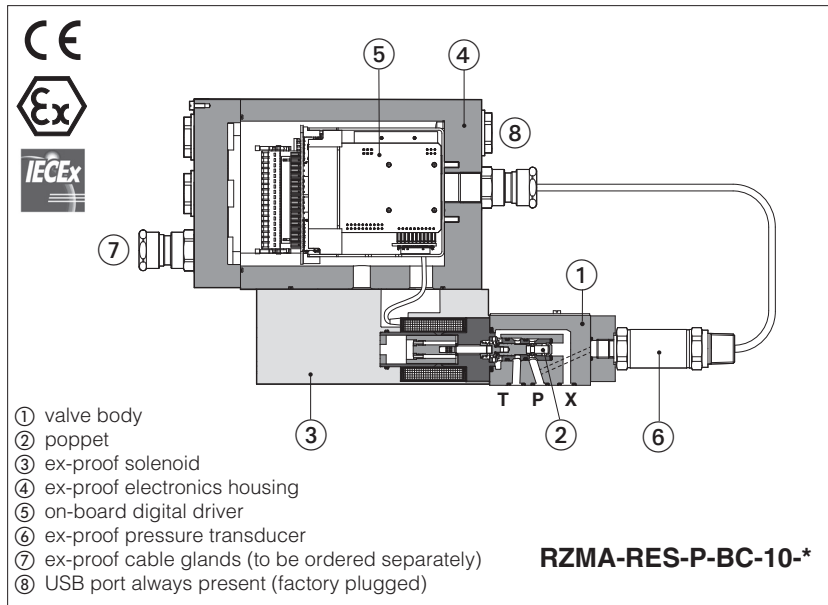


Ex-proof digital proportional relief valves high performance

direct or piloted, with pressure transducer and on board driver - **ATEX and IECEx**



RZMA-RES, AGMZA-RES

Ex-proof high performance digital proportional relief valves direct or piloted with pressure transducer for pressure closed loop controls.

They are equipped with ex-proof on-board digital driver, pressure transducer and proportional solenoid certified for safe operations in hazardous environments with potentially explosive atmosphere.

● Multicertification **ATEX** and **IECEx** for gas group **II 2G** and dust category **II 2D**

The flameproof enclosure of integral digital driver and solenoid prevents the propagation of accidental internal sparks or fire to the external environment.

The driver and solenoid are also designed to limit the surface temperature within the classified limits.

RZMA, direct or piloted:

Size: **06** - ISO 4401

Max flow: **4** and **40 l/min**

AGMZA, piloted:

Size: **10, 20** and **32** - ISO 6264

Max flow: **200, 400** and **600 l/min**

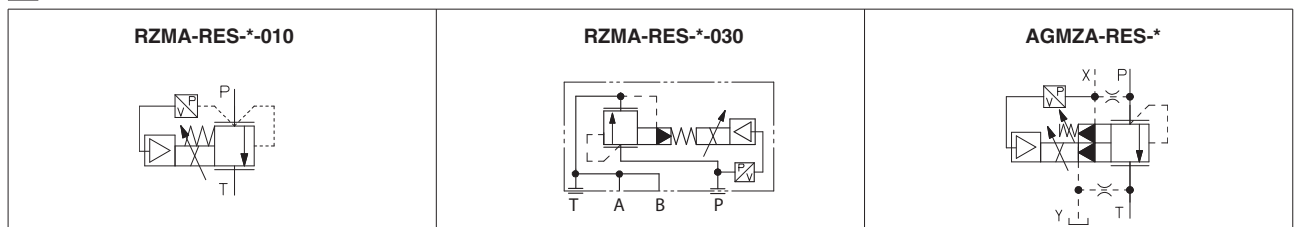
Max pressure: **250 bar**

1 MODEL CODE

RZMA	-	R	ES	-	P	-	NP	-	010	/	315	/	M	/	*	*	*	/	*	
Ex-proof proportional pressure relief valves RZMA = subplate size 06 AGMZA = subplate size 10, 20, 32			R = with pressure trasducer			ES = full integral driver			P = with integral ex-proof pressure transducer			Fieldbus interfaces, USB port always present: NP = Not Present BC = CANopen BP = PROFIBUS DP EH = EtherCAT			Seals material, see section 9: - = NBR PE = FKM BT = HNBR			Series number		
Valve size and configuration: RZMA: direct 010 = Qmax 4 l/min RZMA: piloted 030 = Qmax 40 l/min AGMZA: piloted 10, 20, 32 = Qmax 200, 400, 600 l/min			Dynamic response preset, see section 18: - = omit for PID 1 fast (default) 2 = PID 2 standard 3 = PID 3 smooth			Hydraulic options - only AGMZA (1): E = external pilot Y = external drain			Electronic options (1): I = current reference input and monitor 4÷20mA (omit for std voltage 0÷10Vdc)			Cable entrance threaded connection: M = M20x1,5			Max regulated pressure: 80 = 80 bar 180 = 180 bar 250 = 250 bar					

(1) Possible combined options: /EY, /EI, /YI

2 CONFIGURATIONS AND HYDRAULIC SYMBOLS (representation according to ISO 1219-1)



3 GENERAL NOTES

Atos digital proportionals valves are CE marked according to the applicable directives (e.g. Immunity and Emission EMC Directive). Installation, wirings and start-up procedures must be performed according to the general prescriptions shown in tech table **F003** and in the user manuals included in the E-SW-* programming software.

4 VALVE SETTINGS AND PROGRAMMING TOOLS

WARNING: The below operation must be performed in a safety area

Valve's functional parameters and configurations, can be easily set and optimized using Atos E-SW programming software connected via USB port to the digital driver (see table **GS003**). For fieldbus versions, the software permits valve's parameterization through USB port also if the driver is connected to the central machine unit via fieldbus.

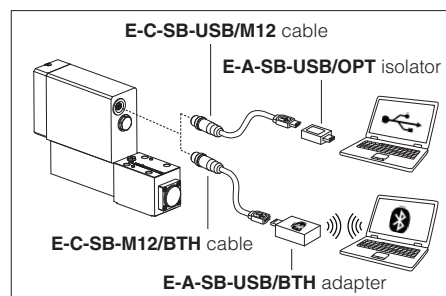
The software is available in different versions according to the driver's options (see table **GS500**):

E-SW-BASIC support: NP (USB) PS (Serial) IR (Infrared)
E-SW-FIELDBUS support: BC (CANopen) BP (PROFIBUS DP) EH (EtherCAT)
 EW (POWERLINK) EI (EtherNet/IP) EP (PROFINET)
E-SW-*/PQ support: valves with SP, SF, SL alternated control (e.g. E-SW-BASIC/PQ)

WARNING: drivers USB port is not isolated! For E-C-SB-USB/M12 cable, the use of isolator adapter is highly recommended for PC protection

WARNING: Bluetooth adapter is available only for European, USA and Canadian markets! Bluetooth adapter is certified according RED (Europe), FCC (USA) and ISED (Canada) directives

USB or Bluetooth connection



5 FIELDBUS - see tech. table **GS510**

Fieldbus allows valve direct communication with machine control unit for digital reference, valve diagnostics and settings. These execution allow to operate the valves through fieldbus or analog signals available on the terminal board.

6 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	RZMA-010 150 years, RZMA-030 and AGZMA 75 years, see technical table P007
Ambient temperature range	Standard = -20°C ÷ +60°C / PE option = -20°C ÷ +60°C / BT option = -40°C ÷ +60°C
Storage temperature range	Standard = -20°C ÷ +70°C / PE option = -20°C ÷ +70°C / BT option = -40°C ÷ +70°C
Surface protection	Zinc coating with black passivation - salt spray test (EN ISO 9227) > 200 h
Compliance	Explosion proof protection, see section 10 -Flame proof enclosure "Ex d" -Dust ignition protection by enclosure "Ex t" RoHs Directive 2011/65/EU as last update by 2015/65/EU REACH Regulation (EC) n°1907/2006

7 HYDRAULIC CHARACTERISTICS - based on mineral oil ISO VG 46 at 50 °C

Valve model	RZMA		AGMZA		
Size code	010	030	10	20	32
Valve size	06		10	20	32
Max regulated pressure [bar]	80 180		250		
Min regulated pressure [bar]	see min. pressure / flow diagrams at sections 20 21 22				
Max pressure at port P, A, B, X [bar]	315				
Max pressure at port T, Y [bar]	210				
Max flow [l/min]	4	40	200	400	600
Response time 0-100% step signal (depending on installation) (1) [ms]	≤ 70				
Hysteresis[% of the max pressure]	≤ 1,5				
Linearity[% of the max pressure]	≤ 3				
Repeatability[% of the max pressure]	≤ 2				

(1) Average response time value; the pressure variation in consequence of a modification of the reference input signal to the valve is affected by the stiffness of the hydraulic circuit: greater is the stiffness of the circuit, faster is the dynamic response

8 ELECTRICAL CHARACTERISTICS

Power supplies	Nominal : +24 VDC Rectified and filtered : VRMS = 20 ÷ 32 VMAX (ripple max 10 % VPP)			
Max power consumption	35 W			
Analog input signals	Voltage: range ±10 VDC (24 VMAX tollerant) Input impedance: Ri > 50 kΩ Current: range ±20 mA Input impedance: Ri = 500 Ω			
Insulation class	H (180°) Due to the occurring surface temperatures of the solenoid coils, the European standards ISO 13732-1 and EN982 must be taken into account			
Monitor outputs	Voltage: range 0 ÷ 10 VDC @ max 5 mA Current: range 0 ÷ 20 mA @ max 500 Ω load resistance			
Enable input	Range: 0 ÷ 9 Vdc (OFF state), 15 ÷ 24 Vdc (ON state), 9 ÷ 15 Vdc (not accepted); Input impedance: Ri > 87 kΩ			
Fault output	Output range : 0 ÷ 24 Vdc (ON state ≅ VL+ [logic power supply] ; OFF state ≅ 0 V) @ max 50 mA; external negative voltage not allowed (e.g. due to inductive loads)			
Pressure transducer power supply	+24VDC @ max 100 mA (E-ATRA-7 see tech table GX800)			
Alarms	Solenoid not connected/short circuit, cable break with current reference signal, over/under temperature, power supplies level, pressure transducer failure			
Protection degree to DIN EN60529	IP66/67 with relevant cable gland			
Duty factor	Continuous rating (ED=100%)			
Tropicalization	Tropical coating on electronics PCB			
Additional characteristics	Short circuit protection of solenoid current supply; current control by P.I.D. with rapid solenoid switching; protection against reverse polarity of power supply			
Electromagnetic compatibility (EMC)	According to Directive 2014/30/UE (Immunity: EN 61000-6-2; Emission: EN 61000-6-3)			
Communication interface	USB Atos ASCII coding	CANopen EN50325-4 + DS408	PROFIBUS DP EN50170-2/IEC61158	EtherCAT, EC 61158
Communication physical layer	not insulated USB 2.0 + USB OTG	optical insulated CAN ISO11898	optical insulated RS485	Fast Ethernet, insulated 100 Base TX

Note: a maximum time of 500 ms (depending on communication type) have be considered between the driver energizing with the 24 Vdc power supply and when the valve is ready to operate. During this time the current to the valve coils is switched to zero

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

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	20÷100 mm ² /s - max allowed range 15 ÷ 380 mm ² /s		
Max fluid contamination level	normal operation longer life	ISO4406 class 18/16/13 NAS1638 class 7 ISO4406 class 16/14/11 NAS1638 class 5	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 (1)	NBR, HNBR	HFC	

⚠ The ignition temperature of the hydraulic fluid must be 50°C higher than the max solenoid surface temperature

(1) Performance limitations in case of flame resistant fluids with water:

- max operating pressure = 210 bar
- max fluid temperature = 50°C

10 CERTIFICATION DATA

Valve type	RZMA, AGMZA		
Certifications	Multicertification and Group II ATEX IECEx		
Solenoid certified code	OZA-RES		
Type examination certificate (1)	<ul style="list-style-type: none"> • ATEX: TUV IT 18 ATEX 068 X • IECEx: IECEx TPS 19.0004X 		
Method of protection	<ul style="list-style-type: none"> • ATEX 2014/34/EU Ex II 2G Ex db IIC T6/T5/T4 Gb Ex II 2D Ex tb IIIC T85°C/T100°C/T135°C Db • IECEx Ex db IIC T6/T5/T4 Gb Ex tb IIIC T85°C/T100°C/T135°C Db 		
Temperature class	T6	T5	T4
Surface temperature	≤ 85 °C	≤ 100 °C	≤ 135 °C
Ambient temperature (2)	-40 ÷ +40 °C	-40 ÷ +55 °C	-40 ÷ +70 °C
Applicable standards	EN 60079-0 EN 60079-31 EN 60079-1	IEC 60079-0 IEC 60079-31 IEC 60079-1	IEC 60079-31
Cable entrance: threaded connection	M = M20x1,5		

(1) The type examiner certificates can be downloaded from www.atos.com

(2) The driver and solenoids are certified for minimum ambient temperature -40°C. in case the complete valve must withstand with minimum ambient temperature -40°C, select **/BT** in the model code.

⚠ **WARNING: service work performed on the valve by the end users or not qualified personnel invalidates the certification**

11 CABLE SPECIFICATION AND TEMPERATURE - Power supply and grounding cables have to comply with following characteristics:

Power supply and signals: section of wire = 1,0 mm ²	Grounding: section of external ground wire = 4 mm ²
--	---

11.1 Cable temperature

The cable must be suitable for the working temperature as specified in the "safety instructions" delivered with the first supply of the products.

Max ambient temperature [°C]	Temperature class	Max surface temperature [°C]	Min. cable temperature [°C]
40 °C	T6	85 °C	80 °C
55 °C	T5	100 °C	90 °C
70 °C	T4	135 °C	110 °C

12 CABLE GLANDS

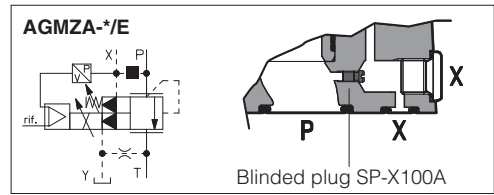
Cable glands with threaded connections M20x1,5 for standard or armoured cables have to be ordered separately, see tech table **KX800**

Note: a Loctite sealant type 545, should be used on the cable gland entry threads

13 HYDRAULIC OPTIONS - only for AGMZA

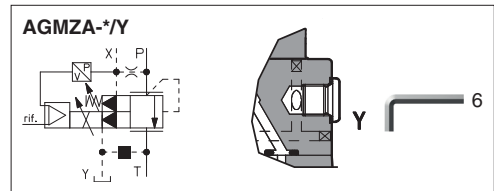
E = External pilot option to be selected when the pilot pressure is supplied from a different line respect to the P main line.
 With option E the internal connection between port P and X of the valve is plugged.
 The pilot pressure must be connected to the X port available on the valve's mounting surface or on main body (threaded pipe connection G 1/4").

Y = The external drain is mandatory in case the main line T is subjected to pressure peaks or it is pressurized.
 The Y drain port has a threaded connection G 1/4" available on the pilot stage body.



14 ELECTRONIC OPTIONS

I = It provides 4 ÷ 20 mA current reference signal, instead of the standard 0 ÷ 10 V_{dc}. Input signal can be reconfigured via software selecting between voltage and current, within a maximum range of ±10 V_{dc} or ±20 mA. It is normally used in case of long distance between the machine control unit and the valve or where the reference signal can be affected by electrical noise; the valve functioning is disabled in case of reference signal cable breakage.

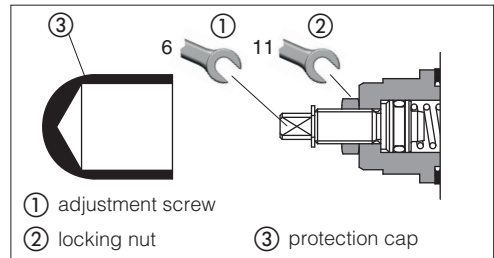


15 POSSIBLE COMBINED OPTIONS: /EY, /EI, /YI

16 MECHANICAL PRESSURE LIMITER - only for AGMZA

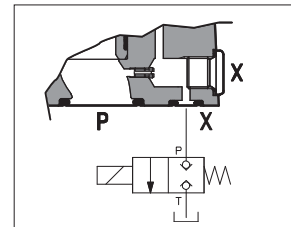
The AGMZA are provided with mechanical pressure limiter acting as protection against overpressure. For safety reasons the factory setting of the mechanical pressure limiter is fully unloaded (min pressure).
 At the first commissioning it must be set at a value lightly higher than the max pressure regulated with the proportional control.
 For the pressure setting of the mechanical pressure limiter, proceed according to following steps:

- apply the max reference input signal to the valve's driver. The system pressure will not increase until the mechanical pressure limiter remains unloaded.
- turn clockwise the adjustment screw ① until the system pressure will increase up to a stable value corresponding to the pressure setpoint at max reference input signal.
- turn clockwise the adjustment screw ① of additional 1 or 2 turns to ensure that the mechanical pressure limiter remains closed during the proportional valve working.



17 REMOTE PRESSURE UNLOADING - only for AGMZA

The **P** main line can be remotely unloaded by connecting the valve X port to a solenoid valve as shown in the below scheme (venting valve).
 This function can be used in emergency to unload the system pressure by-passing the proportional control.



18 DYNAMIC RESPONSE - 4 pressure PIDs

The valve is provided with 4 PIDs configurations to match different hydraulic conditions. The required PID configuration can be selected before the valve commissioning, through Atos E-SW software via USB port.
 Only for **RES** the PID can be also selected in real time, through PLC via fieldbus.

PID	Dynamic response
1	Fast - default (1)
2	Standard
3	Smooth
4	Open Loop

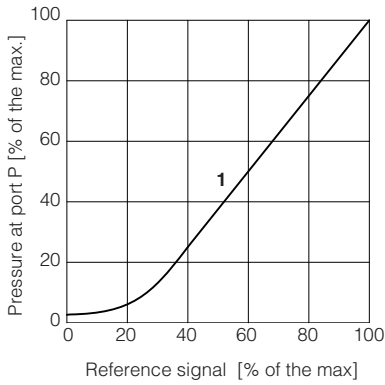
(1) interchangeable with previous TERS version

19 PRESSURE TRANSDUCER FAILURE

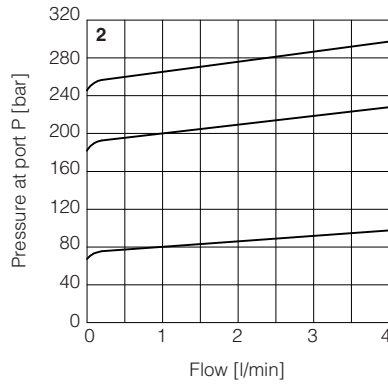
In case of pressure transducer failure, the valve's reaction can be configured through Atos E-SW software to:
 - cut off the current to solenoid, therefore the regulated pressure will be reduced to minimum value (default setting)
 - automatically switch the pressure control from closed loop (PID1,2,3) to open loop (PID4), to let the valve to temporarily operate with reduced regulation accuracy

20 DIAGRAMS RZMA-010 (based on mineral oil ISO VG 46 at 50 °C)

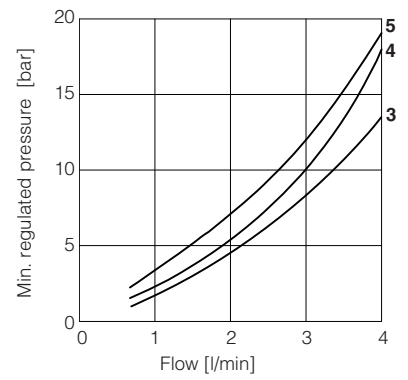
1 Regulation diagrams
with flow rate Q = 1 l/min



2 Pressure/flow diagrams
with reference signal set at Q = 1 l/min



3-5 Min. pressure/flow diagrams
with zero reference signal

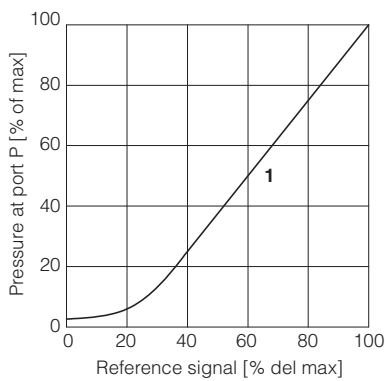


3 = RZMA/80
4 = RZMA/180
5 = RZMA/250

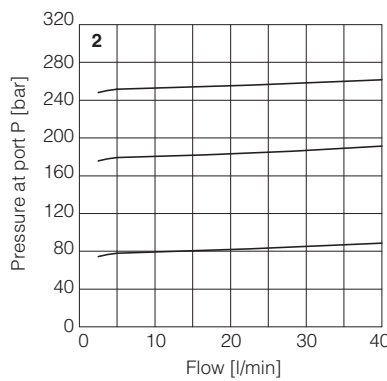
Note: the presence of counter pressure at port T can affect the pressure regulation and the minimum pressure

21 DIAGRAMS RZMA-030 (based on mineral oil ISO VG 46 at 50 °C)

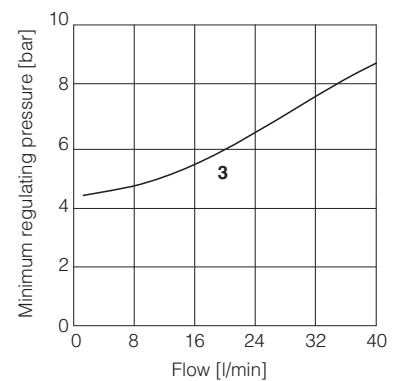
1 Regulation diagrams
with flow rate Q = 10 l/min



2 Pressure/flow diagrams
with reference signal set at Q = 10 l/min



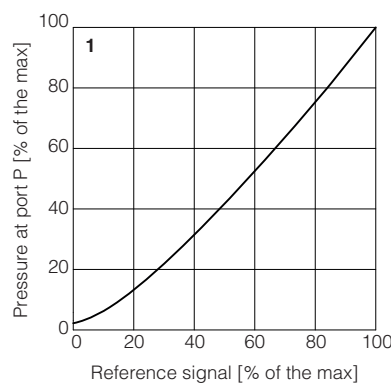
3 Min. pressure/flow diagrams
with zero reference signal



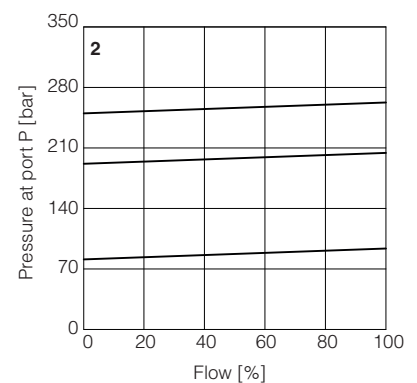
Note: the presence of counter pressure at port T can affect the pressure regulation and the minimum pressure

22 DIAGRAMS AGMZA (based on mineral oil ISO VG 46 at 50 °C)

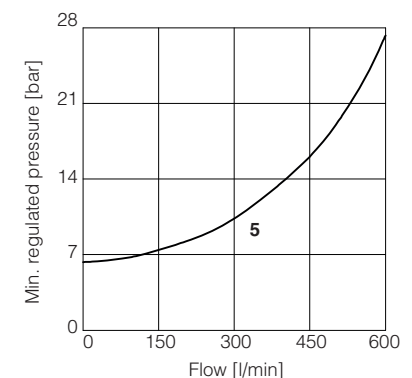
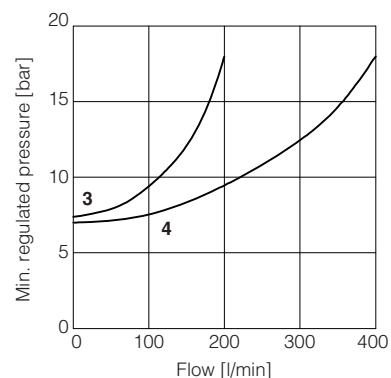
1 = Regulation diagrams
with flow rate Q = 50 l/min



2 = Pressure/flow diagrams
with reference signal set at Q = 50 l/min



3-5 = Min. pressure/flow diagrams
with zero reference signal




3 = AGMZA*-10
4 = AGMZA*-20
5 = AGMZA*-32

23 POWER SUPPLY AND SIGNALS SPECIFICATIONS

Generic electrical output signals of the valve (e.g. fault or monitor signals) must not be directly used to activate safety functions, like to switch-ON/OFF the machine's safety components, as prescribed by the European standards (Safety requirements of fluid technology systems and components-hydraulics, EN-982).

23.1 Power supply (V+ and V0)

The power supply must be appropriately stabilized or rectified and filtered: apply at least a 10000 $\mu\text{F}/40\text{ V}$ capacitance to single phase rectifiers or a 4700 $\mu\text{F}/40\text{ V}$ capacitance to three phase rectifiers.

 A safety fuse is required in series to each power supply: 2,5 A time lag fuse.

23.2 Power supply for driver's logic and communication (VL+ and VL0)

The power supply for driver's logic and communication must be appropriately stabilized or rectified and filtered: apply at least a 10000 $\mu\text{F}/40\text{ V}$ capacitance to single phase rectifiers or a 4700 $\mu\text{F}/40\text{ V}$ capacitance to three phase rectifiers.

The separate power supply for driver's logic on pin 3 and 4, allow to remove solenoid power supply from pin 1 and 2 maintaining active the diagnostics, USB and fieldbus communications.

 A safety fuse is required in series to each driver's logic and communication power supply: 500 mA fast fuse.

23.3 Pressure reference input signal (P_INPUT+)

The driver controls in closed loop the current to the valve pressure proportionally to the external reference input signal.

Reference input signal is factory preset according to selected valve code, defaults are 0 \div 10 Vdc for standard and 4 \div 20 mA for /I option.

Input signal can be reconfigured via software selecting between voltage and current, within a maximum range of $\pm 10\text{ Vdc}$ or $\pm 20\text{ mA}$.

Drivers with fieldbus interface can be software set to receive reference signal directly by the machine control unit (fieldbus reference).

Analog reference input signal can be used as on-off commands with input range 0 \div 24Vdc.

23.4 Pressure monitor output signal (P_MONITOR)

The driver generates an analog output signal proportional to the actual pressure of the valve; the monitor output signal can be software set to show other signals available in the driver (e.g. analog reference, fieldbus reference).

Monitor output signal is factory preset according to selected valve code, defaults settings are 0 \div 10 Vdc for standard and 4 \div 20 mA for /I option.

Output signal can be reconfigured via software selecting between voltage and current, within a maximum range of 0 \div 10 Vdc or 0 \div 20 mA.

23.5 Enable input signal (ENABLE)

To enable the driver, supply a 24 VDC on pin 6: Enable input signal allows to enable/disable the current supply to the solenoid, without removing the electrical power supply to the driver; it is used to active the communication and the other driver functions when the valve must be disabled for safety reasons. This condition **does not comply** with norms IEC 61508 and ISO 13849.

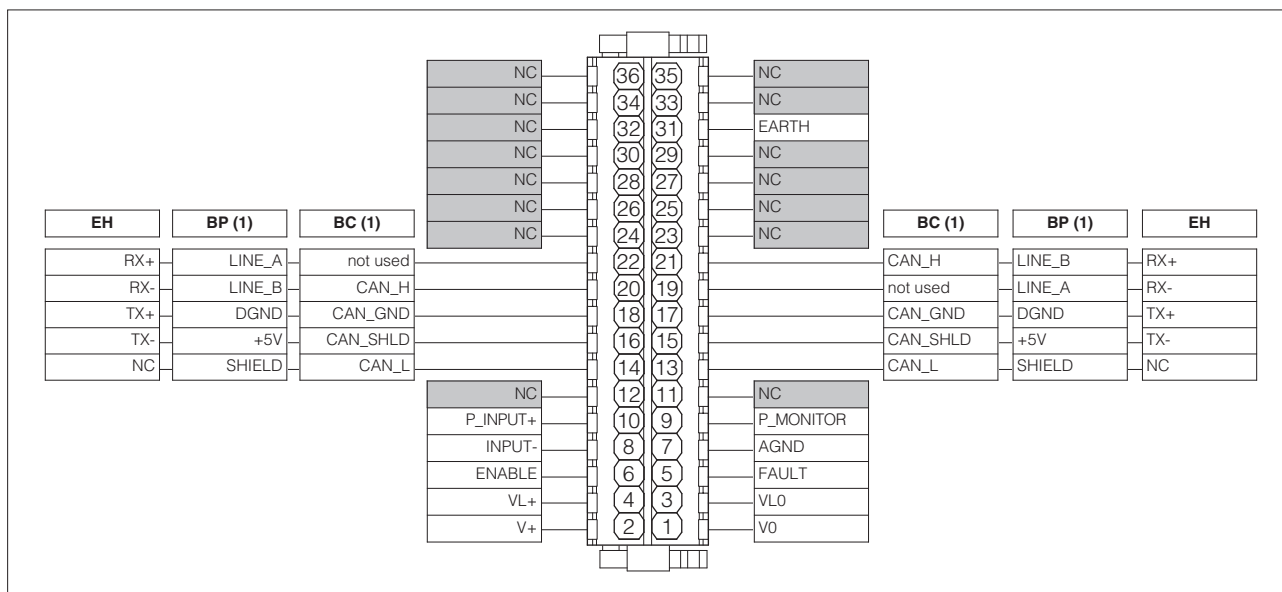
Enable input signal can be used as generic digital input by software selection.

23.6 Fault output signal (FAULT)

Fault output signal indicates fault conditions of the driver (solenoid short circuits/not connected, reference signal cable broken for 4 \div 20 mA input, spool position transducer cable broken, etc.). Fault presence corresponds to 0 Vdc, normal working corresponds to 24 Vdc.

Fault status is not affected by the Enable input signal. Fault output signal can be used as digital output by software selection.

24 TERMINAL BOARD OVERVIEW



(1) For BC and BP executions the fieldbus connections have an internal pass-through connection

25 ELECTRONIC CONNECTIONS

25.1 Main connections signals

CABLE ENTRANCE	PIN	SIGNAL	TECHNICAL SPECIFICATIONS	NOTES
A	1	V0	Power supply 0 Vdc	Gnd - power supply
	2	V+	Power supply 24 Vdc	Input - power supply
	3	VL0	Power supply 0 Vdc for driver's logic and communication	Gnd - power supply
	4	VL+	Power supply 24 Vdc for driver's logic and communication	Input - power supply
	5	FAULT	Fault (0 Vdc) or normal working (24 Vdc), referred to VL0	Output - on/off signal
	6	ENABLE	Enable (24 Vdc) or disable (0 Vdc) the driver, referred to VL0	Input - on/off signal
	7	AGND	Analog ground	Gnd - analog signal
	8	INPUT-	Negative pressure reference input signal for INPUT+	Input - analog signal
	9	P_MONITOR	Pressure monitor output signal: ±10 Vdc / ±20 mA maximum range, referred to AGND	Output - analog signal Software selectable
	10	P_INPUT+	Pressure reference input signal: ±10 Vdc / ±20 mA maximum range (4÷20 mA only for /I option)	Input - analog signal Software selectable
	31	EARTH	Internally connected to driver housing	

25.2 USB connector - M12 - 5 pin always present

CABLE ENTRANCE	PIN	SIGNAL	TECHNICAL SPECIFICATIONS
B	1	+5V_USB	Power supply
	2	ID	Identification
	3	GND_USB	Signal zero data line
	4	D-	Data line -
	5	D+	Data line +

Driver view
(female)

25.3 BC fieldbus execution connections

CABLE ENTRANCE	PIN	SIGNAL	TECHNICAL SPECIFICATIONS
C1	14	CAN_L	Bus line (low)
	16	CAN_SHLD	Shield
	18	CAN_GND	Signal zero data line
	20	CAN_H	Bus line (high)
	22	not used	Pass-through connection (1)

CABLE ENTRANCE	PIN	SIGNAL	TECHNICAL SPECIFICATIONS
C2	13	CAN_L	Bus line (low)
	15	CAN_SHLD	Shield
	17	CAN_GND	Signal zero data line
	19	not used	Pass-through connection (1)
	21	CAN_H	Bus line (high)

(1) pin 19 and 22 can be fed with external +5V supply of CAN interface

25.4 BP fieldbus execution connections

CABLE ENTRANCE	PIN	SIGNAL	TECHNICAL SPECIFICATIONS
C1	14	SHIELD	
	16	+5V	Power supply
	18	DGND	Data line and termination signal zero
	20	LINE_B	Bus line (low)
	22	LINE_A	Bus line (high)

CABLE ENTRANCE	PIN	SIGNAL	TECHNICAL SPECIFICATIONS
C2	13	SHIELD	
	15	+5V	Power supply
	17	DGND	Data line and termination signal zero
	19	LINE_A	Bus line (high)
	21	LINE_B	Bus line (low)

25.5 EH fieldbus execution connections

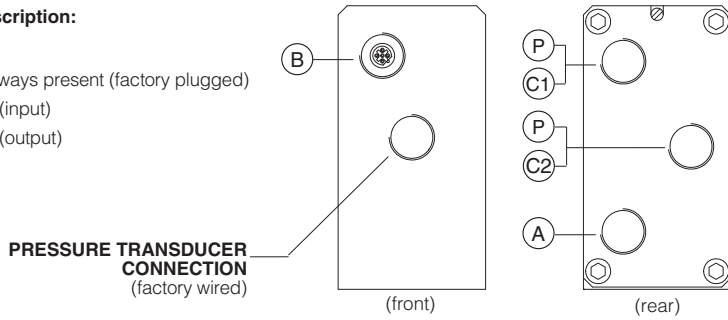
CABLE ENTRANCE	PIN	SIGNAL	TECHNICAL SPECIFICATIONS
C1 (input)	14	NC	do not connect
	16	TX-	Transmitter
	18	TX+	Transmitter
	20	RX-	Receiver
	22	RX+	Receiver

CABLE ENTRANCE	PIN	SIGNAL	TECHNICAL SPECIFICATIONS
C2 (output)	13	NC	do not connect
	15	TX-	Transmitter
	17	TX+	Transmitter
	19	RX-	Receiver
	21	RX+	Receiver

CABLE ENTRANCE OVERVIEW

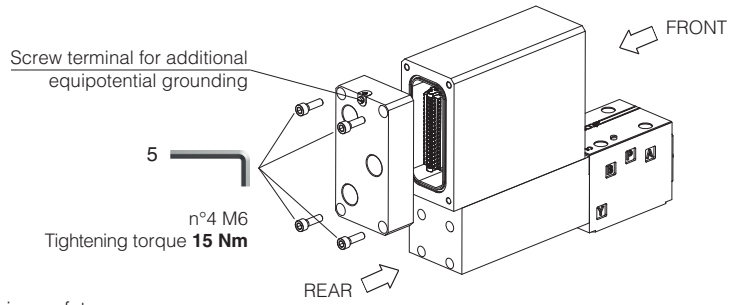
Cables entrance description:

- (A) main connections
- (B) USB connector always present (factory plugged)
- (C1) fieldbus interface (input)
- (C2) fieldbus interface (output)
- (P) threaded plug



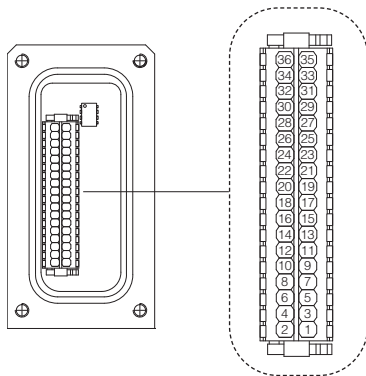
TERMINAL BOARD AND FIELDBUS TERMINATOR

Remove the 4 screws of driver's rear cover to access terminal board and fieldbus terminator

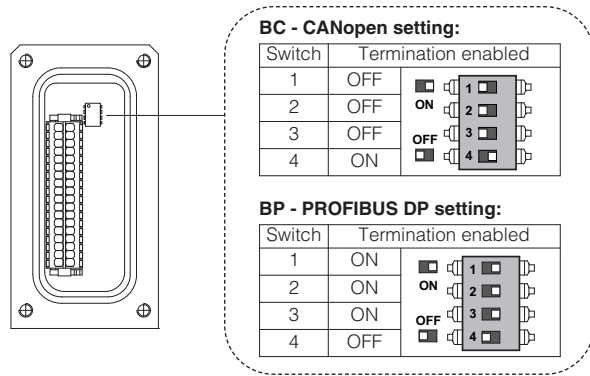


WARNING: the above operation must be performed in a safety area

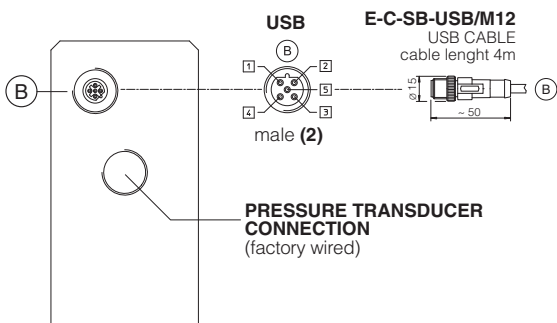
Terminal board - see section 22



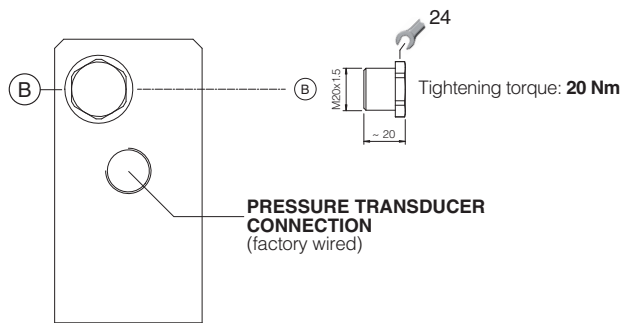
Fieldbus terminator only for BC and BP executions (1)



USB CONNECTOR

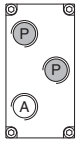
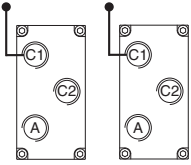
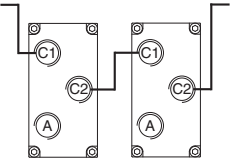


METALLIC PROTECTION CAP - supplied with the valves



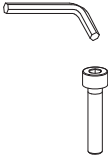

(1) Drivers with BC and BP fieldbus interface are delivered by default 'Not Terminated'. All switches are set OFF
 (2) Pin layout always referred to driver's view

26.1 Cable glands and threaded plug

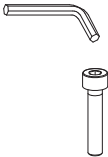

Communication interfaces	To be ordered separately				Cable entrance overview	Notes
	Cable gland quantity	Cable gland entrance	Threaded plug quantity	Threaded plug entrance		
NP	1	A	none	none		Cable entrance P are factory plugged Cable entrance A is open for costumers
BC, BP, EH "via stub" connection	2	C1 A	1	C2		Cable entrance A, C1, C2 are open for costumers
BC, BP, EH "daisy chain" connection	3	C1 C2 A	none	none		Cable entrance A, C1, C2 are open for costumers

27 FASTENING BOLTS AND SEALS

27.1 RZMA valves

	RZMA-RES-*-010	RZMA-RES-*-030
	Fastening bolts: 4 socket head screws M5x50 class 12.9 Tightening torque = 8 Nm	Fastening bolts: 4 socket head screws M5x50 class 12.9 Tightening torque = 8 Nm
	Seals: 2 OR 108 Diameter of ports P, T: Ø 5 mm	Seals: 4 OR 108 Diameter of ports P, T: Ø 7,5 mm

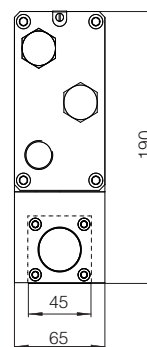
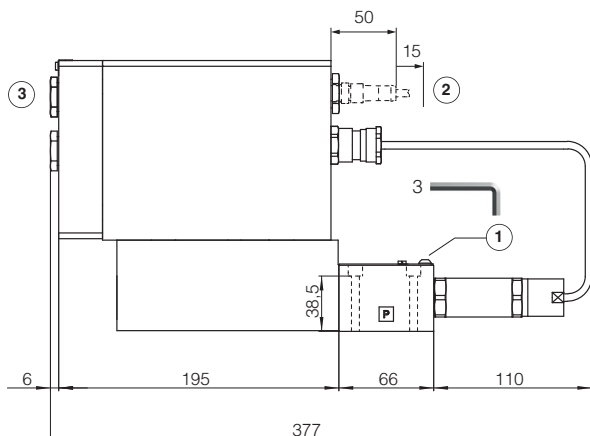
27.2 AGMZA valves

	AGMZA-RES-*-10	AGMZA-RES-*-20	AGMZA-RES-*-32
	Fastening bolts: 4 socket head screws M12x35 class 12.9 Tightening torque = 125 Nm	Fastening bolts: 4 socket head screws M16x50 class 12.9 Tightening torque = 300 Nm	Fastening bolts: 4 socket head screws M20x60 class 12.9 Tightening torque = 600 Nm
	Seals: 2 OR 123 Diameter of ports P, T: Ø 14 mm 1 OR 109/70 Diameter of port X: Ø 3,2 mm	Seals: 2 OR 4112 Diameter of ports P, T: Ø 24 mm 1 OR 109/70 Diameter of port X: Ø 3,2 mm	Seals: 2 OR 4131 Diameter of ports P, T: Ø 28 mm 1 OR 109/70 Diameter of port X: Ø 3,2 mm

RZMA-RES-*-010

ISO 4401: 2005
 Mounting surface: 4401-03-02-0-05 (see table P005)
 (without ports A and B)

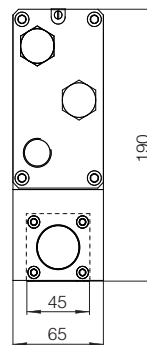
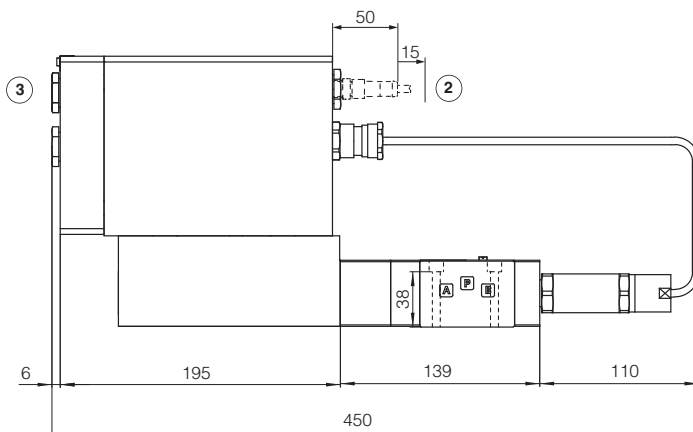
Mass [kg]	
RZMA-RES-*-010	8.5



RZMA-RES-*-030

ISO 4401: 2005
 Mounting surface: 4401-03-02-0-05 (see table P005)
 (ports A and B connected to port T)

Mass [kg]	
RZMA-RES-*-030	9.5



- ① = Air bleed off
- ② = Space to remove the connectors
- ③ = The dimensions of cable glands must be considered (see tech table **KX800**)

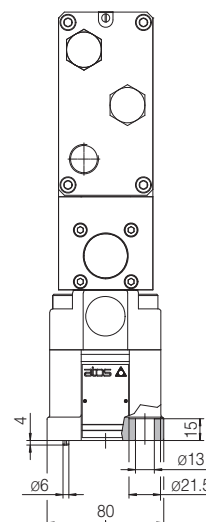
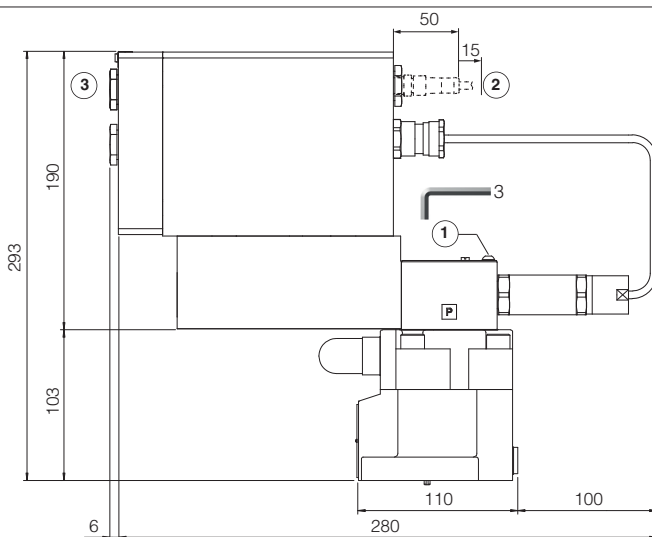
29 INSTALLATION DIMENSIONS FOR AGMZA [mm]

AGMZA-RES-*-10

ISO 6264: 2007

Mounting surface: 6264-06-09-1-97
(see table P005)

Mass [kg]	
AGMZA-RES-*-10	12,1

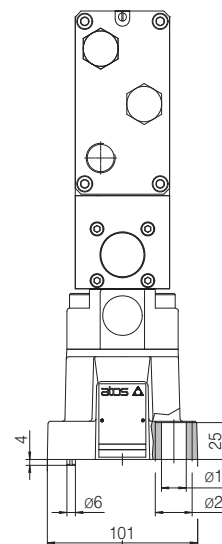
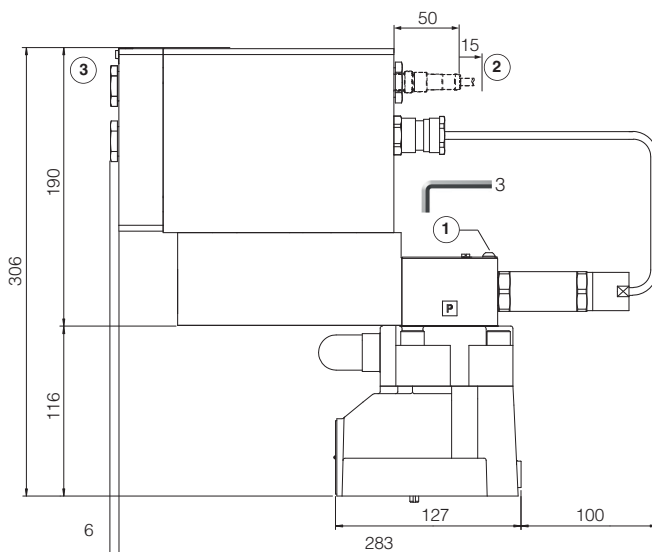


AGMZA-RES-*-20

ISO 6264: 2007

Mounting surface: 6264-08-13-1-97
(see table P005)

Mass [kg]	
AGMZA-RES-*-20	13,3

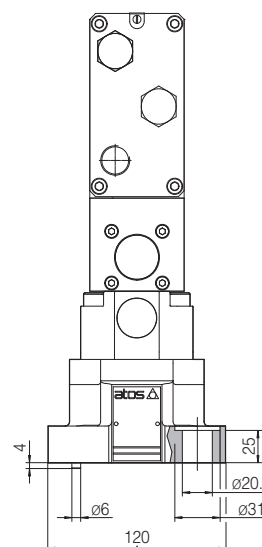
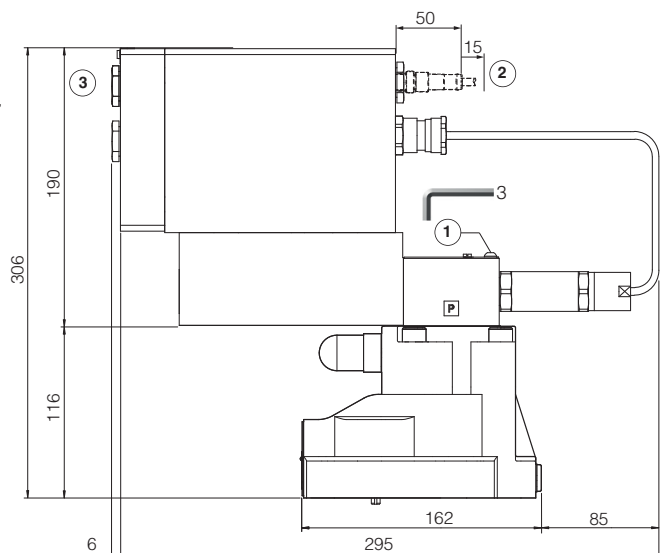


AGMZA-RES-*-32

ISO 6264: 2007

Mounting surface: 6264-10-17-1-97
(see table P005)
(with M20 fixing holes
instead of standard M18)

Mass [kg]	
AGMZA-RES-*-32	15,3



- ① = Air bleed off
- ② = Space to remove the connectors
- ③ = The dimensions of cable glands must be considered (see tech table **KX800**)

30 RELATED DOCUMENTATION

X010 Basics for electrohydraulics in hazardous environments
X020 Summary of Atos ex-proof components certified to ATEX, IECEx, EAC, PESO
FX900 Operating and maintenance information for ex-proof proportional valves

GS500 Programming tools
GS510 Fieldbus
KX800 Cable glands for ex-proof valves
P005 Mounting surfaces for electrohydraulic valves