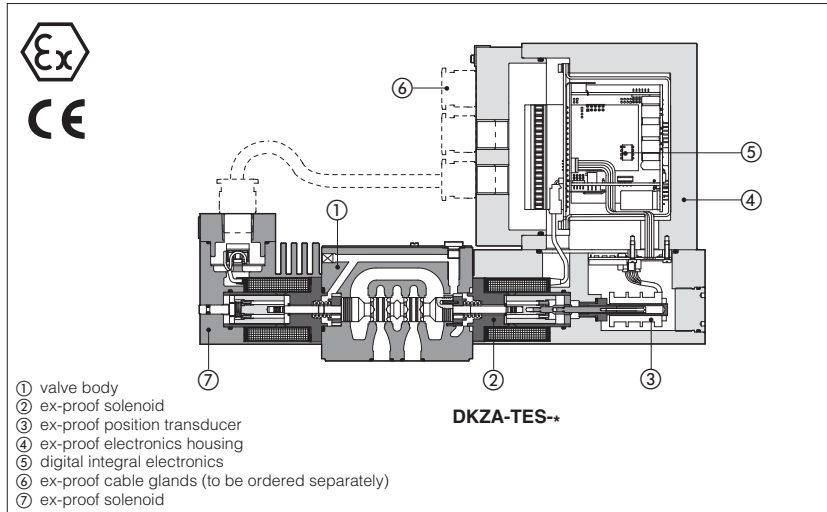


Ex-proof proportional valves with integral digital drivers

with or without integral position or pressure transducer - ATEX or IECEx certification



1 EXPLOSION PROOF CERTIFICATION MAIN DATA

| | | | | |
|--|--|-----------------------|--|-----------------------|
| ATEX certification | Ex II 2G Ex d IIC T6/T5/T4/T3 | | | |
| IECEx certification | Ex d IIC T6/T5/T4/T3 Gb IP66 | | | |
| 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 | IP66 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, Ra 0,4 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 4406 class 20/18/15 NAS 1638 class 9, in line filters of 10 μm (β ₁₀ ≥ 75 recommended) |
| Fluid temperature | -20°C +60°C (standard seals) -20°C +80°C (/PE seals) |

3 CERTIFICATION

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

3.1 GROUP II, ATEX

 = ATEX identification 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



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

Ex-proof ZA valves are proportional valves equipped with specific solenoids and integral digital electronic drivers available with following certifications and protection mode:

- ATEX 94/9/CE
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)

- IECEx worldwide recognized safety certification, Ex d IIC T6/T5/T4/T3 Gb IP66

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 drivers 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 configuration, monitoring and firmware updating through Atos PC software.
 - 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.

3.2 GROUP II, IECEx

Ex = Equipment for explosive atmospheres

d = Flame proof housing

IIC = Gas group

T6/T5/T4/T3 = Temperature class of solenoid surface

Gb = Equipment protection level, high level protection for explosive Gas atmospheres

IP66 = Protection degree

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

| | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|---|---|---|--|---|--|----------|----------------------------|---|--|----------|---|----------|---|---|---------------|---|---------------------------|--|
| DHZA | / | IE | - | TES | - | PS | - | 0 | 7 | 1 | - | L | 5 | / | M | 7 | / | ** | / | * | |
| DHZA = size 06 DKZA = size 10 | | Certification (omit for Atex) IE = IECEx | | AES = without integral position transducer TES = with integral position transducer | | Communication interfaces PS = Serial (1) BC = CANopen BP = PROFIBUS DP | | Valve size (ISO 4401) DHZA 0 = size 06 | | DKZA 1 = size 10 | | Options: 7 = for ambient temp. up to 60°C B = solenoid with integral digital electronics at side of port A I = current reference 4 ÷ 20mA (only for TES) (3) Y = external drain W = power limitation function (only AES) | | Cable entrance threaded connection: M = M20x1,5 (6H/6g) | | Seals material: - = NBR PE = FKM | | Series number | | Spool size: see section 5 | |
| 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 (2) 3 = P positive overlapping; A, B, T, negative | | | | | | | | | | | | | | | | | | | | | |
| Spool type L = linear; S = progressive; D = as S , but with P-A = Q, P-B = Q/2 | | | | | | | | | | | | | | | | | | | | | |

- (1) Serial interface always present for AES-BC and AES-BP.
 (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.
 (3) Software selectable for AES.

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 | | | | | | | | | | | | | | | |
|---------------------------|---|--|-------------|--|--|-------------|--|-------------------|--|--|---------------|--|----|-------------------|--|---|-------------------|----|-----------|--|----------------------|---------------|----|-----------|--|---|-------------------|--|---|--|--|
| Spool overlapping | 1, 3 | | 1, 3 | | | 1, 3 | | 0 | | | 1, 3 | | | 1, 3 | | 0 | | | 2 | | 1, 3 | | | | | | | | | | |
| Spool type and size (1) | L14 | | L1 | | | S2 | | S3, L3, D3 | | | L5, D5 | | | S5, L5, D5 | | | S3, L3, D3 | | L3 | | | L5, D5 | | 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 | | 40 | | | | | | | | |
| Max flow [l/min] | at Δp = 10 bar (P-T) | | 1 | | | 4,5 | | 8 | | | 17 | | 28 | | | 45 | | 60 | | | at Δp = 30 bar (P-T) | | 1 | | | 2 | | | 3 | | |
| Response time (2) [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) Spool type S2 only for -AES version; spool type 0L5, 0D5, 0L3 only for -TES version
 (2) Response times at step signal (0%→100%) are measured from 10% to 90% of step value and are strictly referred to the valve regulation.

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

| | | | |
|--|--|--|---|
| <p>DPZA / IE - AES - PS - 2 7 1 - L 5 / M / 7 ** / *</p> <p>DPZA = size 10 = size 16 = size 25</p> <p>Certification (omit for Atex) IE = IECEx</p> <p>AES = without integral position transducer</p> <p>Communication interfaces PS = Serial (1) BC = CANopen BP = PROFIBUS DP</p> <p>Valve size (ISO 4401) 1 = size 10 2 = size 16 4 = size 25</p> <p>Configuration: see section 7 5 = external plus central position, spring centered 7 = 3 positions, spring centered</p> <p>Spool overlapping in central position, see section 7 1 = P, A, B, T positive overlapping 3 = P positive overlapping; A, B, T, negative</p> | | <p>Options: 7 = for ambient temperature up to 60°C B = solenoid with integral digital electronics at side of port A D = internal drain E = external pilot G = pressure reducing valve for piloting (2) W = power limitation function (only AES)</p> <p>Cable entrance threaded connection: M = M20x1,5 (6H/6g)</p> <p>Spool size: see section 7</p> <p>Spool type L = linear; S = progressive; D, = as S, but with P-A = Q, P-B = Q/2</p> | <p>Seals material: - = NBR PE = FKM</p> <p>Series number</p> |
|--|--|--|---|

- (1) Serial interface always present for AES-BC and AES-BP.
 (2) Pressure reducing valve with fixed setting (40 bar for DPZA-1 and -2; 100 bar for DPZA-4) installed between pilot valve and main body. It is advisable for valves with internal pilot in case of system pressure higher than 200 bar.

Note: For the valves functional characteristics see table **F170**
 For mounting surface dimensions see table **P005**
 For the digital drivers technical data and functional parameters setting, see table **G115**

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

Hydraulic symbols of **-AES** version

| Valve model | DPZA-1 | | | | DPZA-2 | | | | DPZA-4 | | |
|--|--|----|---------|------|---------|-----|-----|---------|--------|-----|---------|
| | 0, 1, 3 | | | | | | | 0, 1, 3 | | | |
| Spool overlapping | | | | | | | | | | | |
| Spool type and size (1) | L5 | S5 | D5 | S3 | D3 | L5 | S5 | D5 | L5 | S5 | D5 |
| Max flow: [l/min] | | | | | | | | | | | |
| at Δp = 10 bar | 100 | | 100:60 | 160 | 160:98 | 250 | 225 | 225:160 | 360 | 360 | 360:220 |
| at Δp = 30 bar | 160 | | 160:100 | 270 | 270:160 | 430 | 390 | 390:280 | 620 | 620 | 620:380 |
| max permissible flow | 180 | | 180:110 | 400 | 400:245 | 550 | 550 | 550:390 | 770 | 770 | 770:470 |
| Pressure limits [bar] | ports P, A, B, X = 350; T = 250 (5 for option /D); Y = 5 | | | | | | | | | | |
| Response time [ms] (1) spool overlapping 1-3 | <80 | | | <100 | | | | <120 | | | |
| Hysteresis [%] | ≤ 5% | | | | | | | | | | |
| Repeatability | ± 1% | | | | | | | | | | |

(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.

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

| | |
|---|---|
| <p>DPZA / IE - LES - PS - 2 7 1 - L 5 / M / 7 ** / *</p> <p>DPZA = size 10 = size 16 = size 25 = size 27</p> <p>Certification (omit for ATEX) IE = IECEX</p> <p>LES = with double integral position transducer</p> <p>Communication interfaces PS = Serial (1) BC = CANopen BP = PROFIBUS DP</p> <p>Valve size (ISO 4401) 1 = size 10 2 = size 16 4 = size 25 4M = size 27</p> <p>Configuration: see section 9 5 = external plus central position, spring centered 7 = 3 positions, spring centered</p> <p>Spool overlapping in central position, see section 9 0 = zero overlapping (only for spools L and DL) 1 = P, A, B, T positive overlapping 3 = P positive overlapping; A, B, T, negative</p> | <p>Seals material: - = NBR PE = FKM</p> <p>Series number</p> <p>Options: 7 = for ambient temperature up to 60°C B = solenoid with integral digital electronics at side of port B of the main stage D = internal drain E = external pilot G = pressure reducing valve for piloting (2) standard for DPZA-LES-1 I = current reference 4±20mA (only for -LES)</p> <p>Cable entrance threaded connection: M = M20x1,5 (6H/6g)</p> <p>Spool size: see section 9</p> <p>Spool type L = linear; S = progressive; D = as S, but with P-A = Q, P-B = Q/2 DL = differential-linear as L, but with P-A = Q, P-B = Q/2</p> |
|---|---|

- (1) Serial interface always present for AES-BC and AES-BP.
 (2) Pressure reducing valve with fixed setting (40 bar for DPZA-1 and -2; 100 bar for DPZA-4) installed between pilot valve and main body. It is advisable for valves with internal pilot in case of system pressure higher than 200 bar. This option is standard for DPZA-LES-1

Note: For the valves functional characteristics see table **FS175**
 For mounting surface dimensions see: table **P005**
 For the digital drivers technical data and functional parameters setting, see table **GS210**

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

Hydraulic symbols of **-LES** version

| Valve model | DPZA-1 | | | | DPZA-2 | | | |
|-------------------------|--|------|---------|---------|---------|---------|---------|---------|
| Spool overlapping | 0, 1, 3 | 1, 3 | 0, 1, 3 | 0, 1, 3 | 1, 3 | 0, 1, 3 | 1, 3 | 0, 1, 3 |
| Spool type and size (1) | L5 (2) | S5 | D5 | DL5 | L3 | S3 | D3 | DL5 |
| Max flow: [l/min] | 100 | | 100:60 | | 160 | | 160:98 | |
| at Δp = 10 bar | 160 | | 160:100 | | 270 | | 270:160 | |
| at Δp = 30 bar | 180 | | 180:110 | | 400 | | 400:245 | |
| max permissible flow | 250 | | 225 | | 550 | | 550 | |
| | 250:188 | | 430:323 | | 550:390 | | 550:390 | |
| Valve model | DPZA-4 | | | DPZA-4M | | | | |
| Spool overlapping | 0, 1, 3 | 1, 3 | 0, 1, 3 | 1, 3 | 0, 1, 3 | 0, 1, 3 | | |
| Spool type and size (1) | L5 (2) | S5 | D5 | DL5 | L5 | S5 | | |
| Max flow: [l/min] | 360 | | 360:220 | | 380 | | | |
| at Δp = 10 bar | 620 | | 620:380 | | 660 | | | |
| at Δp = 30 bar | 770 | | 770:470 | | 800 | | | |
| max permissible flow | 380:230 | | 660:400 | | 800:490 | | | |
| Pressure limits [bar] | ports P, A, B, X = 350; T = 250 (5 for option /D); Y = 5 | | | | | | | |
| Response time [ms] (3) | spool overlapping 0: DPZA-1, DPZA-2 <25ms; DPZA-4 <30ms; DPZA-4M <35ms | | | | | | | |
| | spool overlapping 1-3: DPZA-1 <50ms; DPZA-1 <60ms; DPZA-4 <80ms; DPZA-4M <85ms | | | | | | | |
| Hysteresis [%] | ≤ 0,1% [% of max regulation] | | | | | | | |
| Repeatability | ±0,1% [% of max regulation] | | | | | | | |
| Thermal drift | zero point displacement < 1% at ΔT = 40°C | | | | | | | |

(1) Additional spool for -LES, see table F175
 (2) For zero overlapping spool **DL5**, the valve offset position (with switch-off power supply) is 1 ± 6% P-B/A-T
 (3) Response times at step signal (0%→100%) are measured from 10% to 90% of step value and are strictly referred to the valve regulation.

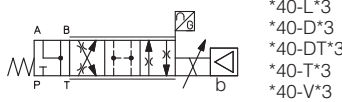
10 MODEL CODE OF EX-PROOF SERVOPROPORTIONAL VALVES

| | | | | | | | | | | | | | | | | | | | | | |
|--|---|-----------|---|------------|---|-----------|---|----------|----------|----------|---|----------|----------|----------|---|----------|---|----------|-----------|---|----------|
| DLHZA | / | IE | - | TES | - | PS | - | 0 | 6 | 0 | - | L | 5 | 3 | / | M | / | 7 | ** | / | * |
| <p>DLHZA = size 06 DLKZA = size 10</p> <p>Certification (omit for ATEX) IE = IECEx</p> <p>TES = with integral position transducer</p> <p>Communication interfaces PS = Serial BC = CANopen BP = PROFIBUS DP</p> <p>Valve size (ISO 4401) 0 = size 06 (DLHZA) 1 = size 10 (DLKZA)</p> <p>Configuration, see section 11 4 = external plus central position, spring centered 6 = 3 position, spring centered</p> <p>0 = zero overlapping</p> <p>Spool type: L = linear regulation T = not linear regulation V = progressive regulation D = not linear regulation DT = not linear regulation</p> | | | | | | | | | | | | | | | | | | | | | |
| <p>Seals material: - = NBR PE = FKM</p> <p>Series number</p> <p>Options: 7 = for ambient temperature up to 60°C B = solenoid at side of port A I = current reference 4 ÷ 20mA Y = external drain</p> <p>Cable entrance threaded connection: M = M20x1,5 (6H/6g)</p> <p>Fail safe configuration: 1 = A, B, P, T with positive overlapping 3 = P positive overlapping; A, B, T negative</p> <p>Spool size 1, 3, 5, 7 see section 11</p> | | | | | | | | | | | | | | | | | | | | | |

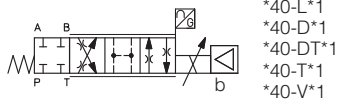
Note: For the valves functional characteristics see table **F180** (DLHZA, DLKZA)
For mounting surface dimensions see table **P005**
For the digital drivers technical data and functional parameters setting, see table **G210** (-TES)

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

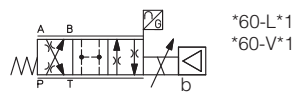
Hydraulic symbols



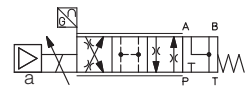
*40-L*3
*40-D*3
*40-DT*3
*40-T*3
*40-V*3



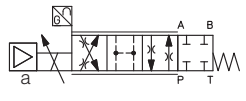
*40-L*1
*40-D*1
*40-DT*1
*40-T*1
*40-V*1



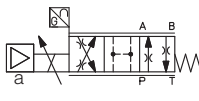
*60-L*1
*60-V*1



*40-L*3/B
*40-D*3/B
*40-DT*3/B
*40-T*3/B
*40-V*3/B



*40-L*1/B
*40-D*1/B
*40-DT*1/B
*40-T*1/B
*40-V*1/B



*60-L*1/B
*60-V*1/B

| Valve model | DLHZA-T* | | | | | | | | | | DLKZA-T* | | | | | | | |
|--------------------------------------|---|------|------|-------------|------|------|------|-------------|------|------|-----------------|------|-------|-------|------|------|--------|------|
| | ports P, A, B = 350; T = 210 (250 with external drain Y) | | | | | | | | | | | | | | | | | |
| Pressure limits [bar] | ports P, A, B = 315; T = 210 (250 with external drain Y) | | | | | | | | | | | | | | | | | |
| Spool | L0 | L1 | V1 | L3 | V3 | L5 | T5 | L7 | T7 | V7 | D7 | DT7 | L3 | L7 | T7 | V7 | D7 | DT7 |
| Max flow [l/min] | 2,5 | 4,5 | 5 | 9 | 13 | 18 | | 26 | | | 26÷13 | | 40 | | 60 | | 60÷33 | |
| at Δp = 30 bar | 4 | 7 | 8 | 14 | 20 | 28 | | 40 | | | 40÷20 | | 60 | | 100 | | 100÷50 | |
| at Δp = 70 bar | 8 | 14 | 16 | 30 | 40 | 50 | | 70 | | | 70÷40 | | 90 | | 160 | | 160÷80 | |
| max permissible flow | | | | | | | | | | | | | | | | | | |
| Leakage [cm³/min] at P = 100 bar (1) | <100 | <200 | <100 | <300 | <150 | <500 | <200 | <900 | <200 | <200 | <700 | <200 | <1000 | <1500 | <400 | <400 | <1200 | <400 |
| Fail safe connections | P → A | | | P → B | | | | A → T | | | B → T | | | | | | | |
| Leakage [cm³/min] at P = 100 bar (2) | Fail safe 1 | | | Fail safe 2 | | | | Fail safe 3 | | | Fail safe 4 | | | | | | | |
| Flow [l/min] (3) | DLHZA | | | DLKZA | | | | DLHZA | | | DLKZA | | | | | | | |
| Response time [ms] | ≤ 10 | | | | | | | | | | ≤ 15 | | | | | | | |
| Hysteresis [%] | ≤ 0,1% | | | | | | | | | | ≤ 0,1% | | | | | | | |
| Thermal drift | zero point displacement < 1% at ΔT = 40°C | | | | | | | | | | | | | | | | | |

Notes:
 (1) Referred to spool in neutral position and 50°C oil temperature.
 (2) Referred to spool in fail safe position and 50°C oil temperature.
 (3) Referred to spool in fail safe position at Δp = 35 bar per edge and 50°C oil temperature.

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

| | | | | | | | | | | | | | | | | | | |
|--|---|-----------|---|-------------|---|-----------|---|------------|---|------------|---|----------|---|------------------|---|------------------|---|-----------------|
| <p style="text-align: center;">RZMA</p> <p>Pressure relief: RZMA = subplate size 06 AGMZA= subplate size 10, 20, 32 LIMZA = cartridge type see sec. 14 Pressure compensator: LICZA = cartridge type see sect. 14</p> <p>Certification (omit for Atex) IE = IECEx</p> <p>AES = without integral pressure transducer (1) TERS = with integral pressure transducer (2) AERS = as TERS but with remote pressure transducer (2) (to be ordered separately), see tab. G466</p> <p>Communication interfaces PS = Serial BC = CANopen BP = PROFIBUS DP</p> | / | IE | - | TERS | - | PS | - | 010 | / | 250 | / | M | / | <p>/*</p> | / | <p>**</p> | / | <p>*</p> |
| <p>Options: 7 = for ambient temperature up to 60° C E = external pilot (only for AGMZA) I = current reference 4 ÷ 20mA (only TERS, AERS) (3) P = with integral mechanical pressure limiter (only for LI*ZA) Y = external drain (only for AGMZA)</p> <p>Cable entrance threaded connection: M = M20x1,5 (6H/6g)</p> | | | | | | | | | | | | | | | | | | |
| <p>Max regulated pressure: see section 13</p> | | | | | | | | | | | | | | | | | | |

Valve size: see section 13 for size code

- (1) Serial interface always present for AES-BC and AES-BP.
- (2) Integral or remote pressure transducer with current feedback 4 ÷ 20 mA.
- (3) Software selectable for AES.

Note: For the valves functional characteristics see:
 table **F007, F010** (RZMA-*010); table **F065, F067** (RZMA-*030); table **F035, F040** (AGMZA); table **F300, F305** (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)

13 HYDRAULIC CHARACTERISTICS

Hydraulic symbols

| Valve model | RZMA | | | AGMZA | | | LIMZA | | | | | LICZA | | | | | | | | | |
|---------------------------------------|------|-----|--|-------|-----|-----|-------|-----|-----|------|------|-------|------|-----|-----|-----|------|------|--|--|--|
| Size code | 010 | 030 | | 10 | 20 | 32 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 1 | 2 | 3 | 4 | 5 | | | |
| Valve size | 06 | | | 10 | 20 | 32 | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 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 | 4500 | 200 | 400 | 750 | 1000 | 2000 | | | |

14 MODEL CODE OF CARTRIDGES (for LIMZA and LICZA)

| | | | | | | | | | | |
|---|---|-----------|---|-----------|---|----------|---|-----------|---|-----------------|
| <p style="text-align: center;">SC LI</p> <p>Cartridge according to ISO 7368</p> <p>Size: 16; 25; 32; 40; 50; 63 and 80 (only for LIMZA)</p> <p>Type of cartridge 31 = for LIMZA and LICZA 36 = for LICZA</p> | - | 32 | - | 31 | - | 2 | - | ** | - | <p>*</p> |
| <p>Seals material: - = NBR PE = FKM</p> <p>Series number</p> <p>Spring cracking pressure: 2 = 1,5 bar for poppet 31 3 = 3 bar 4 = 4 bar 6 = 6 bar for poppet 31 and 36</p> | | | | | | | | | | |

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.

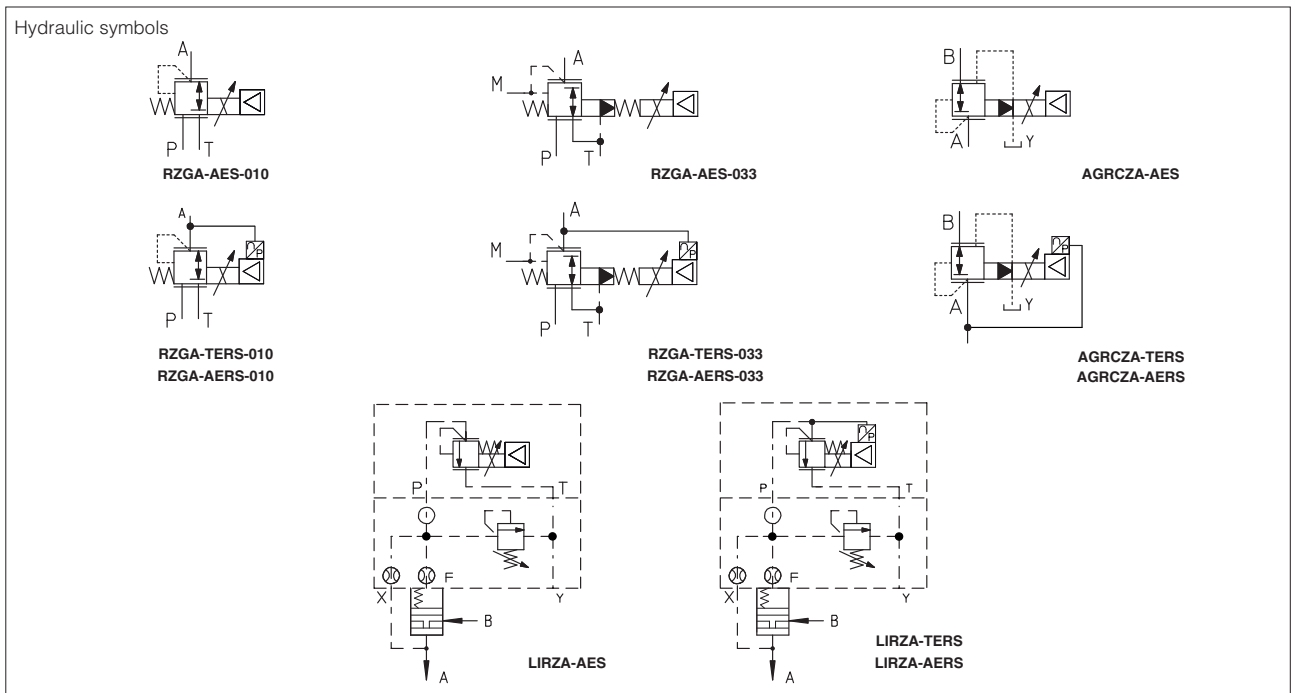
15 MODEL CODE OF EX-PROOF PROPORTIONAL PRESSURE REDUCING VALVES

| | | | | | | | | | | | | | | | | | | |
|---|---|-----------|---|-------------|---|-----------|---|------------|---|------------|---|----------|---|-----------|---|-----------|---|----------|
| <p style="text-align: center;">RZGA</p> <p>Pressure reducing: RZGA = subplate size 06 AGRCZA = subplate size 10, 20 LIRZA = cartridge type see sect. 17</p> <p>Certification (omit for ATEX) IE = IECEx</p> <p>AES = without integral pressure transducer TERS = with integral pressure transducer (2) AERS = as TERS but with remote pressure transducer (2) (to be ordered separately), see tab. G466</p> <p>Communication interfaces PS = Serial (1) BC = CANopen BP = PROFIBUS DP</p> <p>Valve size: see section 16 for size code</p> | / | IE | - | TERS | - | PS | - | 033 | / | 250 | / | M | / | /* | / | ** | / | * |
| <p>Options:</p> <p>7 = for ambient temperature up to 60° C E = external pilot (only for AGRCZA) I = current reference 4 ÷ 20mA (only TERS, AERS) (3) P = with integral mechanical pressure limiter (only for AGRCZA and LIRZA) R = with check valve (only for AGRCZA)</p> <p>Cable entrance threaded connection: M = M20x1,5 (6H/6g)</p> <p>Max regulated pressure: see section 16</p> | | | | | | | | | | | | | | | | | | |
| <p>Seals material: - = NBR PE = FKM</p> <p>Series number</p> | | | | | | | | | | | | | | | | | | |

- (1) Serial interface always present for AES-BC and AES-BP.
 (2) Integral or remote pressure transducer with current feedback 4 ÷ 20 mA.
 (3) Software selectable for AES.

Note: For the valves functional characteristics see:
 table **F015, F020** (RZGA-*-010); table **F070, F075** (RZGA-*-033); table **F050, F055** (AGRCZA); table **F300, F305** (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)

16 HYDRAULIC CHARACTERISTICS



| Valve model | RZGA | | AGRCZA | | LIRZA | | | |
|---------------------------------------|--------------|-----|--------|-----|-------|-----|-----|-----|
| | 010 | 033 | 10 | 20 | 1 | 2 | 3 | 4 |
| Size code | 06 | | 10 | 20 | 16 | 25 | 32 | 40 |
| Valve size | 06 | | 10 | 20 | 16 | 25 | 32 | 40 |
| 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, A, B, X [bar] | | | | | 315 | | | |
| Max pressure at port T, Y [bar] | | | | | 210 | | | |
| Max flow [l/min] | 12 | 40 | 160 | 300 | 160 | 300 | 550 | 800 |

17 MODEL CODE OF CARTRIDGES (for LIRZA)

| | | | | | | | | | | |
|--|---|-----------|---|-----------|---|----------|---|-----------|---|----------|
| <p style="text-align: center;">SC LI</p> <p>Cartridge according to ISO 7368</p> <p>Size: 16; 25; 32; 40</p> <p>Type of cartridge: 37 = for LIRZA</p> | - | 25 | - | 31 | - | 2 | - | ** | - | * |
| <p>Seals material: - = NBR PE = FKM</p> <p>Series number</p> <p>Spring cracking pressure: 4 = 4 bar 7 = 7 bar</p> | | | | | | | | | | |

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.

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

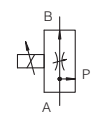
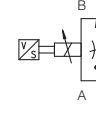
18 MODEL CODE OF EX-PROOF PRESSURE COMPENSATED PROPORTIONAL FLOW CONTROL VALVES

| | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|---|------------|---|-----------|---|-----------|---|-----------|---|----------|---|----------|---|----------|-------|-------|--|---|---|--|
| QVHZA | / | IE | - | TES | - | PS | - | 06 | / | 12 | / | M | / | * | / | * | | | | | | |
| <p>QVHZA = size 06 QVKZA = size 10</p> <p>Certification (omit for Atex) IE = IECEx</p> <p>AES = without integral position transducer TES = with integral position transducer</p> <p>Communication interfaces PS = Serial (1) BC = CANopen BP = PROFIBUS DP</p> <p>Valve size (ISO 4401) QVHZA: 06 QVKZA: 10</p> | | | | | | | | | | | | | | | | | | | | | | |
| <p>Options: 7 = for ambient temperature up to 60° C D = quick venting (only for -AES versions) I = current reference 4 ÷ 20mA (only TES) (2) W=power limitation function (only AES)</p> <p>Cable entrance threaded connection: M = M20x1,5 (6H/6g)</p> | | | | | | | | | | | | | | | | | | | | | | |
| <p>Seals material: - = NBR PE = FKM</p> <p>Series number</p> | | | | | | | | | | | | | | | | | | | | | | |
| <p>Max regulated flow:</p> <table style="width:100%; border: none;"> <tr> <td style="width:33%; text-align: center;">QVHZA</td> <td style="width:33%; text-align: center;">QVKZA</td> <td style="width:33%;"></td> </tr> <tr> <td style="text-align: center;">3 = 3,5 l/min; 12 = 12 l/min; 18 = 18 l/min;</td> <td style="text-align: center;">36 = 36 l/min; 45 = 45 l/min;</td> <td style="text-align: center;">65 = 65 l/min; 90 = 90 l/min</td> </tr> </table> | | | | | | | | | | | | | | | | | QVHZA | QVKZA | | 3 = 3,5 l/min; 12 = 12 l/min; 18 = 18 l/min; | 36 = 36 l/min; 45 = 45 l/min; | 65 = 65 l/min; 90 = 90 l/min |
| QVHZA | QVKZA | | | | | | | | | | | | | | | | | | | | | |
| 3 = 3,5 l/min; 12 = 12 l/min; 18 = 18 l/min; | 36 = 36 l/min; 45 = 45 l/min; | 65 = 65 l/min; 90 = 90 l/min | | | | | | | | | | | | | | | | | | | | |

- (1) Serial interface always present for AES-BC and AES-BP
- (2) Software selectable for AES.

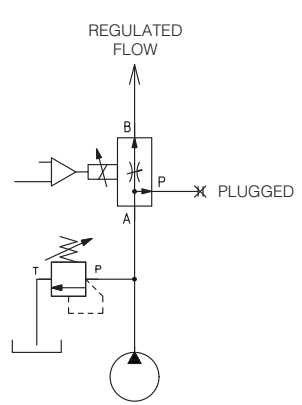
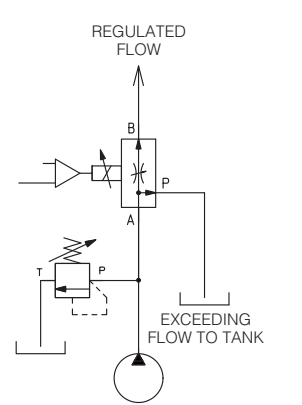
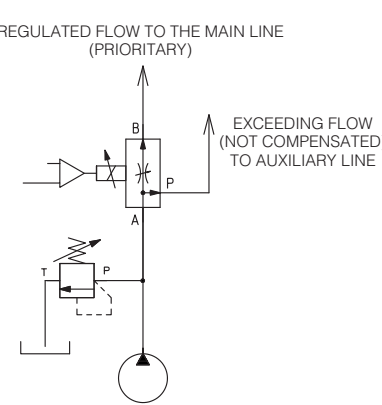
Note: For the valves functional characteristics see: table **F410, F412** (QVHZA-*, QVKZA-*)
For mounting surface dimensions see table **P005**
For the digital drivers technical data and functional parameters setting, see: table **G115** (-AES); table **G210** (-TES)

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

| | | | | | | | | | | | | | | |
|---|---|---|------------------|------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <p>Hydraulic symbols</p> <p>Note: In three-way connection port P is open. In two-way connection port P must be plugged. Port T must always be plugged.</p> |  <p>QVHZA-AES QVKZA-AES</p> |  <p>QVHZA-TES QVKZA-TES</p> | | | | | | | | | | | | |
| 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 | 55 | | 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.

19.1 TYPICAL APPLICATIONS

| | | |
|--|---|--|
| <p>2 WAY CONNECTION</p>  <p style="text-align: center;">In the 2 way connection the pump is always working at the pressure set on the relief valve</p> | <p>3 WAY CONNECTION</p>  <p style="text-align: center;">In the 3 way connection the pump is working at the pressure required by the user load</p> | <p>3 WAY CONNECTION AS PRIORITY VALVE</p>  <p style="text-align: center;">The regulated flow (pressure compensated) is sent to the main line the exceeding flow for the auxiliary line</p> |
|--|---|--|

20 ELECTRONICS WIRING

20.1 MAIN CONNECTIONS FOR ALL MODELS

| PIN | CABLE ENTRANCE | DESCRIPTION | TECHNICAL SPECIFICATION |
|-----|----------------|-------------|--|
| 1 | 3 | ENABLE | Enabling input, normal working = 24 Vdc |
| 2 | 3 | VL0 | Power supply (logic stage) Stabilized +24 Vdc |
| 3 | 3 | VL+ | 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 ± 10 Vdc or $0 \div 10$ Vdc (2) (3) |
| 8 | 3 | MONITOR | ± 10 Vdc or $0 \div 10$ Vdc ± 5 Vdc (only for -AES) (1) (3) |
| 9 | 3 | INPUT+ | Reference signal ± 10 Vdc or $0 \div 10$ Vdc (2) (3) |
| 10 | 3 | V0 | Power supply (power stage) Stabilized +24 Vdc |
| 11 | 3 | V+ | Filtered and rectified: Vrms 21-33 (ripple max 2Vpp) |
| PE | 3 | EARTH | Earth connection |


- (1) referred to pin 2 (VL0)
- (2) differential mode input
- (3) current reference and monitor (4 \div 20mA) **for option I** (not for -AES)

20.2 TRANSDUCER CONNECTIONS FOR -TERS, -LES (factory wired), -AERS, -AES/W (to be wired)

| PIN | CABLE ENTRANCE | VERSION | DESCRIPTION | TECHNICAL SPECIFICATION |
|-----|----------------|-------------|-------------|-------------------------------------|
| 12 | 4 | -AES/W | Monitor 2 | 2 nd Monitor ± 5 Vdc |
| | | -TERS -AERS | NC | Not connected |
| | | -LES | AGND | Power supply and signal = 0 Vdc |
| 13 | 4 | -AES/W | AGND | Power supply and signal = 0 Vdc |
| | | -TERS -AERS | VT+ | Transd. supply +24 Vdc |
| | | -LES | VT+ | Transd. supply +15 Vdc |
| 14 | 4 | -AES/W | TR | Pressure transducer signal |
| | | -TERS -AERS | NC | Not connected |
| | | -LES | VT- | Transd. supply -15 Vdc |
| 15 | 4 | -AES/W | VT+ | Transd. supply +24 Vdc |
| | | -TERS -AERS | TR | Pressure transd. signal |
| | | -LES | TR | Position transd. signal |

N.B. For -AES and -TES versions the pins 12-13-14-15 are not connected

20.3 -PS COMMUNICATION INTERFACE (M8 connector)

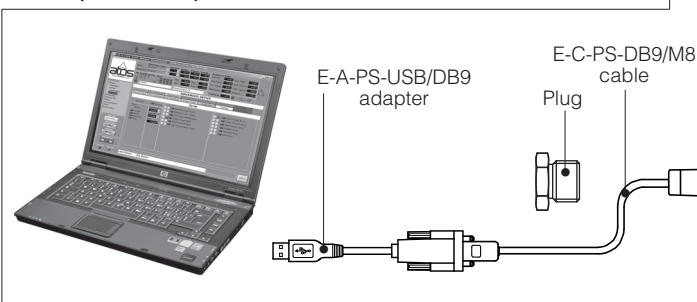
| PIN | CABLE ENTRANCE (4) | SIGNAL | WIRE COLOUR | CONNECTOR INTERFACE |
|-----|--------------------|--------|-------------|---|
| 1 | 1 | RS_RX | brown |  Front view |
| 3 | | RS_TX | blue | |
| 4 | | RS_GND | black | |

(4) For AES-BC and AES-BP versions, the Serial communication interface is always available for eventual valve's parameter setting through the E-SW programming software; M8 connector available inside the electronic box, see Fig.1

20.4 -BC and -BP COMMUNICATION INTERFACE CONNECTIONS

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

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



20.5 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.

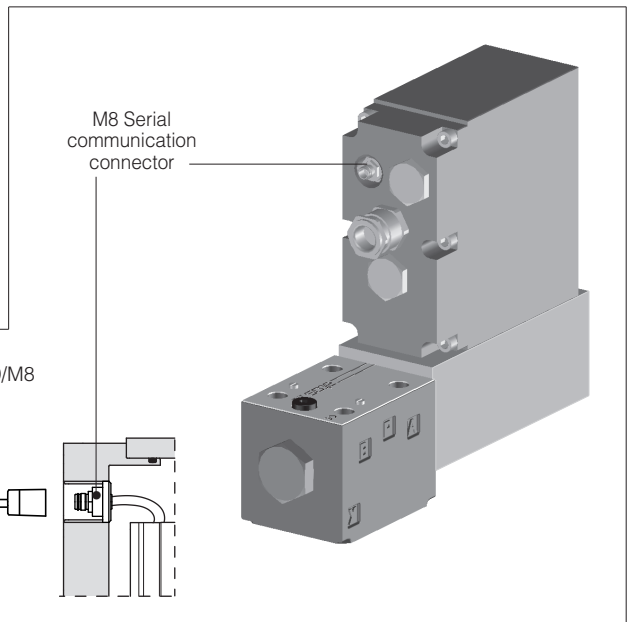
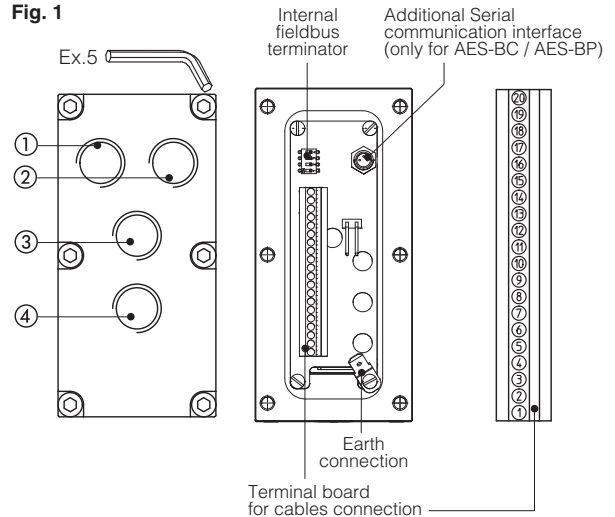
Depending to the type of connection to the fieldbus network, one or two cable entrances can be used (see section 20 TAB.1) -"Via stub" connection, cable entrance ① to be used -"Daisy chain" connection, cable entrance ① and ② to be used

- 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 (for -AERS or -AES/W)

The cable entrance ④ is factory wired for:

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

Fig. 1



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

USB Adapters, Cables and Terminators, can be ordered separately

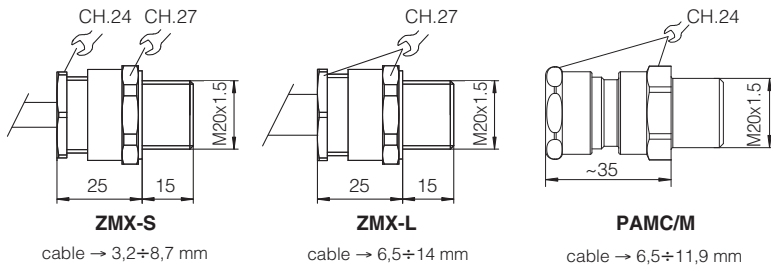
E-A-PS-USB/DB9 and **E-C-PS-DB9/M8** = USB adapter and cable for -PS drivers
 E-A-PS-USB/DB9 adapter is required only if a RS232 serial port is not available on the PC

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.

22 MODEL CODE OF CABLE GLANDS AND THREADED PLUGS (for non-armoured cables)

Atos can supply different kind of cable glands, depending to the valve's certification, and to the cable's diameter used by the costumer. The cable glands and the threaded plugs (to be ordered separately) are available ATEX certified according to EN 60079-0 and EN 60079-1, or multicertified ATEX, IECEx, EAC



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

- Atex certified cable gland code ZMX-S for factory wired connections
- Atex and IECEx certified threaded plugs code ZMX-T (for connections not to be used)
- Multicertified cable gland code PAMC/M for factory wired connections

Following codes have to be specified for spare cable glands (IP66), or plug:

- ZMX-T** = brass threaded plug, threaded connection M20x1,5 (6H/6g).
ZMX-S = brass cable gland, threaded connection M20x1,5 (6H/6g). Cable size 3,2 ÷ 8,7 mm
ZMX-L = brass cable gland, threaded connection M20x1,5 (6H/6g). Cable size 6,5 ÷ 14 mm
PAMC/M = with threaded connection M20x1,5 UNI-4535 (6H/6g). Cable size PG-9 (IP66/67)

The cable gland PA*/M must be blocked with loctite or similar or with a locking nut.

For connections available for the costumers, 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**

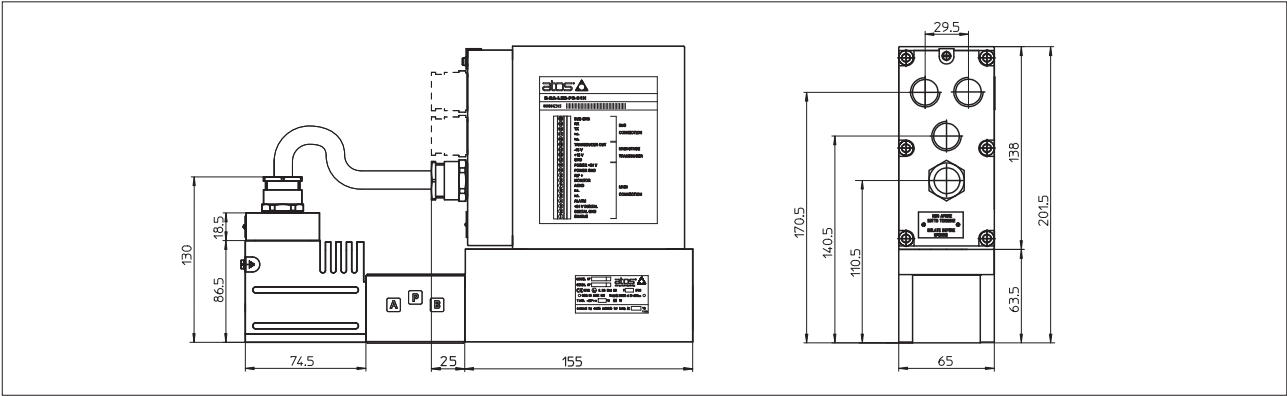
TAB. I

| Valve's communication interfaces | To be ordered separately | | | | Scheme | Notes |
|---|--------------------------|----------------------|------------------------|------------------------|--------|---|
| | Cable gland quantity | Cable gland position | Threaded plug quantity | Threaded plug 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 1, 2 and 3 are 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 1, 2 and 3 are open for costumers Cable entrance 4 is factory plugged or wired depending to the valve model |

23 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-*-45 | 22 | AGMZA-*-20 | 16 | LIMZA-*-6 | 28 | RZGA-*-033 | 9,6 | QVKZA | 9,5 |
| DKZA-*-05 | 9 | DPZA-*-47 | 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 | | |

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



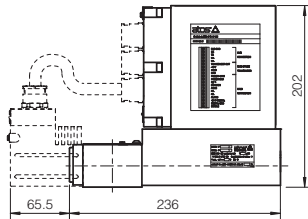
25 DIMENSIONS OF EXPLOSION PROOF VALVES WITH INTEGRAL DIGITAL ELECTRONICS [mm]

DIRECTIONAL VALVES
dotted line = double solenoid version

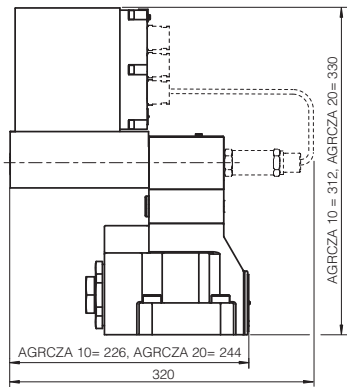
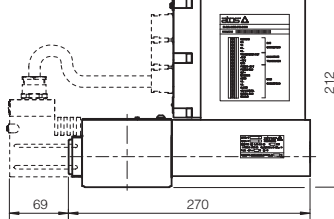
PRESSURE CONTROL VALVES
dotted line = -TERS version

AGRCZA

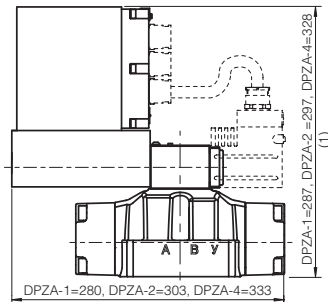
**DHZA
DLHZA**



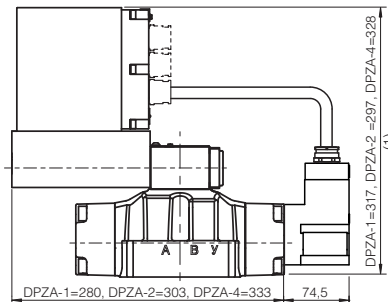
**DKZA
DLKZA**



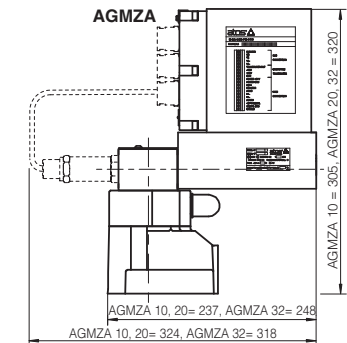
DPZA -AES



DPZA -LES

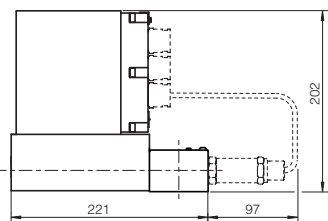


AGMZA

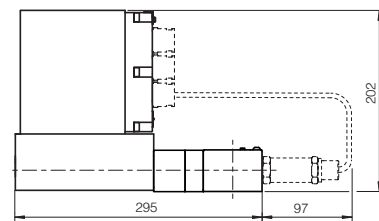


(1) For DPZA-LES-1 the height in the drawing includes the pressure reducing valve (option /G standard)
For DPZA-AES-1, DPZA-*2 and -4, in case of option /G the height in the drawings must be increased of 30 mm

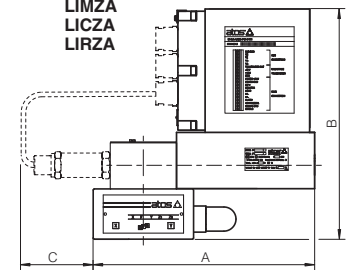
**RZMA-010
RZGA-010**



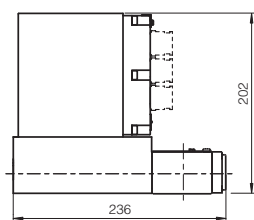
**RZMA-030
RZGA-033**



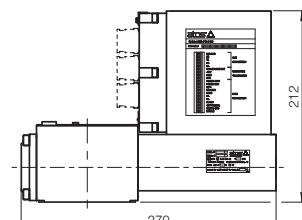
**LIMZA
LICZA
LIRZA**



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