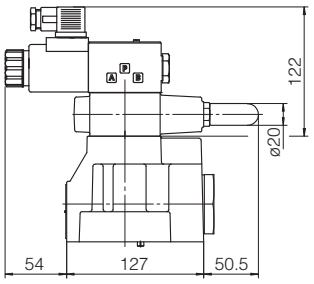
AGISR-10; Mass= 5,3 Kg

Overall dimensions refer to valves **DC** voltage, with connectors type 666

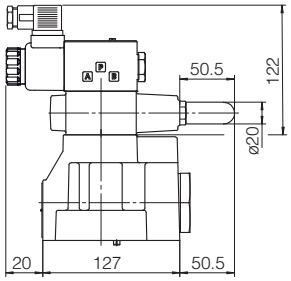
AGIR, AGIS, AGIU size 20

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

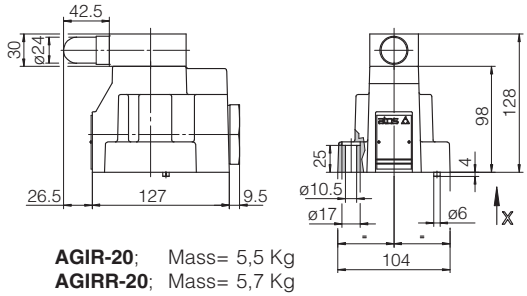




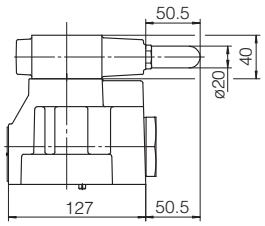
AGIU-20/10/-EX**
Mass = 7,8 Kg



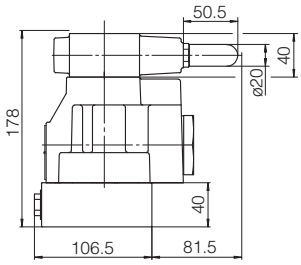
AGIU-20/10/-LX**
Mass = 7,6 Kg



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



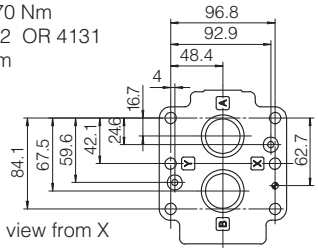
AGIS-20; Mass= 6 Kg
AGIU-20; Mass= 6 Kg

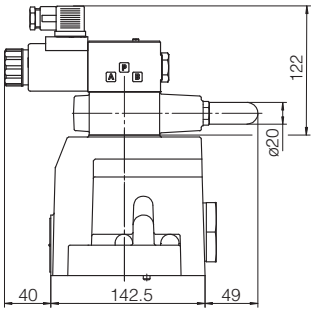


AGISR-20; Mass= 9 Kg

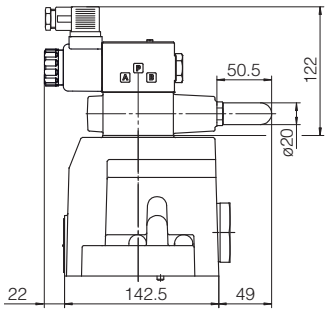
AGIR, AGIS, AGIU size 32

ISO 5781: 2000
Mounting surface: 5781-10-13-0-00
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

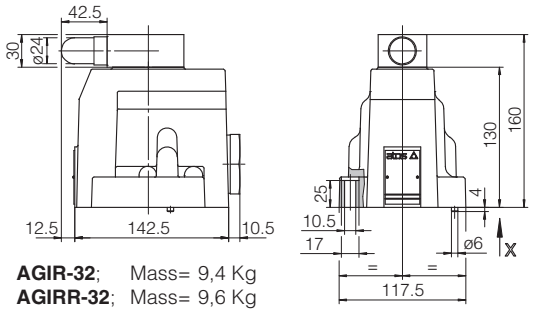




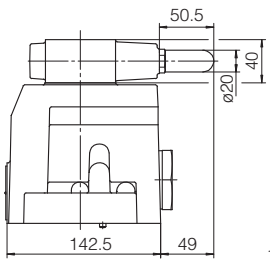
AGIU-32/10/-EX**
Mass = 11,7 Kg



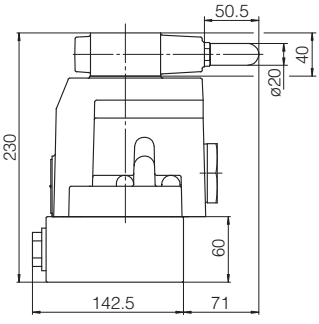
AGIU-32/10/-LX**
Mass = 11,5 Kg



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



AGIS-32; Mass= 9,9 Kg
AGIU-32; Mass= 9,9 Kg



AGISR-32; Mass= 15.5 Kg

Overall dimensions refer to valves **DC** voltage, with connectors type 666

12 MOUNTING SUBPLATES

Valves	Subplate model	Port location	Ports				Ø Counterbore [mm]				Mass [Kg]
			A	B	X-Y	OUT	A	B	X-Y	OUT	
AGI*-10	BA-305	Ports A, B, Y underneath;	G 1/2"	G 1/2"	G 1/4"	-	30	30	21,5	-	1
AGI*-20	BA-505		G 1"	G 1"	G 1/4"	-	46	46	21,5	-	2
AGI*-32	BA-705		G 1 1/2"	G 1 1/2"	G 1/4"	-	63,5	63,5	21,5	-	7,5

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