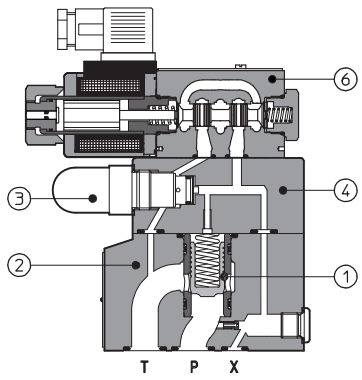
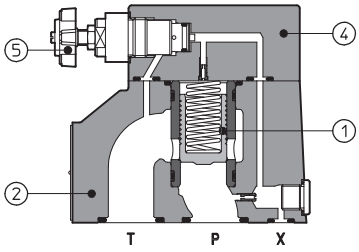
Pressure relief valves type AGAM

two stage, subplate mounting - ISO 6264 size 10, 20 and 32



AGAM-10/11...-E



AGAM-20/..../V

AGAM are two stage pressure relief valves with balanced poppet, designed to operate in oil hydraulic systems.

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 the pressure.

AGAM can be equipped with a pilot solenoid valve ⑥ for venting or for different pressure setting 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 6264 size 10, 20** and **32**
Max flow: **200, 400** and **600 l/min**
Max pressure up to **350 bar**

1 MODEL CODE

AGAM	-	20	/	20	/	210	/	100/100	/	V	-	I	X	24DC	**	/	*

AGAM = pressure relief valve subplate mounting

Size:
10 20 32

Setting pressure and venting option:
- = one setting pressure without option
10 = one setting pressure with venting, with de-energized solenoid
11 = one setting pressure with venting, with energized solenoid
20 = two setting pressure with venting, with de-energized solenoid
21 = two setting pressure with venting, with energized solenoid
22 = two setting pressure without venting
32 = three setting pressure without venting

Setting: see section 3 for available setting **(1)**

Pressure range of second/third setting **(1)**:
50 = 4÷50 bar
100 = 6÷100 bar
210 = 7÷210 bar
350 = 8÷350 bar

Options, see section 5
E V WP Y

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

X = without connector **(1):**
See section 7 for available connectors, to be ordered separately
-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)

Voltage code, see section 8 **(1)**:

Series number

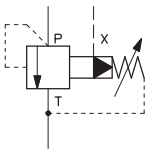
Seals material, see section 4:
- = NBR
PE = FKM
BT = HNBR

For **PED** version see technical table CY066

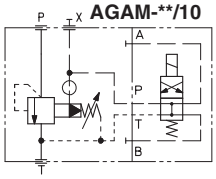
(1) Only for AGAM with solenoid valve for venting and/or for the selection of the setting pressure

2 HYDRAULIC SYMBOLS

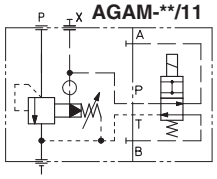
AGAM



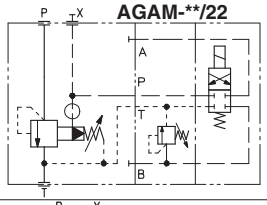
AGAM-/10**

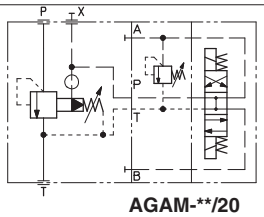


AGAM-/11**

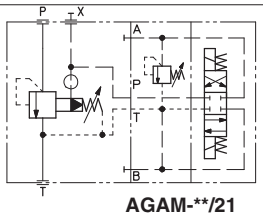


AGAM-/22**

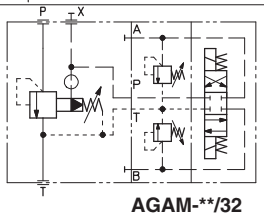




AGAM-/20**



AGAM-/21**



AGAM-/32**

3 HYDRAULIC CHARACTERISTICS

Valve model	AGAM-10	AGAM-20	AGAM-32
Setting [bar]	50; 100; 210; 350		
Pressure range [bar]	4÷50; 6÷100; 7÷210; 8÷350		
Max pressure [bar]	ports P, X = 350 Ports T, Y = 210 (without pilot solenoid valve) For version with pilot solenoid valve, see technical tables E010 and E015		
Max flow [l/min]	200	400	600

4 MAIN CHARACTERISTICS, SEALS AND FLUIDS - for other fluids not included in below table, consult our technical office

Assembly position	Any position		
Subplate surface finishing	Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)		
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	**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	

4.1 Coils characteristics (for AGAM with pilot solenoid valve)

Insulation class	DHI pilot	**H** (180°C)	Due to the occuring surface temperatures of the solenoid coils, the European standards EN ISO 13732-1 and EN ISO 4413 must be taken into account
	DHE pilot	**H** (180°C) for DC coils **F** (155°C) for AC coils	
Protection degree to DIN EN 60529		**IP 65** (with connectors 666, 667, 669 or E-SD correctly assembled)	
Relative duty factor		100%	
Supply voltage and frequency		See electric feature 7	
Supply voltage tolerance		± 10%	
Certification		**cURus** North American standard	

5 OPTIONS

/E = external pilot
/V = regulating handwheel instead of grub screw protected by cap (for handwheel features, see table K150)
/WP = prolunged manual override protected by rubber cap (only for AGAM with pilot solenoid valve)
/Y = external drain (only for AGAM with pilot solenoid valve)

6 ELECTRIC CONNECTORS ACCORDING TO DIN 43650 FOR AGAM WITH SOLENOID VALVE

The connectors must be ordered separately

Code of connector	Function
666	Connector IP-65, suitable for direct connection to electric supply source
667	As 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

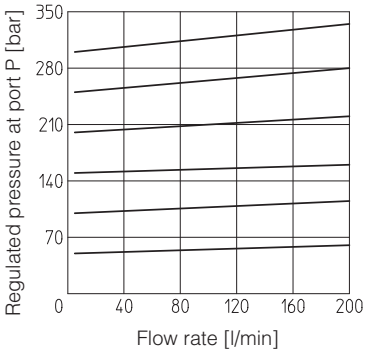
7 ELECTRIC FEATURES FOR AGAM WITH SOLENOID VALVE

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

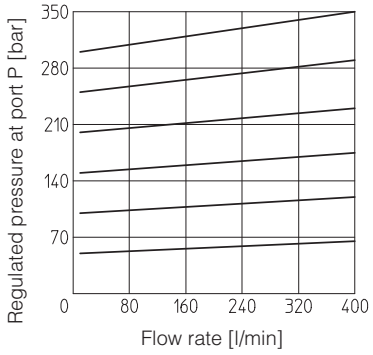
(1) For other supply voltages available on request see technical tables E010, E015.
(2) Coil can be supplied also with 60 Hz of voltage frequency: in this case the performances are reduced by 10 ÷ 15% and the power consumption is 55 VA (DHI) and 58 VA
(3) Average values based on tests performed at nominal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

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

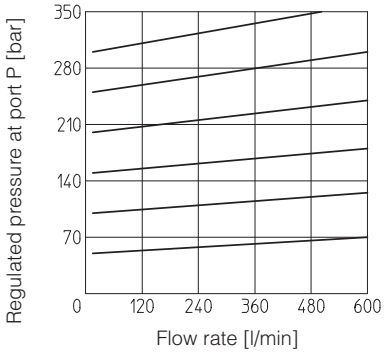
AGAM-10



AGAM-20

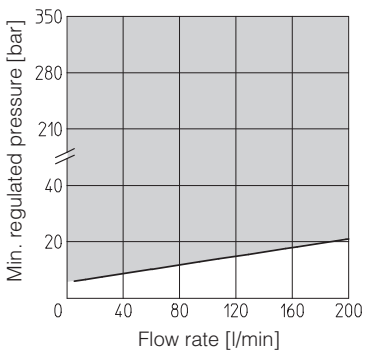


AGAM-32

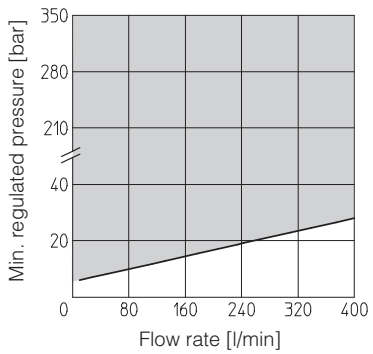


9 PERMISSIBLE RANGE (shared area) based on mineral oil ISO VG 46 at 50°C

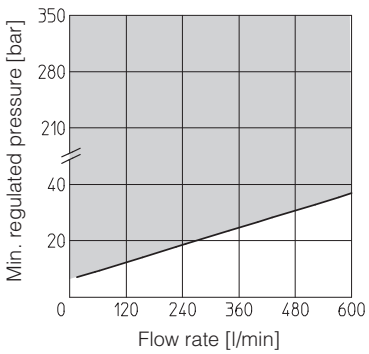
AGAM-10



AGAM-20

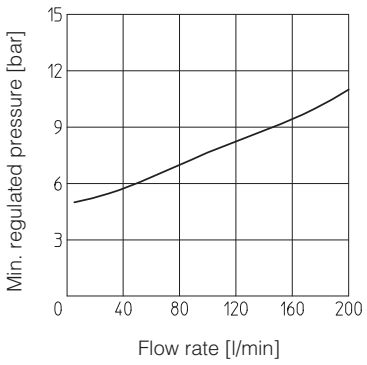


AGAM-32

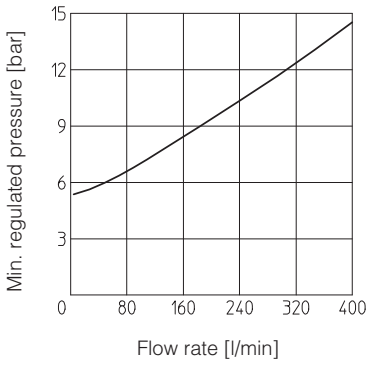


10 MINIMUM PRESSURE VERSUS FLOW DIAGRAMS based on mineral oil ISO VG 46 at 50°C

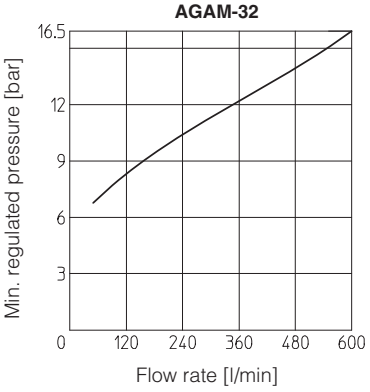
AGAM-10



AGAM-20

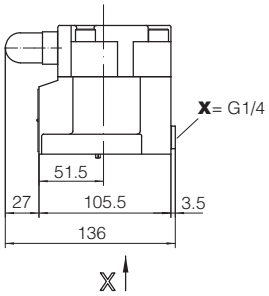


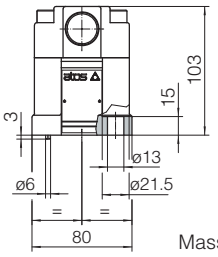
AGAM-32



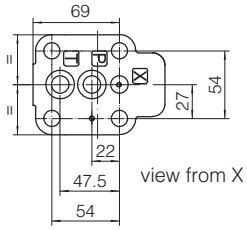
11 DIMENSIONS [mm]

AGAM-10

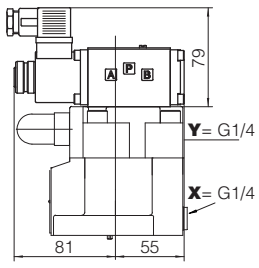




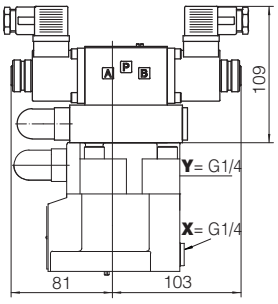
Mass: 3,6 Kg



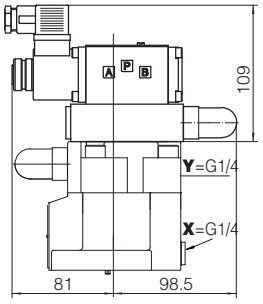
ISO 6264: 2007
Mounting surface: 6264-06-09-1-97
Fastening bolts:
4 socket head screws
M12x35 class 12.9
Tightening torque = 125 Nm
Seals: 2 OR 123; 1 OR 109/70
Ports P, T: Ø = 14,5 mm
Ports X: Ø = 3,2 mm



AGAM-10/10/-IX**
AGAM-10/11/-IX**
Mass: 5,1 Kg

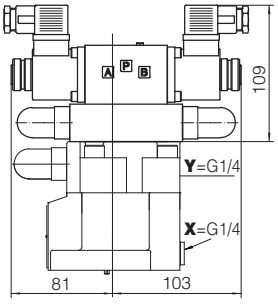


AGAM-10/20/-IX**
AGAM-10/21/-IX**
Mass: 6,2 Kg



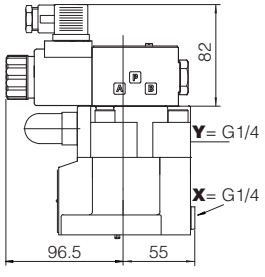
AGAM-10/22/-IX**

Mass: 5,9 Kg

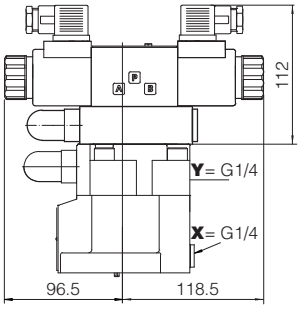


AGAM-10/32/-IX**

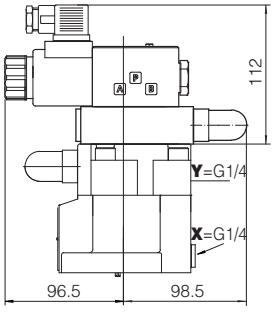
Mass: 6,3 Kg



AGAM-10/10/-EX**
AGAM-10/11/-EX**
Mass: 5,1 Kg

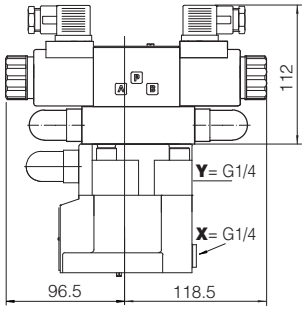


AGAM-10/20/-EX**
AGAM-10/21/-EX**
Mass: 6,2 Kg



AGAM-10/22/-EX**

Mass: 5,9 Kg

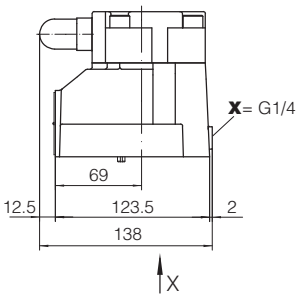


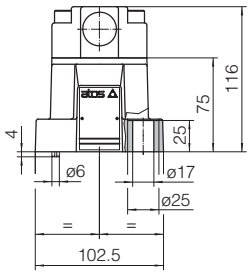
AGAM-10/32/-EX**

Mass: 6,3 Kg

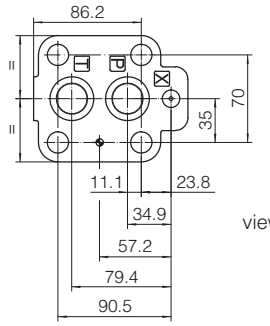
Overall dimensions refer to valves with connectors type 666

AGAM-20



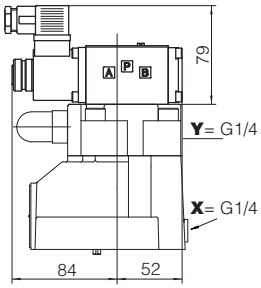


Mass: 4,8Kg



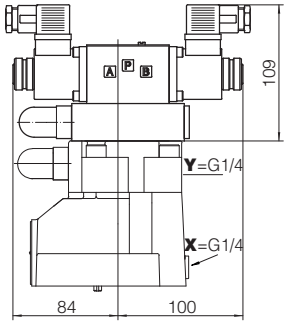
view from X

ISO 6264: 2007
Mounting surface: 6264-08-11-1-97
Fastening bolts:
4 socket head screws M16x50 class 12.9
Tightening torque = 300 Nm
Seals: 2 OR 4112; 1 OR 109/70
Ports P, T: Ø = 24 mm
Ports X: Ø = 3,2 mm



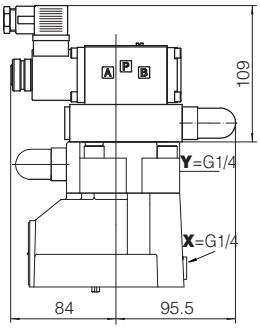
AGAM-20/10/-IX**
AGAM-20/11/-IX**

Mass: 6,3 Kg



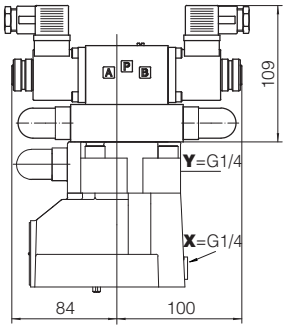
AGAM-20/20/-IX**
AGAM-20/21/-IX**

Mass: 7,4Kg



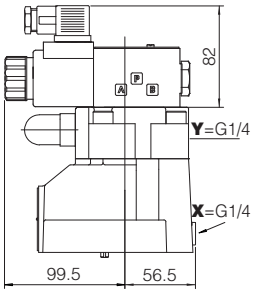
AGAM-20/22/-IX**

Mass: 7,1 Kg



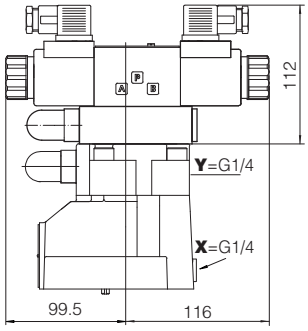
AGAM-20/32/-IX**

Mass: 7,5 Kg



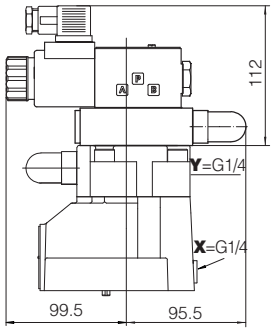
AGAM-20/10/-EX**
AGAM-20/11/-EX**

Mass: 6,3 Kg



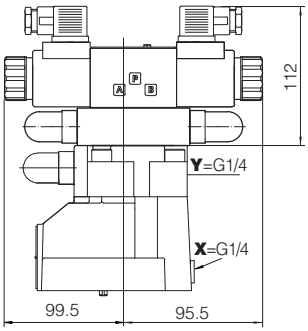
AGAM-20/20/-EX**
AGAM-20/21/-EX**

Mass: 7,4 Kg



AGAM-20/22/-EX**

Mass: 7,1 Kg

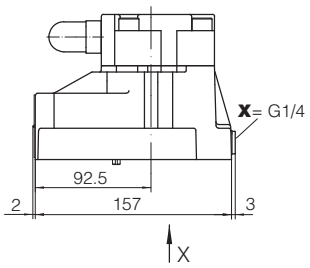


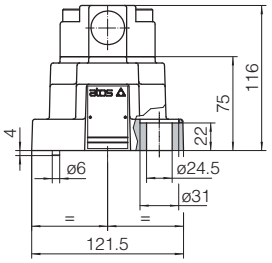
AGAM-20/32/-EX**

Mass: 7,5 Kg

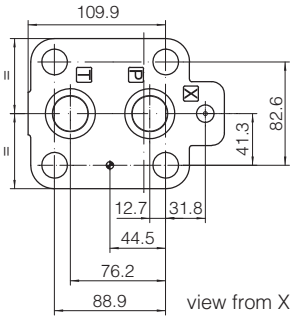
Overall dimensions refer to valves with connectors type 666

AGAM-32



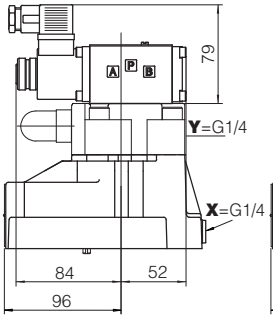


Mass: 6,2 Kg

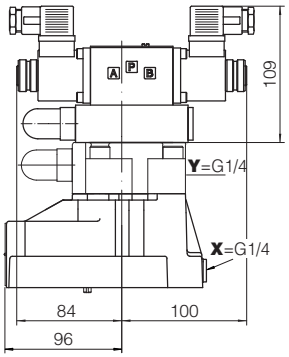


view from X

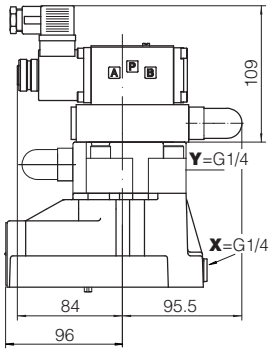
ISO 6264: 2007
Mounting surface: 6264-10-17-1-97 (with M20 fixing holes instead of standard M18)
Fastening bolts:
4 socket head screws
M20x60 class 12.9
Tightening torque = 600 Nm
Seals: 2 OR 4131; 1 OR 109/70
Ports P, T: Ø = 28,5 mm
Ports X: Ø = 3,2 mm



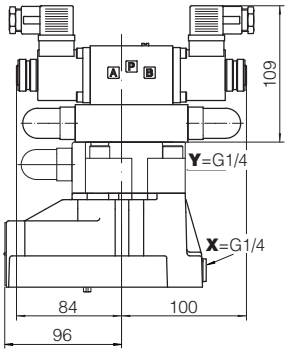
AGAM-32/10/-IX**
AGAM-32/11/-IX**
Mass: 7,7 Kg



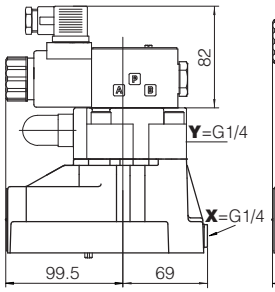
AGAM-32/20/-IX**
AGAM-32/21/-IX**
Mass: 8,8 Kg



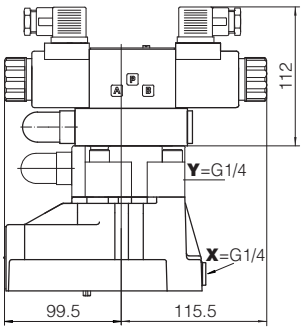
AGAM-32/22/-IX**
Mass: 8,5 Kg



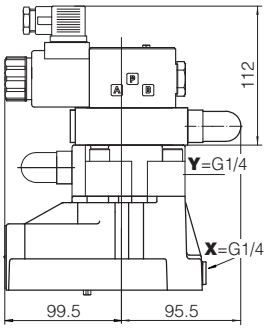
AGAM-32/32/-IX**
Mass: 8,9 Kg



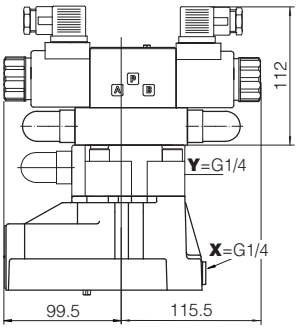
AGAM-32/10/-EX**
AGAM-32/11/-EX**
Mass: 7,7 Kg



AGAM-32/20/-EX**
AGAM-32/21/-EX**
Mass: 8,8 Kg



AGAM-32/22/-EX**
Mass: 8,5 Kg



AGAM-32/32/-EX**
Mass: 8,9 Kg

Overall dimensions refer to valves with connectors type 666

12 MOUNTING SUBPLATES

Valve	Subplate model	Port location	Ports			Ø Counterbore [mm]			Mass [Kg]
			P	T	X	P	T	X	
AGAM-10	BA-306	Ports P, T, X underneath;	G 1/2"	G 3/4"	G 1/4"	30	36,5	21,5	1,5
AGAM-20	BA-406		G 3/4"	G 3/4"	G 1/4"	36,5	36,5	21,5	3,5
	BA-506		G 1"	G 1"	G 1/4"	46	46	21,5	3,5
AGAM-32	BA-706		G 1 1/2"	G 1 1/2"	G 1/4"	63,5	63,5	21,5	6

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