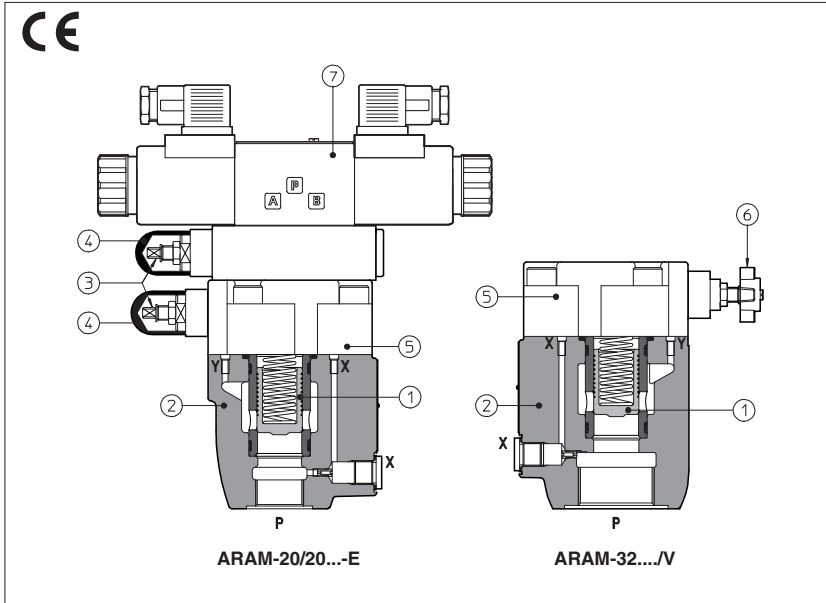


Pressure relief valves type ARAM

two stage, in line mounting - G 3/4" and G 1 1/4" threaded ports



ARAM are two stage pressure relief valves with balanced poppet, designed with threaded ports for in-line mounting.

In standard versions the piloting pressure of the poppet (1) of the main stage (2) is regulated by means of a grub screw (3) protected by cap (4) installed in the cover (5). Optional versions with setting adjustment by handwheel (6) instead of the grub screw are available on request. Clockwise rotation increases the pressure.

Also available in safety option with sealed regulation:

/PED conforming to PED Directive (2006/42/CE). The valves are factory set at the pressure level required by the customer with a flow through the valve as shown in section (6). For this version the P, Q limits are shown in section (10).

ARAM can be equipped with a pilot solenoid valve (7) 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

Threaded ports: **G 3/4"**, **G 1 1/4"**
 Max flow: **350, 500 l/min**
 Max pressure up to **350 bar**

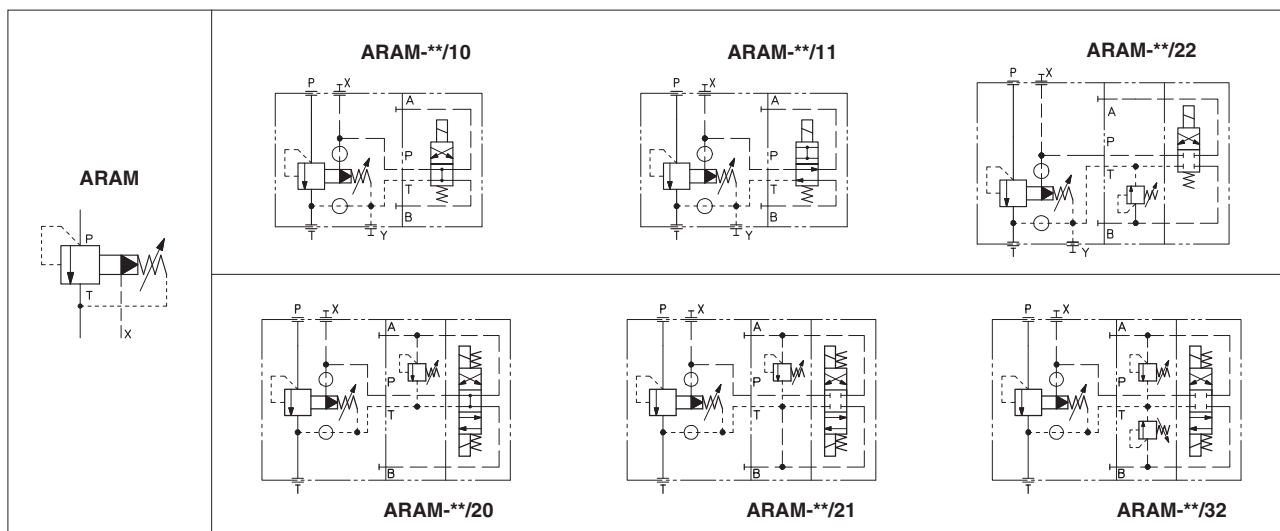
1 MODEL CODE

ARAM	-	20	/	20	/	210	/	100/100	/	V	/	*	-	I	X	24DC	**	*
<p>ARAM = pressure relief valve threaded port connections</p> <p>Size: 20= port P - G 3/4" 32= port P - G 1 1/4"</p> <p>Setting pressure and venting option (1): - = 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</p> <p>Setting: see section (3) for available setting</p> <p>Pressure range of second/third setting (1)(2): 50 = 4÷50 bar 100 = 6÷100 bar 210 = 7÷210 bar 350 = 8÷350 bar</p>															<p>Seals material, see section (4): - = NBR PE = FKM BT = HNBR</p> <p>Series number</p> <p>Voltage code, see section (8) (1):</p>			
															<p>X = without connector (1): See section (7) for available connectors, to be ordered separately</p> <p>-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)</p> <p>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</p>			
															<p>Only for /PED options: 190 = factory pressure setting to be defined depending to the customer requirement (example 190 = 190 bar)</p>			
															<p>Options, see section (5) E PED V WP Y</p>			

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

(2) For valves with multiple pressure settings, the eventual /PED option is relevant only to the first main setting. The second (and third) pressure setting are not sealed and their regulation must be lower than the /PED one.

2 HYDRAULIC SYMBOL



3 HYDRAULIC CHARACTERISTICS

Valve model		ARAM-20		ARAM-32	
Setting [bar]	standard /PED	50; 100;		210; 350	
Pressure range [bar]	standard /PED	4÷50;	6÷100;	7÷210;	8÷350
		10÷50;	10÷100;	10÷210;	10÷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]	standard /PED	350		500	

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

Assembly position	Any position		
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 mm ² /s - max allowed range 2,8 ÷ 500 mm ² /s		
Fluid contamination class	ISO 4406 class 21/19/16 NAS 1638 class 10, in line filters of 25 µm (β10 ≥75 recommended)		
	Hydraulic fluid	Suitable seals type	Classification
Mineral oils	NBR, FKM, HNBR	HL, HLP, HLPD, HVLP, HVLPD	DIN 51524
Flame resistant without water	FKM	HFDU, HFDR	
Flame resistant with water	NBR, HNBR	HFC	ISO 12922

4.1 Coils characteristics (for ARAM with pilot solenoid valve)

Insulation class	DHI pilot DHE pilot	H (180°C) 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 666, 667, 669 or E-SD correctly assembled)	
Relative duty factor		100%	
Supply voltage and frequency		See electric feature	
Supply voltage tolerance		± 10%	
Certification		cURus North American standard	

5 OPTIONS

/E = external pilot

/PED = conforming to Directive 97/23/CE (not available with option /V)

/V = regulating handwheel instead of grub screw protected by cap (for handwheel features, see table K150), (not available with option /PED)

/WP = prolonged manual override protected by rubber cap (only for ARAM with pilot solenoid valve)

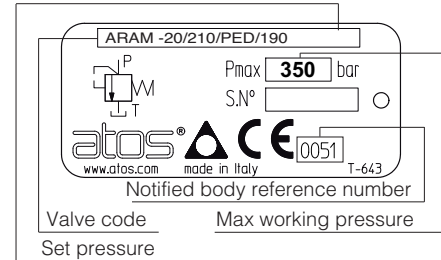
/Y = external drain (only for ARAM with pilot solenoid valve)

6 SETTING OF VALVES WITH /PED OPTION

The /PED valves are factory set at the pressure level required by the customer (every 1 bar) at the following flow shown in the table. The set pressure is marked on the valve nameplate, see section 6.1

VALVE MODEL	FLOW FOR FACTORY PRESSURE SETTING (l/min)
ARAM-20	25
ARAM-32	25

6.1 EXAMPLE OF NAMEPLATE FOR /PED OPTION



7 ELECTRIC CONNECTORS ACCORDING TO DIN 43650 FOR ARAM 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

8 ELECTRIC FEATURES FOR AGAM WITH SOLENOID VALVE

Solenoid valve type	External supply nominal voltage $\pm 10\%$ (1)		Voltage code	Type of connector	Power consumption (3)		Code of spare coil DHI	Colour of coil label DHI	Code of spare coil DHE
					DHI	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

(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

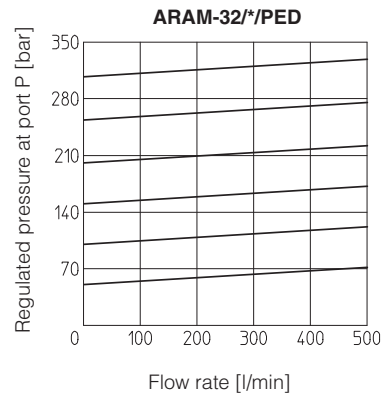
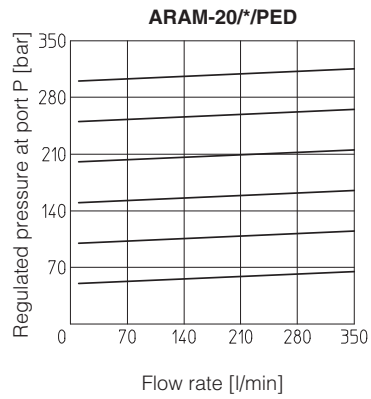
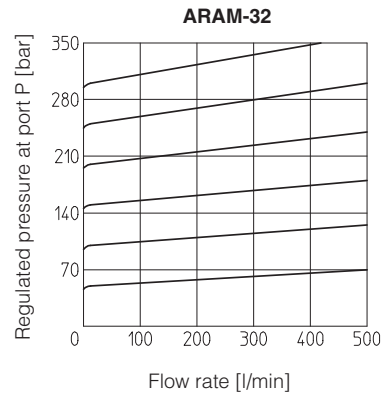
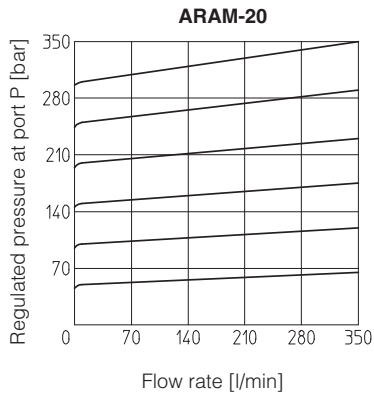
(3) Average values based on tests performed at nominal hydraulic condition and ambient/coil temperature of 20°C.

(4) When solenoid is energized, the inrush current is approx 3 times the holding current.

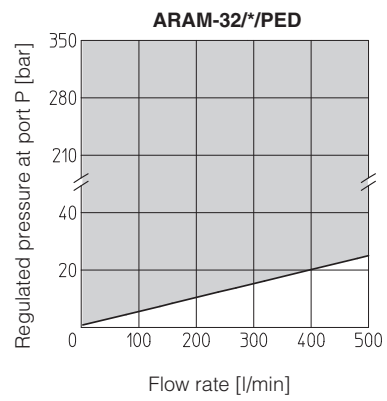
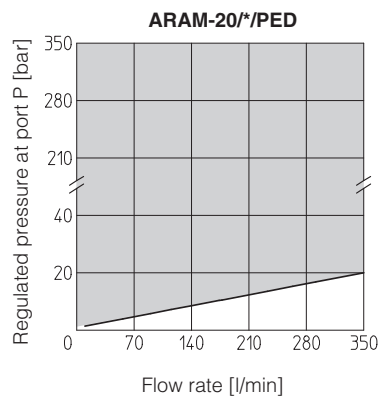
(5) Only for DHE

(6) Only for DHI

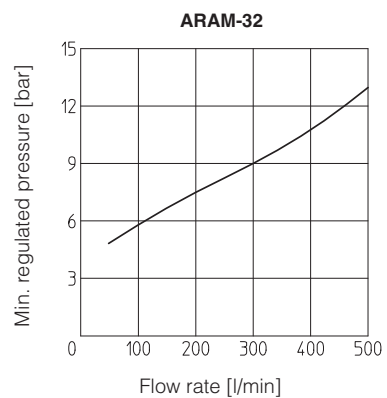
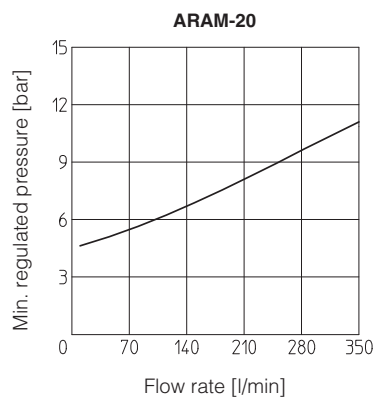
9 REGULATED PRESSURE VERSUS FLOW DIAGRAMS based on mineral oil ISO VG 46 at 50°C



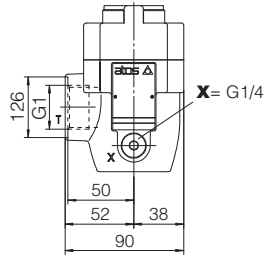
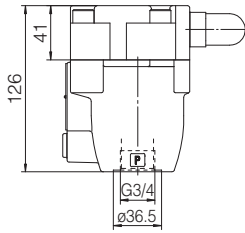
10 PERMISSIBLE RANGE (shared area) based on mineral oil ISO VG 46 at 50°C



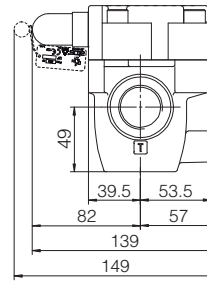
11 MINIMUM PRESSURE VERSUS FLOW DIAGRAMS based on mineral oil ISO VG 46 at 50°C



ARAM-20

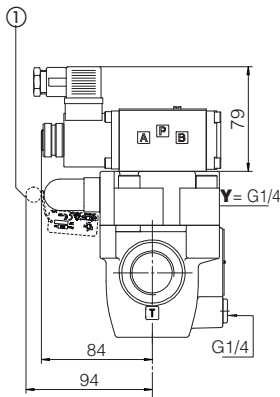


Mass: 3,9 Kg



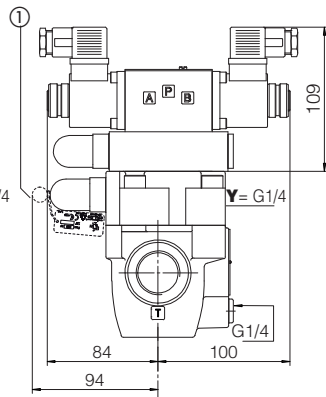
OPTION /PED

X = port connection for external pilot
Y = port connection for external drain



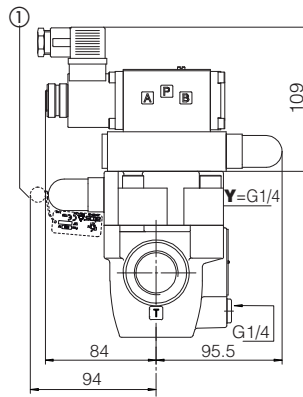
ARAM-20/10/-IX**
ARAM-20/11/-IX**

Mass: 5,4 Kg



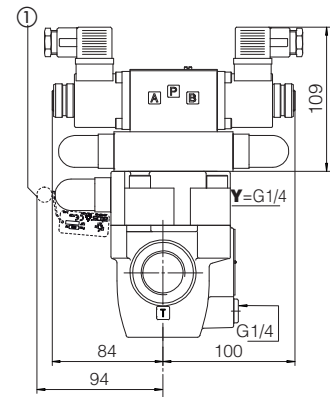
ARAM-20/20/-IX**
ARAM-20/21/-IX**

Mass: 7,1 Kg



ARAM-20/22/-IX**

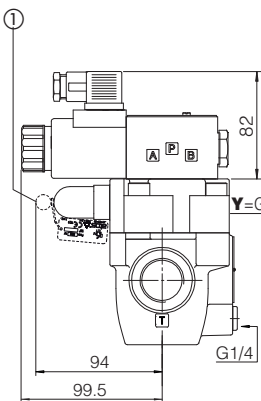
Mass: 6,8 Kg



ARAM-20/32/-IX**

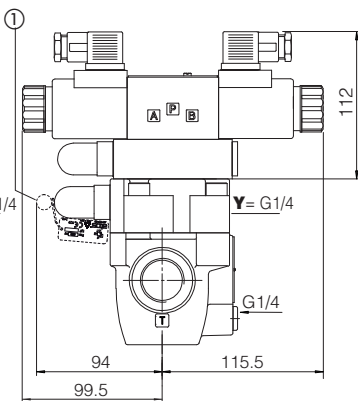
Mass: 7,4 Kg

① = sealed adjustment and nameplate only for /PED option



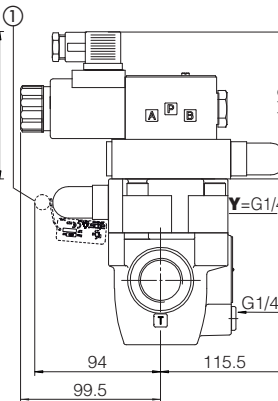
ARAM-20/10/-EX**
ARAM-20/11/-EX**

Mass: 5,7 Kg



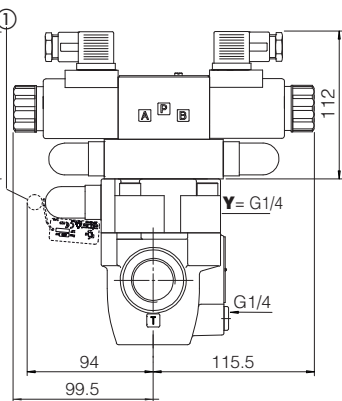
ARAM-20/20/-EX**
ARAM-20/21/-EX**

Mass: 7,7 Kg



ARAM-20/22/-EX**

Mass: 7,2 Kg

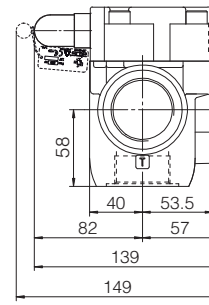
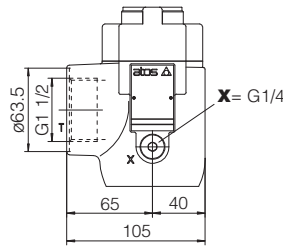
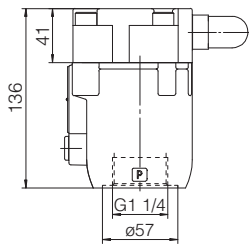


ARAM-20/32/-EX**

Mass: 8 Kg

① = sealed adjustment and nameplate only for /PED option

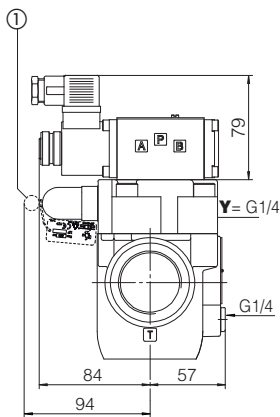
ARAM-32



X = port connection for external pilot
Y = port connection for external drain

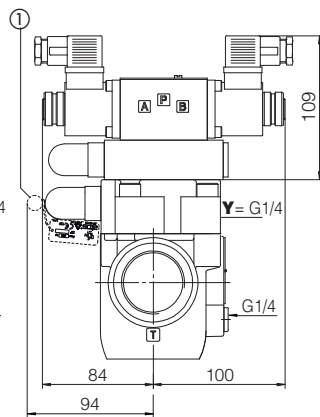
Mass: 4,7 Kg

OPTION /PED



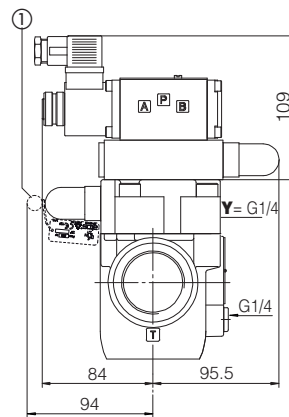
ARAM-32/10/-IX**
ARAM-32/11/-IX**

Mass: 6,2 Kg



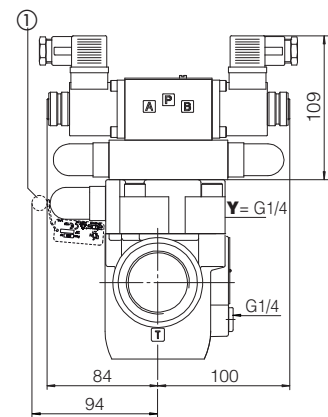
ARAM-32/20/-IX**
ARAM-32/21/-IX**

Mass: 7,9 Kg



ARAM-32/22/-IX**

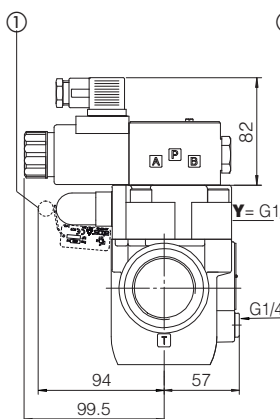
Mass: 7,6 Kg



ARAM-32/32/-IX**

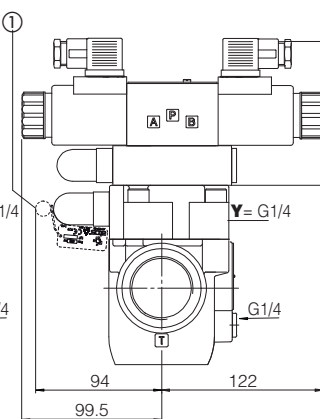
Mass: 8,2 Kg

① = sealed adjustment and nameplate only for /PED option



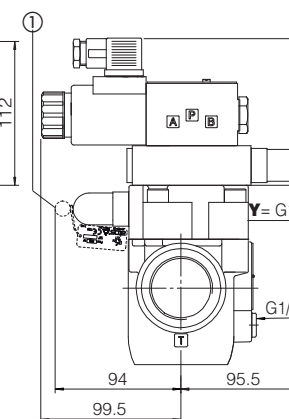
ARAM-32/10/-EX**
ARAM-32/11/-EX**

Mass: 6,5 Kg



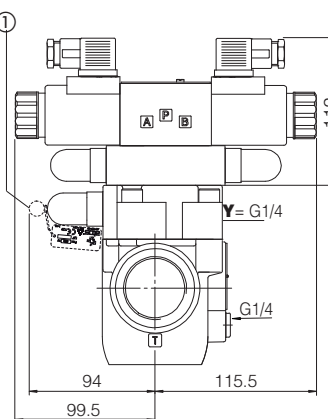
ARAM-32/20/-EX**
ARAM-32/21/-EX**

Mass: 8,5 Kg



ARAM-32/22/-EX**

Mass: 7,9 Kg



ARAM-32/32/-EX**

Mass: 8,8 Kg

① = sealed adjustment and nameplate only for /PED option

Overall dimensions refer to valves with connectors type 666