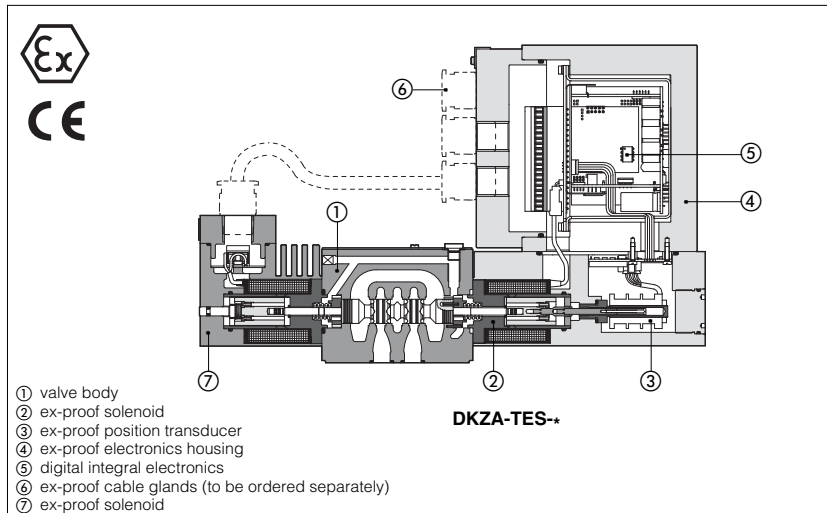


Ex-proof proportional valves with integral digital electronics

with or without integral position or pressure transducer - ATEX certification



Ex-proof ZA valves are proportional valves equipped with specific solenoids and integral digital electronics certified to ATEX 94/9/CE, protection mode:

- Ex II 2 G Ex d IIC T6/T5/T4/T3 (group II for surface plants with gas or vapours environment, category 2, zone 1 and 2)

The solenoid and the electronics housing are designed to contain the possible explosion which could be caused by the presence of the gas mixture inside the housing, thus avoiding dangerous propagation in the external environment. They are also designed to limit the external temperature according to the certified class to avoid the self ignition of the explosive mixture present in the environment.

The integral digital electronics in explosion proof construction provides consistent advantages respect to the separated analog drivers for ex-proof valves:

- compact execution
- simplified valve wiring
- reduced risk of electromagnetic disturbances on the valve's transducer feedback signal
- possibility to exploit in hazardous environment all the advantages provided by the standard digital electronics: software setting of the main functional parameters as bias, ramps, scale, linearization of the hydraulic regulation characteristic
- complete diagnostics of the driver status, and fault condition.

Following communication interfaces are available:

- PS, Serial communication interface for the software setting of the functional parameters. The valve is operated by analogue command signal.
 - BC, CANopen interface
 - BP, PROFIBUS DP interface
- The valves with -BC and -BP interfaces can be integrated into a fieldbus communication network and thus digitally operated by the machine control unit.

The ex-proof digital integral electronics is available for the full range of proportional valves, as shown in the following pages.

1 EXPLOSION PROOF CERTIFICATION MAIN DATA

ATEX certification	Ex II 2G Ex d IIC T6/T5/T4/T3			
VALVE TYPE	DOUBLE SOLENOID VALVES (with or without transducer)		SINGLE SOLENOID VALVES (with or without transducer)	
Temperature class (only for Group II)	T4	T3 (option /7)	T6	T5 (option /7)
Surface temperature	≤ 135 °C	≤ 200 °C	≤ 85 °C	≤ 100 °C
Ambient temperature	-20 ÷ +40 °C	-20 ÷ +60 °C	-20 ÷ +45 °C	-20 ÷ +60 °C
Protection degree	IP 66 According to IEC 144 when correctly coupled with the relevant cable gland see section 20			
Mechanical construction	Flame proof housing classified Ex d, according to EN 60079-0: 2006, EN 60079-1: 2007			
Cable entrance and electrical wiring	Internal terminal board for cable connections M20x1.5 threaded connection for cable entrance			

Note: This technical table contains information about ex-proof certification data, model codes, dimensions and wiring of the ex-proof proportional valves with integral digital electronics.

For detailed information about:


- valve's functional characteristics and mounting surface dimensions
 - digital drivers technical data and functional parameters setting
- see the relevant technical tables of the standard proportional valves and digital drivers.

2 MAIN CHARACTERISTICS OF EX-PROOF PROPORTIONAL VALVES

Assembly position	Any position
Subplate surface finishing	Roughness index, \sqrt{Ra} flatness ratio 0,01/100 (ISO 1101)
Ambient temperature	See section 11
Fluid	Hydraulic oil as per DIN 51524 ... 535 for other fluids see model code sections
Recommended viscosity	15 ÷ 100 mm ² /s at 40°C (ISO VG 15÷100)
Fluid contamination class	ISO 18/15 achieved with in line filters of 10 µm and $\beta_{10} \geq 75$ (recommended)
Fluid temperature	-20°C +60°C (standard and /WG seals) -20°C +80°C (/PE seals)

3 CERTIFICATION

In the following are resumed the valves marking according to ATEX 94/9/CE

 = Equipment for explosive atmospheres

II = Group II for surfaces plants

2 = High protection (equipment category)

G = For gas and vapours

d = Flame proof housing



IIC = Gas group


T6/T5/T4/T3 = Temperature class of solenoid surface referred to the max ambient temperature

Zone 1 = Possibility of explosive atmosphere during normal functioning

Zone 2 = Low probability of explosive atmosphere

2.1 EXAMPLE OF NAMEPLATE MARKING

MODEL N° 
 SERIAL N° Atos spa Sesto Calende Italy
 CE 0722  II 2G Exd IIC T IP66
 ATEX 035 Supply 24VDC or 21÷33Vmax
 Tamb. -20 ÷ + °C 35 W
 connect by cable suitable for temp. ≥ °C
1-733
 Notified body and certificate number
 Marking according to ATEX Directive

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

4 MODEL CODE OF EX-PROOF PROPORTIONAL DIRECTIONAL VALVES DIRECT OPERATED

DHZA - TES - PS - 0 7 1 - L 5 / M / 7 ** / *

DHZA = size 06
DKZA = size 10

AES = without integral position transducer
TES = with integral position transducer

Communication interfaces
PS = Serial
BC = CANopen
BP = PROFIBUS DP

Valve size (ISO 4401)
DHZA **DKZA**
0 = size 06 **1** = size 10

Configuration: DHZA and DKZA see section 5
5 = external plus central position, spring centered
7 = 3 positions, spring centered

Spool overlapping in central position, DHZA and DKZA see section 5
0 = zero overlapping (only for -TES)
1 = P, A, B, T positive overlapping
2 = only for DKZA-TES-172-S5 (see note 2)
3 = P positive overlapping; A, B, T, negative

Synthetic fluids:
WG = water-glycol
PE = phosphate ester

Series number

Options:

- 7** = for ambient temperature up to 60°C
- B** = solenoid with integral digital electronics at side of port A
- I** = current reference (4±20mA)
- Y** = external drain

Cable entrance threaded connection:
M = M20x1,5 (6H/6g)

Spool size: see section 5

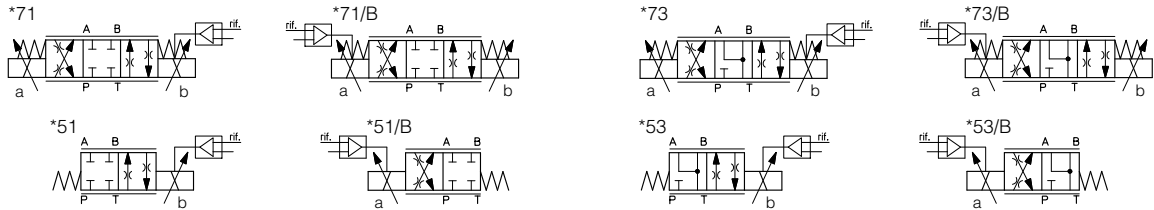
Spool type

L = linear; **S** = progressive; **D** = as **S**, but with P-A = Q, P-B = Q/2

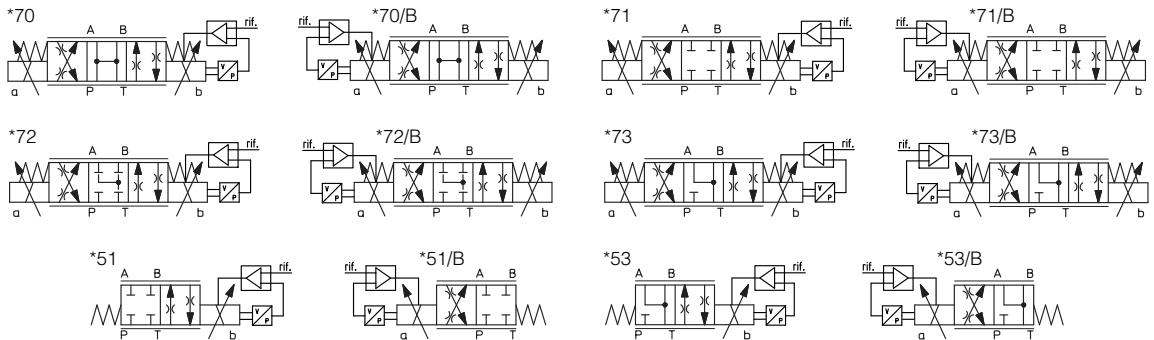
Note: For the valves functional characteristics see:
table **F160** (DHZA-AES, DKZA-AES); table **F165** (DHZA-TES, DKZA-TES)
For mounting surface dimensions see table **P005**
For the digital drivers technical data and functional parameters setting, see:
table **G115** (-AES); **G210** (-TES)

5 HYDRAULIC CHARACTERISTICS of DHZA and DKZA (based on mineral oil ISO VG 46 at 50 °C)

Hydraulic symbols of **-AES** version



Hydraulic symbols of **-TES** version



Valve model	DHZA-AES				DHZA-TES				DKZA-AES				DKZA-TES					
	1, 3		1, 3		1, 3		0		1, 3		1, 3		0		2		1, 3	
Spool overlapping	1, 3		1, 3		1, 3		0		1, 3		1, 3		0		2		1, 3	
Spool type and size	L14		L1		S3, L3, D3		L5		S5, L5, D5		S3, L3		L5		S5		S5, L5, D5	
Pressure limits [bar]	ports P, A, B = 350; T = 160 (250 with external drain /Y)										ports P, A, B = 315; T = 160 (250 with external drain /Y)							
Δp max P-T [bar]	70		70		50		50		40		40		40		40		40	
Max flow at Δp = 10 bar (P-T) [l/min]	1		4,5		17		28		45		60		45		60		105	
Max flow at Δp = 30 bar (P-T) [l/min]	2		8		30		50		80		105		80		105		105	
Max flow at Δp max (P-T) [l/min]	3		12		45		60		100		110		100		110		110	
Response time (1) [ms]	< 30 (-AES) < 15 (-TES)										< 40 (-AES) < 20 (-TES)							
Hysteresis [%]	≤ 5% (-AES) ≤ 0,2% (-TES)										≤ 5% (-AES) ≤ 0,2% (-TES)							
Repeatability	± 1% (-AES) ± 0,1% (-TES)										± 1% (-AES) ± 0,1% (-TES)							
Thermal drift (only -TES)	zero point displacement < 1% at ΔT = 40°C																	

(1) Response times at step signal (0%→100%) are measured from 10% to 90% of step value and are strictly referred to the valve regulation.
(2) The configuration type 2 provides the same characteristic of type 1, but avoiding the pressurization of A and B ports with spool in rest position.

6 MODEL CODE OF EX-PROOF PROPORTIONAL DIRECTIONAL VALVES PILOT OPERATED

DPZA - LES - PS - 2 7 1 - L 5 / M / 7 ** / *

DPZA = size 10
= size 16
= size 25

AES = without integral position transducer
LES = with double integral position transducer

Communication interfaces

PS = Serial
BC = CANopen
BP = PROFIBUS DP

Valve size (ISO 4401)

1 = size 10
2 = size 16
3 = size 25

Configuration: see section 7

5 = external plus central position, spring centered
7 = 3 positions, spring centered

Spool overlapping in central position, see section 7

0 = zero overlapping (only for -LES with spool type L)

1 = P, A, B, T positive overlapping
3 = P positive overlapping; A, B, T, negative

Synthetic fluids:
WG = water-glycol
PE = phosphate ester

Series number

Options:

7 = for ambient temperature up to 60°C
B = solenoid with integral digital electronics at side of port A of main stage for -AES version and at side of port B for -LES version
D = internal drain
E = external pilot
G = pressure reducing valve for piloting
I = current reference (4÷20mA)

Cable entrance threaded connection:

M = M20x1,5 (6H/6g)

Spool size: see section 7

Spool type

L = linear; **S** = progressive; **D** = as **S**, but with P-A = Q, P-B = Q/2

Note: For the valves functional characteristics see:

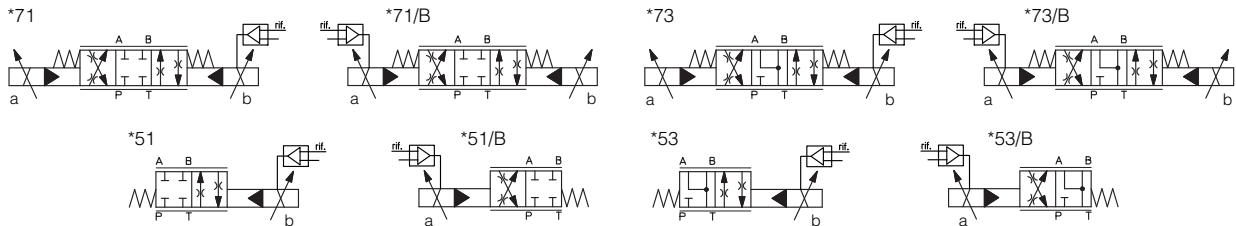
table **F170** (DPZA-AES); table **F175** (DPZA-LES)

For mounting surface dimensions see table **P005**

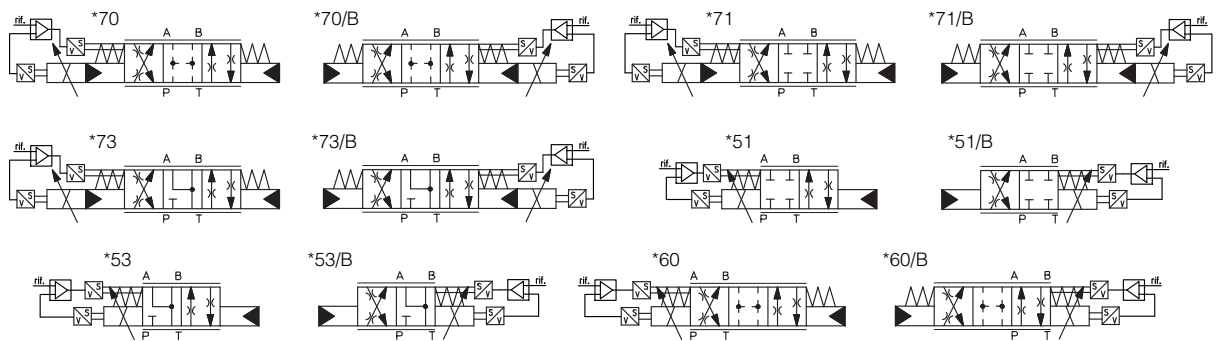
For the digital drivers technical data and functional parameters setting, see: table **G115** (-AES); **G210** (-LES)

7 HYDRAULIC CHARACTERISTICS OF DPZA-AES AND DPZA-LES (based on mineral oil ISO VG 46 at 50 °C)

Hydraulic symbols of **-AES** version



Hydraulic symbols of **-LES** version



Valve model	DPZA-1			DPZA-2					DPZA-3			
	L5 (2)	S5	D5	S3	D3	L5 (2)	S5	D5	L5 (2)	S5	D5	
Spool type and size	L5 (2)	S5	D5	S3	D3	L5 (2)	S5	D5	L5 (2)	S5	D5	
Pressure limits [bar]	Ports P, A, B, X = 350; T = 250; Y = 0											
Δp max P-T [bar]	70			60								
Max flow [l/min]												
at $\Delta p = 10$ bar (P-T)	100	100	100 : 60	130	130 : 80	200	180	180 : 130	390	360	360 : 220	
at $\Delta p = 30$ bar (P-T)	160	160	160 : 100	225	225 : 135	340	310	310 : 225	680	620	620 : 380	
at Δp max = (P-T)	190	190	190 : 115	300	300 : 180	500	500	500 : 360	800	800	800 : 490	
Response time (1) [ms]	<80 (AES) <50 (LES)			<100 (AES) <70 (LES)					<120 (AES) <75 (LES)			
Hysteresis [%]	$\leq 5\%$ (AES) $\leq 0,1\%$ (LES)			$\leq 5\%$ (AES) $\leq 0,1\%$ (LES)					$\leq 5\%$ (AES) $\leq 0,1\%$ (LES)			
Repeatability	$\pm 1\%$ (AES) $\pm 0,1\%$ (LES)			$\pm 1\%$ (AES) $\pm 0,1\%$ (LES)					$\pm 1\%$ (AES) $\pm 0,1\%$ (LES)			
Thermal drift	zero point displacement < 1% at $\Delta T = 40^\circ C$											

(1) Response times at step signal (0%→100%) are measured from 10% to 90% of step value and are strictly referred to the valve regulation

(2) For zero overlapping spool **0L5**, the valve offset position (with switch-off power supply) is 1 ÷ 6% P-B/A-T

8 MODEL CODE OF EX-PROOF SERVOPROPORTIONAL VALVES

DLHZA - TES - PS - 0 6 0 - L 5 3 / M / 7 ** / *

DLHZA = size 06
DLKZA = size 10

TES = with integral position transducer

Communication interfaces
PS = Serial
BC = CANopen
BP = PROFIBUS DP

Valve size (ISO 4401)
0 = size 06 (DLHZA)
1 = size 10 (DLKZA)

Configuration, see section 8
4 = external plus central position, spring centered
6 = 3 position, spring centered

0 = zero overlapping

Synthetic fluids:
WG= water-glycol
PE =phosphate ester



Series number

Options:
7 = for ambient temperature up to 60°C
B = solenoid at side of port A
I = current reference (4±20mA)
Y = external drain

Cable entrance threaded connection:
M = M20x1,5 (6H/6g)

Fail safe configuration:
1 = A, B, P, T with positive overlapping
3 = P positive overlapping; A, B, T negative

Spool size **1, 3, 5, 7** see section 8

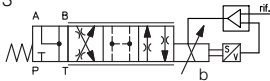
Spool type
L = linear regulation  ; T = not linear regulation  ;

Note: For the valves functional characteristics see:
table **F180** (DLHZA, DKZA)
For mounting surface dimensions see table **P005**
For the digital drivers technical data and functional parameters setting, see:
table **G210** (-TES)

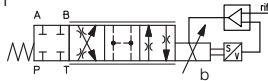
9 HYDRAULIC CHARACTERISTICS (based on mineral oil ISO VG 46 at 50 °C)

Hydraulic symbols

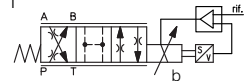
*40-L*3
*40-T*3



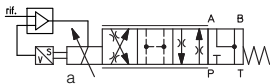
*40-L*1
*40-T*1



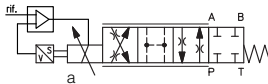
*60-L*1



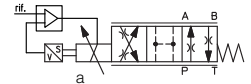
*40-L*3/B
*40-T*3/B



*40-L*1/B
*40-T*1/B



*60-L*1/B
*60-T*1/B



Valve model	DLHZA-TES						DLKZA-TES		
Pressure limits [bar]	ports P, A, B = 350; T = 160 (250 with external drain /Y)						ports P, A, B = 315; T = 160 (250 with external drain /Y)		
Spool	L1	L3	L5	T5	L7	T7	L3	L7	T7
Δp max P-T [bar]	70	70	70	70	70	70	60	60	60
Max flow at Δp = 30 bar [l/min]	4,5	9	18	18	27	27	40	60	60
Max flow at Δp max bar [l/min]	7	14	28	28	40	40	55	80	80
Leakage [cm ³ /min] at P = 100 bar (1)	< 200	< 300	< 500	< 200	< 900	< 200	< 1000	< 1500	< 400
Response time (2) [ms]	≤ 10						≤ 15		
Hysteresis [%]	≤ 0,1%						≤ 0,1%		
Thermal drift	zero point displacement < 1% at ΔT = 40°C								

(1) Referred to spool in center position and 50°C oil temperature.
(2) Response times at step signal (0%→100%) are measured from 10% to 90% of step value and are strictly referred to valve regulation.

10 MODEL CODE OF EX-PROOF PROPORTIONAL PRESSURE RELIEF AND COMPENSATOR VALVES

RZMA - TERS - PS - 010 / 250 / M / * ** / *

Pressure relief:
RZMA = subplate size 06
AGMZA = subplate size 10, 20, 32
LIMZA = cartridge type see section 12
 Pressure compensator:
LICZA = cartridge type see section 12

AES = without integral position transducer
TERS = with integral pressure transducer
AERS = as TERS but with remote pressure transducer (to be ordered separately), see tab. G466

Communication interfaces
PS = Serial
BC = CANopen
BP = PROFIBUS DP

Valve size:
 see section 11 for size code

Synthetic fluids:
WG = water-glycol
PE = phosphate ester

Series number

Options:
7 = for ambient temperature up to 60° C
E = external pilot (only for AGMZA)
I = current reference (4+20mA)
P = with integral mechanical pressure limiter (only for L*ZA)
Y = external drain (only for AGMZA)

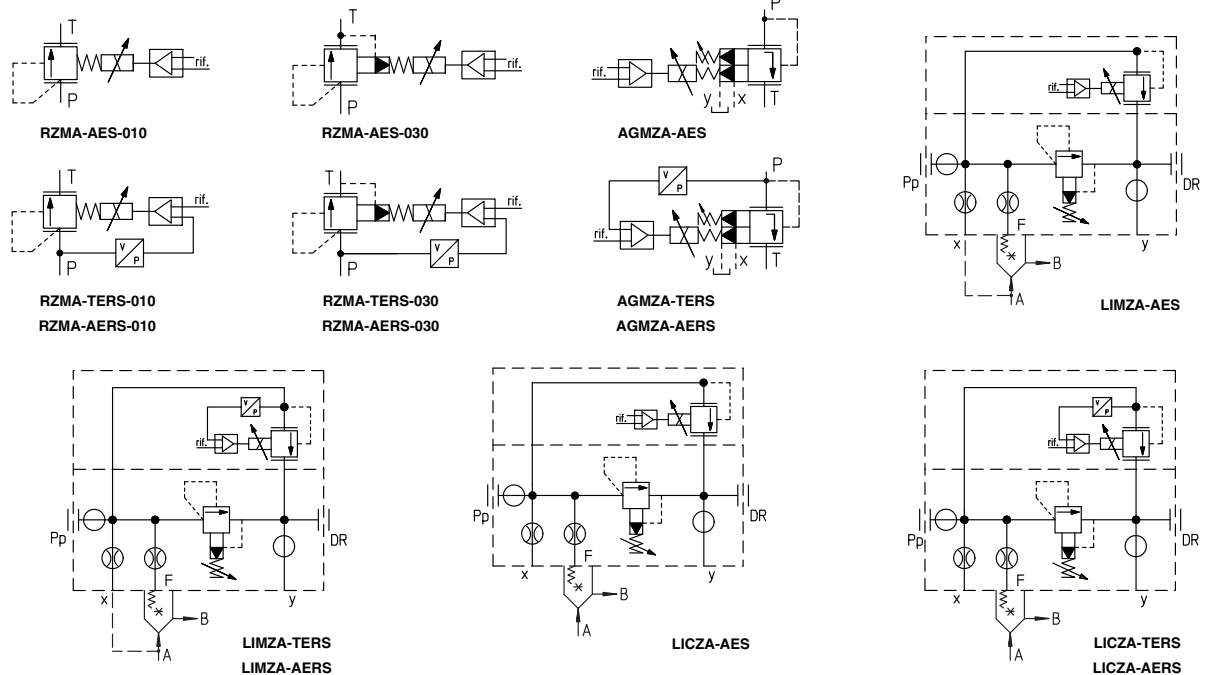
Cable entrance threaded connection:
M = M20x1,5 (6H/6g)

Max regulated pressure:
 see section 11

Note: For the valves functional characteristics see:
 table **F007** (RZMA--010); table **F065** (RZMA--030); table **F175** (AGMZA); table **F300** (LIMZA, LICZA)
 For mounting surface dimensions see table **P005**
 For the digital drivers technical data and functional parameters setting, see:
 table **G115** (-AES); table **G205** (-AERS, TERS)

11 HYDRAULIC CHARACTERISTICS

Hydraulic symbols



Valve model	RZMA			AGMZA			LIMZA						LICZA				
Size code	010	030		10	20	32	1	2	3	4	5	6	1	2	3	4	5
Valve size	06			10	20	32	16	25	32	40	50	63	16	25	32	40	50
Max regulated pressure [bar]	80;						180;			250							
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	200	400	750	1000	2000	3000	200	400	750	1000	2000

12 MODEL CODE OF CARTRIDGES (for LIMZA and LICZA)

SC LI - 32 31 2 ** / *

Cartridge according to ISO 7368

Size:
16; 25; 32;
40; 50; 63 (only for LIMZA)

Type of cartridge
31 = for LIMZA and LICZA **36** = for LICZA

Note: For mounting surface dimensions see table **P006**

Synthetic fluids
WG = water-glycol
PE = phosphate ester

Series number

Spring cracking pressure:
2 = 1,5 bar for poppet 31
3 = 3 bar
4 = 4 bar
6 = 6 bar for poppet 31 and 36

TYPICAL FUNCTIONS OF CARTRIDGES

Type	Functional sketch (hydraulic symbol)	Typical section	Area ratio (1)
31			1:1
36			1:1

(1) It is the ratio of the area A to the area on which the pilot pressure is applied.

13 MODEL CODE OF EX-PROOF PROPORTIONAL PRESSURE REDUCING VALVES

RZGA - TERS - PS - 033 / 250 / M / * ** /*

Pressure reducing:
RZGA = subplate size 06
AGRCZA = subplate size 10, 20
LIRZA = cartridge type see sect. 15

AES = without integral pressure transducer
TERS = with integral pressure transducer
AERS = as TERS but with remote pressure transducer (to be ordered separately), see tab. G466

Communication interfaces
PS = Serial
BC = CANopen
BP = PROFIBUS DP

Valve size:
 see section 14 for size code

Synthetic fluids:
WG = water-glycol
PE = phosphate ester

Series number

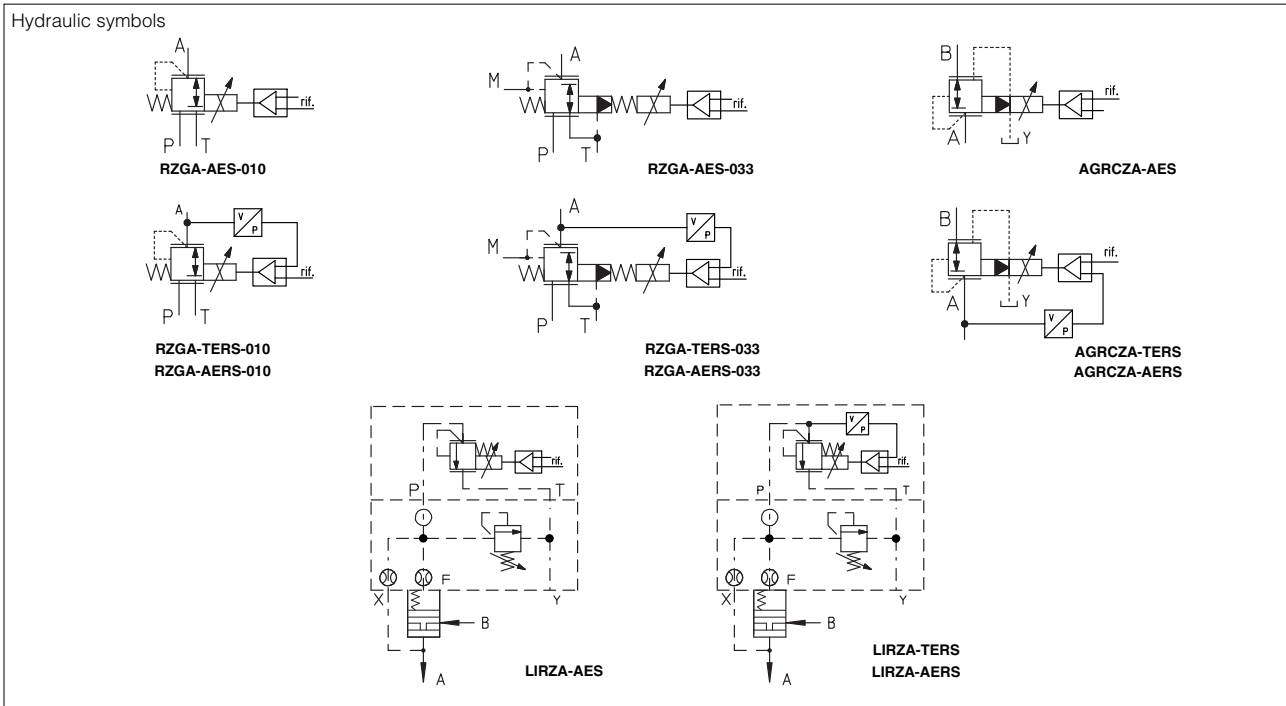
Options:
7 = for ambient temperature up to 60° C
E = external pilot (only for AGRCZA)
I = current reference (4+20mA)
P = with integral mechanical pressure limiter (only for AGRCZA and LIRZA)
R = with check valve (only for AGRCZA)

Cable entrance threaded connection:
M = M20x1,5 (6H/6g)

Max regulated pressure:
 see section 14

Note: For the valves functional characteristics see:
 table **F015** (RZGA--010); table **F070** (RZGA--033); table **F050** (AGRCZA); table **F300** (LIRZA)
 For mounting surface dimensions see table **P005**
 For the digital drivers technical data and functional parameters setting, see:
 table **G115** (-AES); table **G205** (-AERS, TERS)

14 HYDRAULIC CHARACTERISTICS



Valve model	RZGA		AGRCZA		LIRZA		
	010	033	10	20	1	2	3
Size code							
Valve size	06		10	20	16	25	32
Max regulated pressure [bar]	32; 100; 210		80; 180; 250				
Min regulated pressure [bar]	0,8	1	1	1	7	7	7
Max pressure at port P [bar]			315				
Max pressure at port T [bar]			210				
Max flow [l/min]	12	40	160	300	160	320	600

15 MODEL CODE OF CARTRIDGES (for LIRZA)

SC LI - 25 37 4 ** /*

Cartridge according to ISO 7368

Size:
16; **25;** **32;**

Type of cartridge
37 = for LIRZA

Note: For mounting surface dimensions see table **P006**

Synthetic fluids
WG = water-glycol
PE = phosphate ester

Series number

Spring cracking pressure:
4 = 4 bar; **7** = 7 bar

TYPICAL FUNCTIONS OF CARTRIDGES

Type	Functional sketch (hydraulic symbol)	Typical section	Area ratio (1)
37			1:1

(1) It is the ratio of the area A to the area on which the pilot pressure is applied.

16 MODEL CODE OF EX-PROOF PRESSURE COMPENSATED PROPORTIONAL FLOW CONTROL VALVES

QVHZA - TES - PS - 06 / 12 / M /* ** /*

QVHZA = size 06
QVKZA = size 10

AES = without integral position transducer
TES = with integral position transducer

Communication interfaces
PS = Serial
BC = CANopen
BP = PROFIBUS DP

Valve size (ISO 4401)
QVHZA: 06 **QVKZA: 10**

Max regulated flow:
 QVHZA QVKZA
3 = 3,5 l/min; **36** = 36 l/min; **65** = 65 l/min
12 = 12 l/min; **45** = 45 l/min; **90** = 90 l/min
18 = 18 l/min;

Synthetic fluids:
WG = water-glycol
PE = phosphate ester

Series number

Options:
7 = for ambient temperature up to 60° C
D = quick venting (only for -AES versions)
I = current reference (4±20mA)

Cable entrance threaded connection:
M = M20x1,5 (6H/6g)

Note: For the valves functional characteristics see:
 table **F410** (QVHZA-*, QVKZA-*)
 For mounting surface dimensions see table **P005**
 For the digital drivers technical data and functional parameters setting, see:
 table **G115** (-AES); table **G210** (-TES)

17 HYDRAULIC CHARACTERISTICS (based on mineral oil ISO VG 46 at 50 °C)

Hydraulic symbols																
Note: In three-way connection port P is open. In two-way connection port P must be plugged. Port T must always be plugged.																
Valve model	QVHZA-AES					QVHZA-TES					QVKZA-AES		QVKZA-TES			
Valve size	06 10															
Max pressure ports P, A, B [bar]	210															
Max regulated flow [l/min]	3,5	12	18	36	45	3,5	12	18	35	45	65	90	65	90		
Min regulated flow (1) [cm³/min]	15	20	30	50	60	15	20	30	50	60	85	100	85	100		
Regulating Δp [bar]	4 - 6		10 - 12			15	4 - 6		10 - 12			15	6 - 8	10 - 12	6 - 8	10 - 12
Max flow on port A [l/min]	40		35			50	50					60	70	100	70	100

(1) Values are referred to 3-way configuration. In the 2-way configuration, the values of min regulated flow are higher.

17.1 TYPICAL APPLICATIONS

2 WAY CONNECTION

In the 2 way connection the pump is always working at the pressure set on the relief valve

3 WAY CONNECTION

In the 3 way connection the pump is working at the pressure required by the user load

3 WAY CONNECTION AS PRIORITY VALVE

The regulated flow (pressure compensated) is sent to the main line the exceeding flow for the auxiliary line

18 ELECTRONICS WIRING

18.1 MAIN CONNECTIONS FOR ALL MODELS

PIN	CABLE ENTRANCE	DESCRIPTION	TECHNICAL SPECIFICATION
1	3	ENABLE	Enabling input, normal working = 24 Vdc
2	3	LOGIC GND	Power supply (logic stage) Stabilized +24 Vdc
3	3	LOGIC +24V	Filtered and rectified: Vrms 21-33 (ripple max 2Vpp)
4	3	FAULT	Alarm = 0 Vdc Correct functioning = +24Vdc
5	4	COIL S2	Coil connection only for double solenoid valves
6	4	COIL S2	
7	3	INPUT -	Reference signal = 0 Vdc
8	3	MONITOR	±10 Vdc 0 ÷ 10 Vdc (1) (3)
9	3	INPUT +	±10 Vdc 0 ÷ 10 Vdc (2) (3)
10	3	POWER GND	Power supply (power stage) Stabilized +24 Vdc
11	3	POWER +24V	Filtered and rectified: Vrms 21-33 (ripple max 2Vpp)
PE	3	GND	earth connection

(1) referred to pin 2 (LOGIC GND)

(2) referred to pin 7 (INPUT -)

(3) current reference and monitor (4÷20mA) for option I

18.2 PRESSURE TRANSDUCER CONNECTIONS FOR -TERS (factory wired), -AERS (to be wired) and -LES (factory wired)

PIN	CABLE ENTRANCE	VERSION	DESCRIPTION	TECHNICAL SPECIFICATION
12	4	-TERS -AERS	GND	power supply and signal = 0 Vdc
		-LES	GND	power supply and signal = 0 Vdc
13	4	-TERS -AERS	TRANSD SUPPLY +	+24 VDC (4)
		-LES	TRANSD SUPPLY +	+15 VDC
14	4	-TERS -AERS	N. C.	not connected
		-LES	TRANSD SUPPLY -	-15 VDC
15	4	-TERS -AERS	TRANSD SIGNAL	pressure signal (4)
		-LES	TRANSD SIGNAL	position signal

(4) referred to pin 12 (GND)

N.B. For -AES version the pins 12-13-14-15 are not connected

18.3 COMMUNICATION INTERFACE CONNECTIONS FOR ALL MODELS

PIN	CABLE ENTRANCE	DESCRIPTION		
		-PS	-BC	-BP
16	1 / 2	NC do not connect	NC do not connect	+5V BUS
17	1 / 2	NC do not connect	SHIELD	SHIELD
18	1 / 2	RS_TX	CAN_H	B_LINE
19	1 / 2	RS_RX	CAN_L	A_LINE
20	1 / 2	BUS GND	BUS GND	BUS GND

18.4 CABLE ENTRANCE (see Fig.1)

① Cable entrance for -PS, -BC, -BP communication interfaces:

The Ex-proof integral digital electronics is provided with serial (-PS) or CANopen (-BC) or PROFIBUS DP (-BP) communication interface, depending to the selected model code

For -PS version the communication connector is used for the software setting of the functional parameters. It is installed in the cable entrance pos. ① (factory plugged). For the electronics parameter setting, remove the threaded metal plug and connect the PC communication cable to the connector -see Fig.2



WARNING:

The above operation must be performed in a safety area.

After having completed the parameter setting, disconnect the communication cable and close the cable entrance with the proper threaded plug.

For -BC and -BP versions the valve is directly driven through the fieldbus interface, which connections are available on the terminal board internal to the electronics housing.

Depending to the type of connection to the fieldbus network, one or two cable entrances can be used (see section 20 TAB.I)

-"Via stub" connection, cable entrance ① to be used
-"Daisy chain" connection, cable entrance ① and ② to be used

- ② Additional cable entrance for -BC, -BP communication interfaces
- ③ Cable entrances for power supply and main connections
- ④ Cable entrances for remote pressure transducer connections (only for -AERS)

The cable entrance ④ is factory wired for:

- TERS (pressure transducer)
- LES (position transducer)
- AES and TES double solenoid version

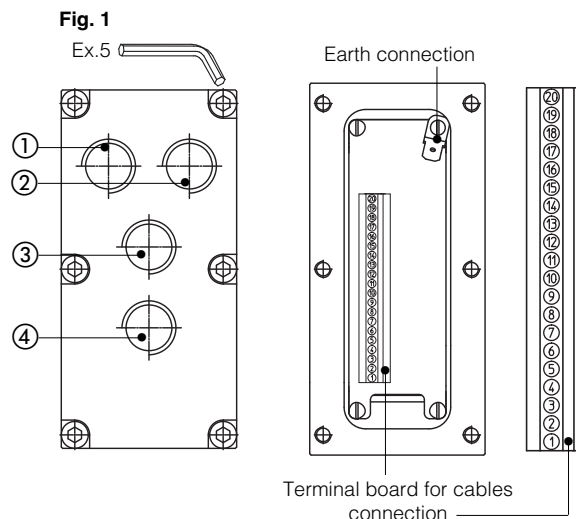
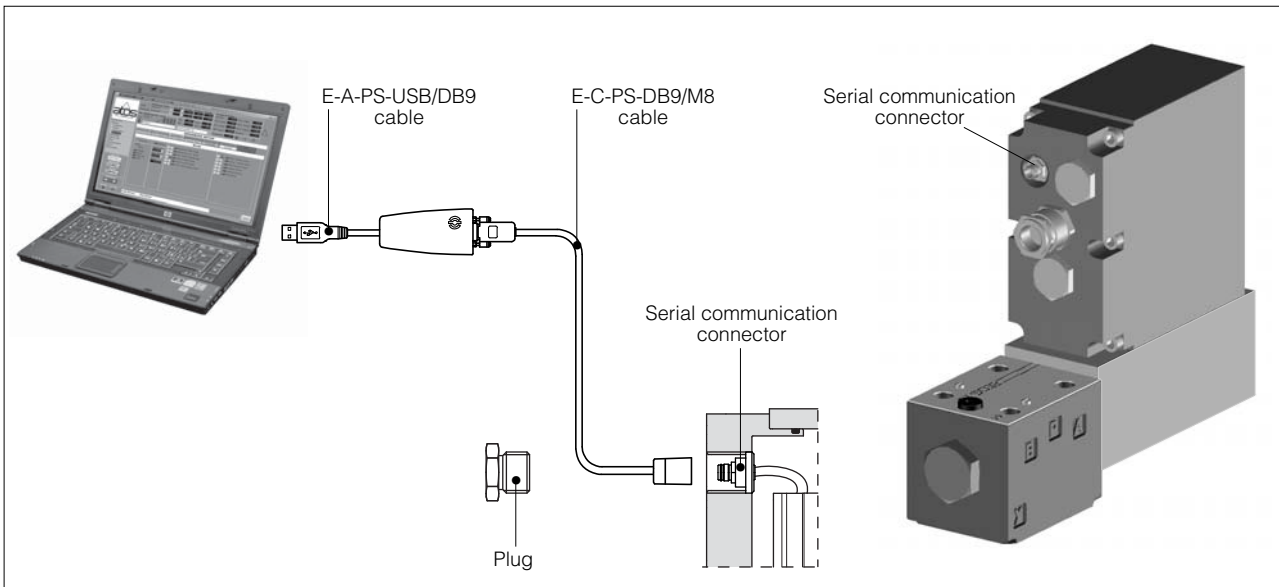


Fig. 2 PC connection to the valve's serial communication interface (version -PS)



19 SOFTWARE TOOLS

The driver configuration and parameters can be easily set with the Atos E-SW programming software.

The programming software is available in three different versions according to the driver's communication interfacing:

E-SW-PS (Serial), **E-SW-BC** (CANopen) and **E-SW-BP** (PROFIBUS DP).

A proper connection is required between the PC and the electronic driver communication port (-PS, -BC or -BP).

For a more detailed description of software interface, PC requirements and adapter/cable/terminator characteristics please refer to technical table **G500**.

Programming software, must be ordered separately :

E-SW-* (mandatory - first supply) = Dvd including E-SW-* software installer, operator manuals, registration form for Atos digital service

E-SW-*-N (optional - next supplies) = as above but not including the registration form for Atos digital service

USB Adapters, Cables and Terminators, can be ordered separately

E-A-PS-USB/DB9 and **E-C-PS-DB9/M8** = USB adapter and cable for -PS drivers

E-A-PS-USB/DB9 adapter is required only if a RS232 serial port is not available on the PC

E-A-BC-USB/DB9, E-C-BC-DB9/RA and **E-TRM-BC-DB9/DB9** = USB adapter, cable and terminator for -BC drivers

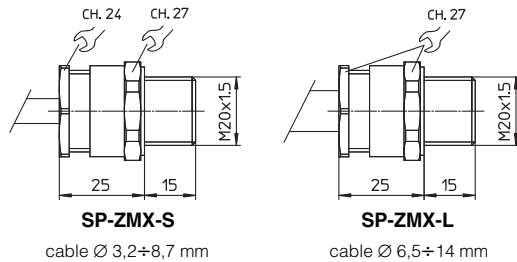
E-A-BP-USB/DB9, E-C-BP-DB9/RA and **E-TRM-BP-DB9/DB9** = USB adapter, cable and terminator for -BP drivers

E-TRM-BC-DB9/DB9 (CANopen) and E-TRM-BP-DB9/DB9 (PROFIBUS DP) fieldbus terminators are required when the adapter is directly connected to the digital driver or to one end of the fieldbus network.

20 MODEL CODE OF CABLE GLANDS AND THREADED PLUGS

Atos can supply 2 different kind of cable glands, depending to the cable's diameter used by the customer.

The cable glands and the threaded plugs (to be ordered separately) are ATEX certified according to EN 60079-0 and EN 60079-1



Atos codes for cable glands and threaded plugs:

SP-ZMX-S = brass cable gland, protection degree IP 66/67/68 threaded connection M20x1,5 (6H/6g). Cable size 3,2 ÷ 8,7 mm

SP-ZMX-L = brass cable gland, protection degree IP 66/67/68 threaded connection M20x1,5 (6H/6g). Cable size 6,5 ÷ 14 mm

P-ZMX-T = brass threaded plug, protection degree IP 66/68 threaded connection M20x1,5 (6H/6g).

Depending to the model code, the valves are supplied with:

- Atex certified cable gland code SP-ZMX-S, for factory wired connections
- Atex certified threaded plugs code SP-ZMX-T, for connections not to be used
- for connections available for the customers, the cable glands and the treaded metal plug have to be ordered separately. The quantity and the mounting position of the cable glands and threaded plugs is depending to the selected connection of the of communication interface, as shown in the following **TAB. I**

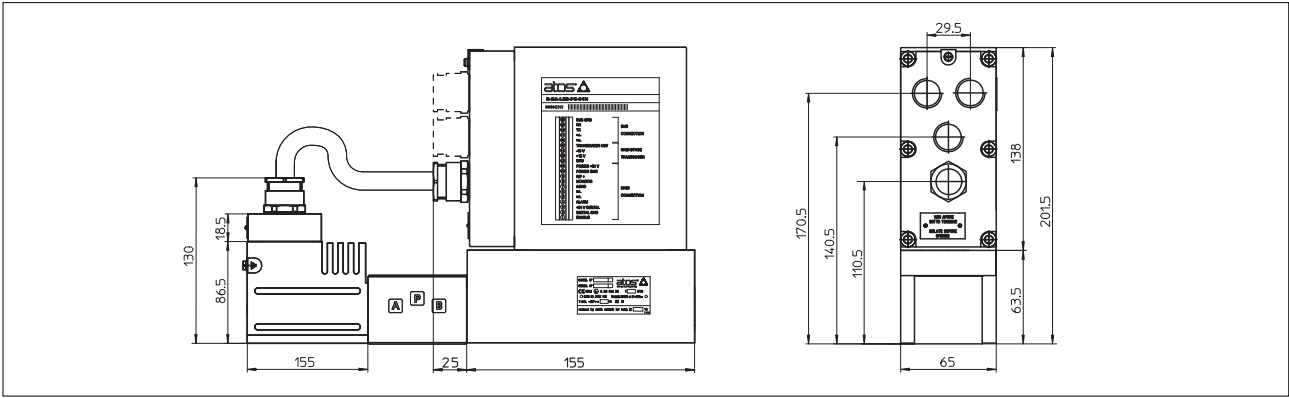
TAB. I

Valve's communication interfaces	Cable gland		Threaded plug		Scheme	Notes
	quantity	position	quantity	position		
-PS	1	3	none	none		Cable entrance 1 and 2 are factory plugged Cable entrance 3 is open for costumers Cable entrance 4 is factory plugged or wired depending to the valve model
-BC, -BP "via stub" connection	2	1, 3	1	2		Cable entrance 2 are factory plugged Cable entrance 3 is open for costumers Cable entrance 4 is factory plugged or wired depending to the valve model
-BC, -BP "daisy chain" connection	3	1, 2, 3	none	none		Cable entrance 3 is open for costumers Cable entrance 4 is factory plugged or wired depending to the valve model

21 MASS

VALVE TYPE	MASS (Kg)	VALVE TYPE	MASS (Kg)	VALVE TYPE	MASS (Kg)	VALVE TYPE	MASS (Kg)	VALVE TYPE	MASS (Kg)	VALVE TYPE	MASS (Kg)
DHZA-*-05	8,2	DPZA-*-27	18,7	AGMZA-*-10	12,2	LIMZA-*-5	19,2	RZGA-*-010	9	QVHZA	8,6
DHZA-*-07	9	DPZA-*-35	22	AGMZA-*-20	16	LIMZA-*-6	28	RZGA-*-030	9,6	QVKZA	9,5
DKZA-*-05	9	DPZA-*-37	23	AGMZA-*-32	18,5	LICZA-*-1	13,6	AGRCZA-*-10	13,6		
DKZA-*-07	9,6	DLHZA	8,5	LIMZA-*-1	10,3	LICZA-*-2	14,6	AGRCZA-*-20	14,6		
DPZA-*-15	13,6	DLKZA	10,2	LIMZA-*-2	10,8	LICZA-*-3	17,7	LIRZA-*-1	17,7		
DPZA-*-17	14,6	RZMA-*-010	9	LIMZA-*-3	12	LICZA-*-4	8,2	LIRZA-*-2	8,2		
DPZA-*-25	17,7	RZMA-*-030	9,3	LIMZA-*-4	15,7	LICZA-*-5	9	LIRZA-*-3	9		

22 DIMENSIONS OF EXPLOSION PROOF SOLENOIDS WITH INTEGRAL DIGITAL ELECTRONICS [mm]



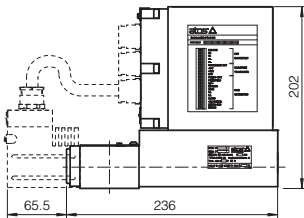
23 DIMENSIONS OF EXPLOSION PROOF VALVES WITH INTEGRAL DIGITAL ELECTRONICS [mm]

DIRECTIONAL VALVES
dotted line = double solenoid version

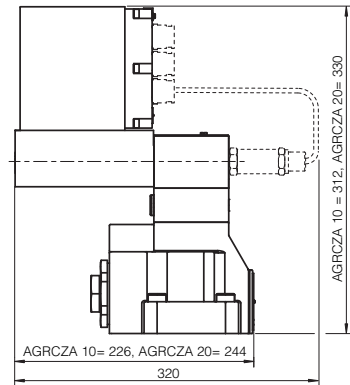
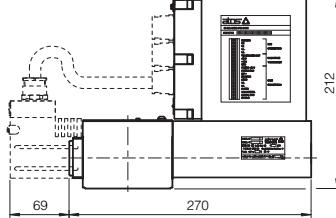
PRESSURE CONTROL VALVES
dotted line = -TERS version

AGRCZA

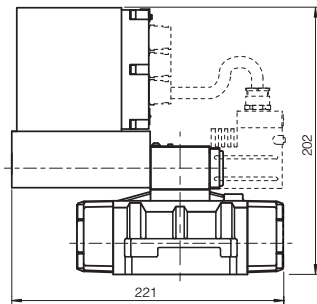
**DHZA
DLHZA**



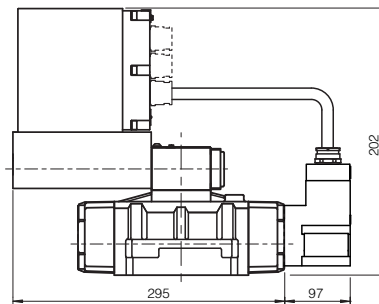
**DKZA
DLKZA**



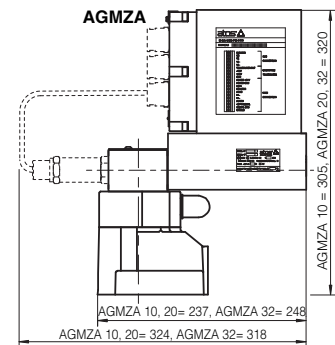
DPZA -AES



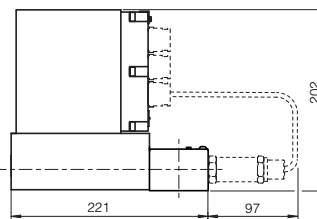
DPZA -LES



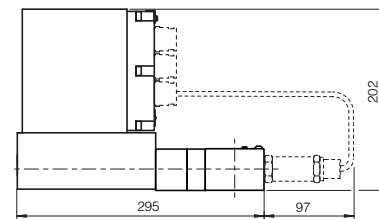
AGMZA



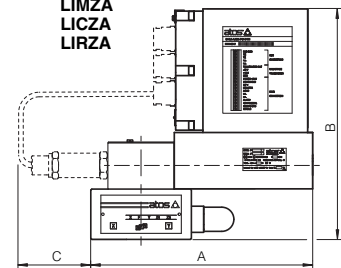
**RZMA-010
RZGA-010**



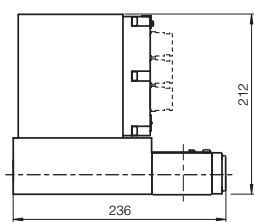
**RZMA-030
RZGA-030**



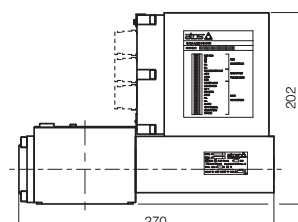
**LIMZA
LICZA
LIRZA**



QVHZA



QVKZA



		LIMZA, LICZA, LIRZA						
size		16	25	32	40	50	63	80
dimension	A	228	230	238	253	261	281	361,5
	B *	243	243	252	261,5	271,5	281,5	311,5
	C	90	88	80	68	60	37	-

* for option /H add 40mm to the dimension