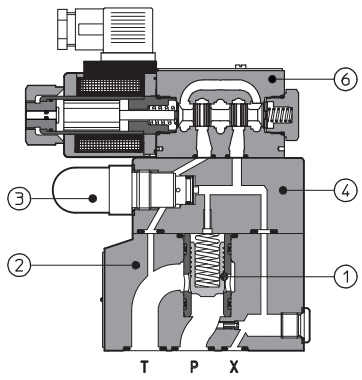
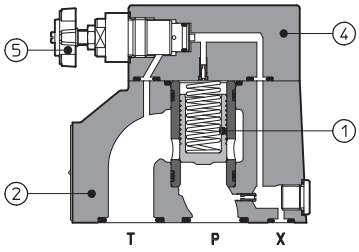
Pressure relief valves type SAGAM

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



SAGAM-10/11...-E



SAGAM-20/..../V

SAGAM 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.

SAGAM can be equipped with a SDHE pilot solenoid valve ⑥ for venting or for different pressure setting.

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

SAGAM	-	20	/	10	/	210	/	100/100	V	-	E	X	24DC	**	/	*

SAGAM = 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 4 for available setting

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 7
E V WP Y

Solenoid venting valve **(1)**:
E = SDHE for AC and DC supply, with **cURus** certified solenoids
L = SDHL for AC and DC supply, compact execution

X = without connector **(1):**
See section 10 for available connectors, to be ordered separately
-00-AC = AC solenoid valve without coils
-00-DC = DC solenoid valve without coils

Voltage code, see section 6 **(1)**:

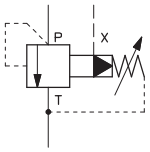
Series number

Seals material, see section 11:
- = NBR
PE = FKM
BT = HNBR

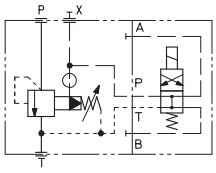
(1) Only for SAGAM with solenoid valve for venting and/or for the selection of the setting pressure

2 HYDRAULIC SYMBOLS

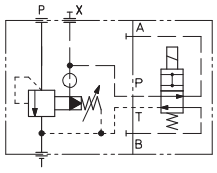
SAGAM



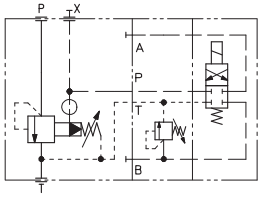
SAGAM-/10**



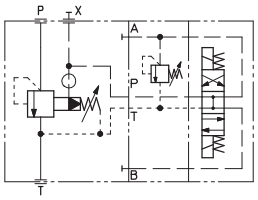
SAGAM-/11**



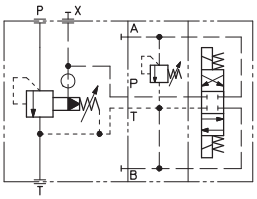
SAGAM-/22**



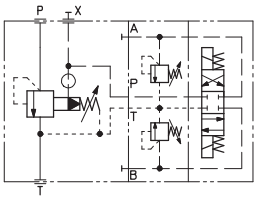
SAGAM-/20**



SAGAM-/21**



SAGAM-/32**



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
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

4 HYDRAULIC CHARACTERISTICS

Valve model	**SAGAM-10**	**SAGAM-20**	**SAGAM-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 E015 and E018		
Max flow [l/min]	200	400	600

5 ELECTRICAL CHARACTERISTICS (for SAGAM with pilot solenoid valve)

Insulation class	**H** (180°C) for DC coils; **F** (155°C) for AC coils 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
Protection degree to DIN EN 60529	**IP 65** (with connectors correctly assembled)
Relative duty factor	100%
Supply voltage and frequency	See section 6
Supply voltage tolerance	± 10%
Certification	**cURus** North American standard - only for SDHE pilot valve

6 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
230/50 AC (1)	**230/50/60 AC**		58VA (3)		COE-230/50/60AC	COL-230/50/60AC

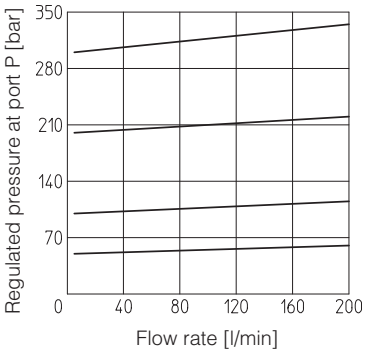
For other supply voltages available on request see technical tables E015, E018.
(1) Coil can be supplied also with 60 Hz of voltage frequency: in this case the performances are reduced by 10 ÷ 15% and the power consumption is 55 VA (SDHL) and 58 VA (SDHE)
(2) Average values based on tests performed at nominal hydraulic condition and ambient/coil temperature of 20°C.
(3) When solenoid is energized, the inrush current is approx 3 times the holding current.

7 OPTIONS

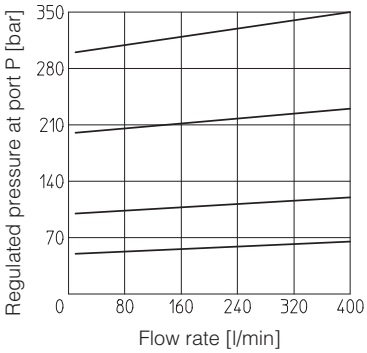
/E = external pilot
/V = regulating handwheel instead of grub screw protected by cap
/WP = prolunged manual override protected by rubber cap (only for SAGAM with pilot solenoid valve)
/Y = external drain (only for SAGAM with pilot solenoid valve)

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

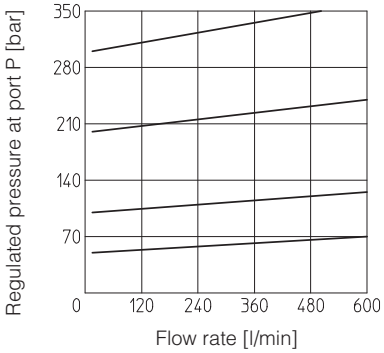
SAGAM-10



SAGAM-20

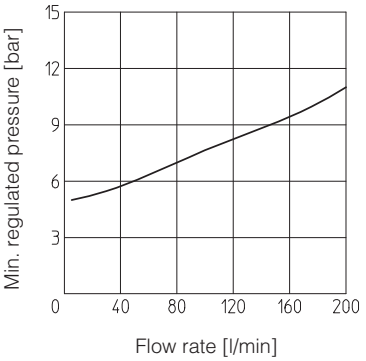


SAGAM-32

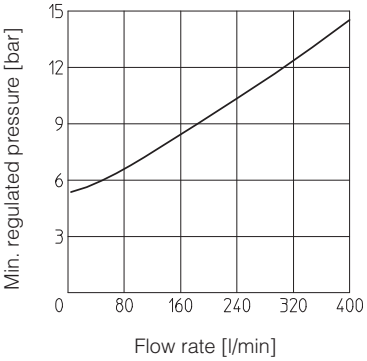


9 MINIMUM PRESSURE VERSUS FLOW DIAGRAMS based on mineral oil ISO VG 46 at 50°C

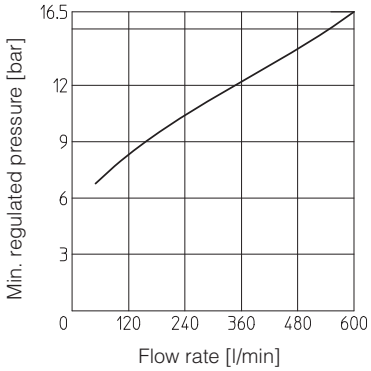
SAGAM-10



SAGAM-20



SAGAM-32



10 ELECTRIC CONNECTORS ACCORDING TO DIN 43650 FOR SAGAM WITH SOLENOID VALVE

The connectors must be ordered separately

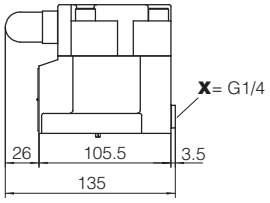
Code of connector	Function
666	Connector IP-65, suitable for direct connection to electric supply source
667	As 666 connector IP-65 but with built-in signal led, suitable for direct connection to electric supply source

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

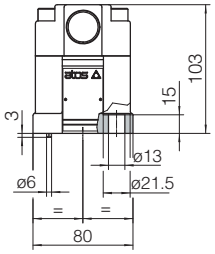
Seals, reccomended fluid temperature	NBR seals (standard) = -20°C ÷ +80°C, with HFC hydraulic fluids = -20°C ÷ +50°C FKM seals (/PE option) = -20°C ÷ +80°C HNBR seals (/BT option) = -40°C ÷ +60°C, with HFC hydraulic fluids = -40°C ÷ +50°C		
Recommended viscosity	15÷100 mm²/s - max allowed range 2,8 ÷ 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	

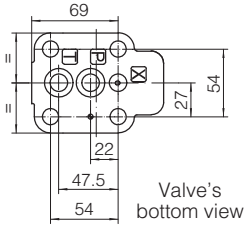
12 **DIMENSIONS [mm]**

SAGAM-10

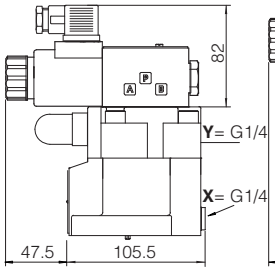


Mass: 3,6 Kg



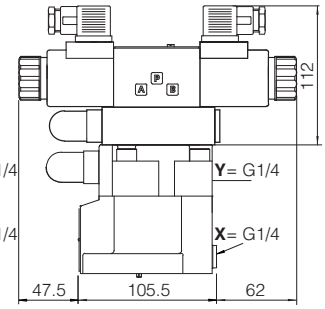


ISO 6264: 2007
Mounting surface: 6264-06-09-1-97
Fastening bolts:
4 socket head screws
M12x35 class 12.9
Tightening torque = 125 Nm
Seals: 2 OR 123; 1 OR 109/70
Ports P, T: Ø = 14,5 mm
Ports X: Ø = 3,2 mm



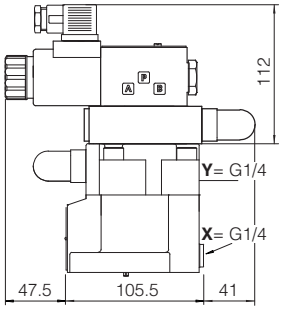
SAGAM-10/10/-EX**
SAGAM-10/11/-EX**

Mass: 5,1 Kg



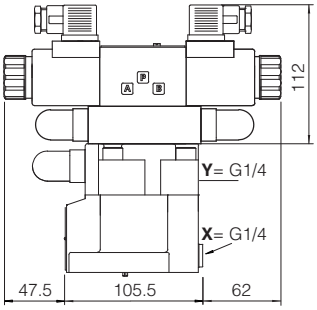
SAGAM-10/20/-EX**
SAGAM-10/21/-EX**

Mass: 6,2 Kg



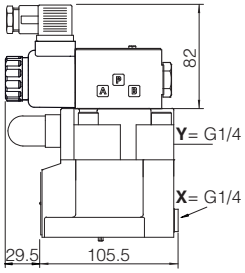
SAGAM-10/22/-EX**

Mass: 5,9 Kg



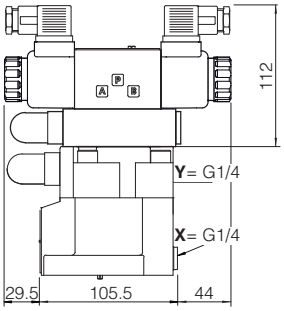
SAGAM-10/32/-EX**

Mass: 6,3 Kg



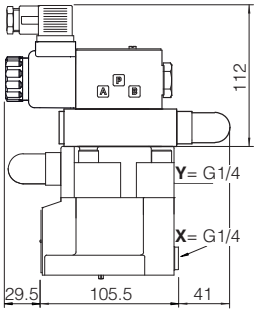
SAGAM-10/10/-LX**
SAGAM-10/11/-LX**

Mass: 4,8 Kg



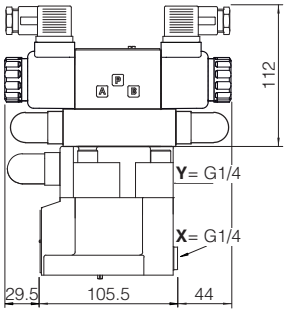
SAGAM-10/20/-LX**
SAGAM-10/21/-LX**

Mass: 5,6 Kg



SAGAM-10/22/-LX**

Mass: 5,6 Kg

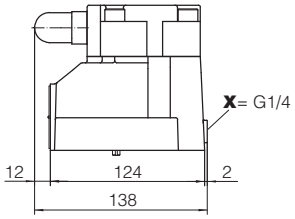


SAGAM-10/32/-LX**

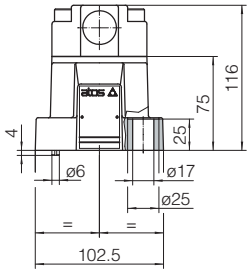
Mass: 5,7 Kg

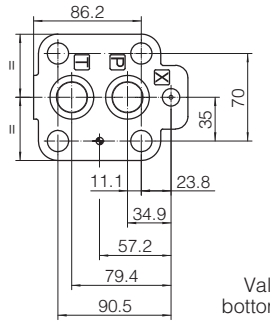
Overall dimensions refer to valves **DC** voltage, with connectors type 666

SAGAM-20



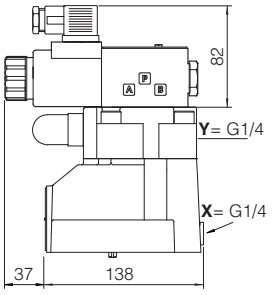
Mass: 4,8Kg





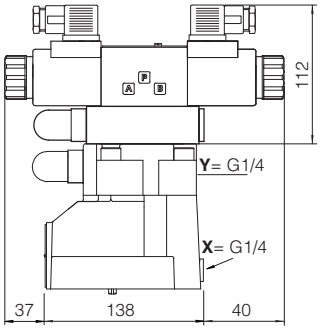
Valve's bottom view

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



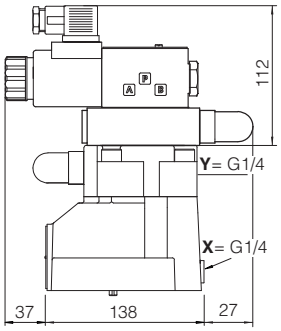
SAGAM-20/10/-EX**
SAGAM-20/11/-EX**

Mass: 6,3 Kg



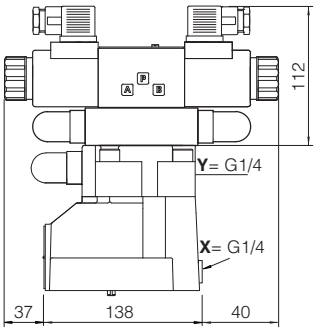
SAGAM-20/20/-EX**
SAGAM-20/21/-EX**

Mass: 7,4 Kg



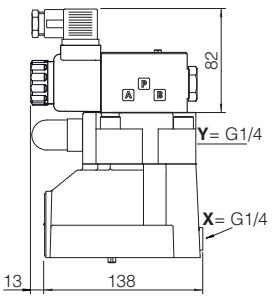
SAGAM-20/22/-EX**

Mass: 7,1 Kg



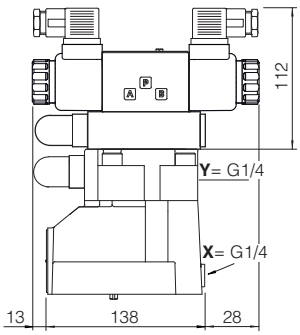
SAGAM-20/32/-EX**

Mass: 7,5 Kg



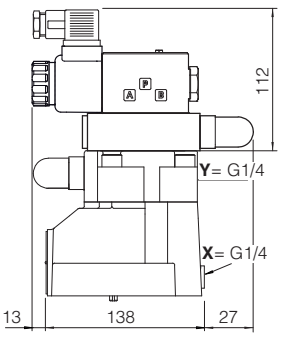
SAGAM-20/10/-LX**
SAGAM-20/11/-LX**

Mass: 6 Kg



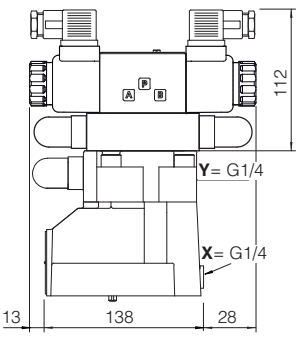
SAGAM-20/20/-LX**
SAGAM-20/21/-LX**

Mass: 6,8Kg



SAGAM-20/22/-LX**

Mass: 6,8 Kg

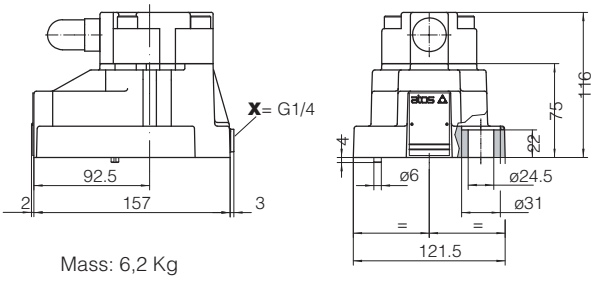


SAGAM-20/32/-LX**

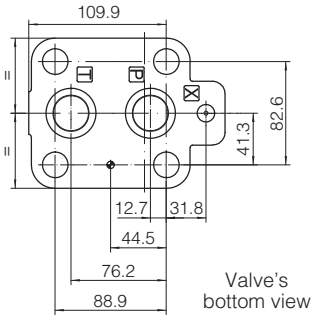
Mass: 7 Kg

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

SAGAM-32

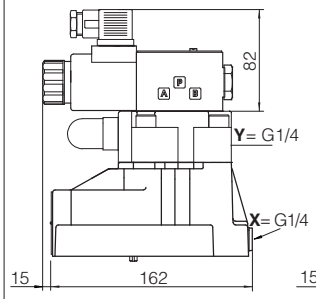


Mass: 6,2 Kg



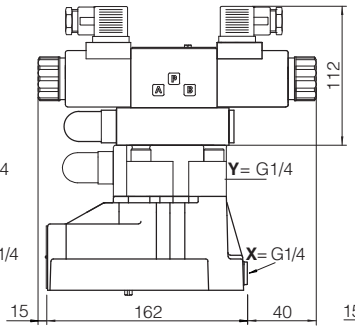
Valve's bottom view

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



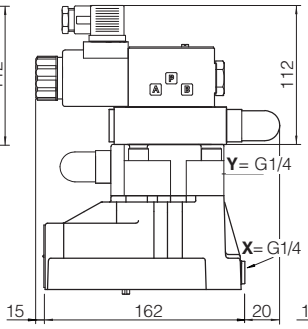
SAGAM-32/10/-EX**
SAGAM-32/11/-EX**

Mass: 7,7 Kg



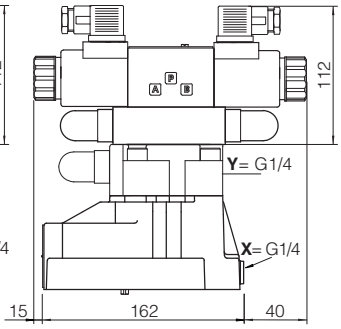
SAGAM-32/20/-EX**
SAGAM-32/21/-EX**

Mass: 8,8 Kg



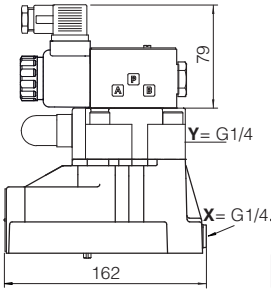
SAGAM-32/22/-EX**

Mass: 8,5 Kg



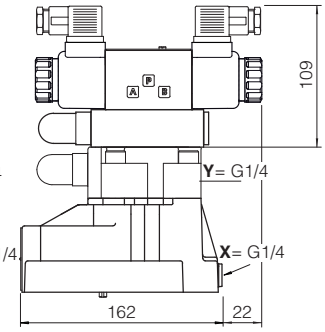
SAGAM-32/32/-EX**

Mass: 8,9 Kg



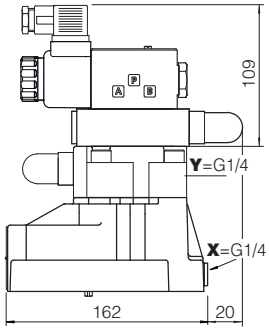
SAGAM-32/10/-LX**
SAGAM-32/11/-LX**

Mass: 7,4 Kg



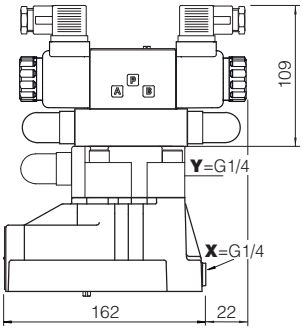
SAGAM-32/20/-LX**
SAGAM-32/21/-LX**

Mass: 8,2 Kg



SAGAM-32/22/-LX**

Mass: 8,2 Kg



SAGAM-32/32/-LX**

Mass: 8,4 Kg

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