Explosion-proof solenoid valves
on/off and proportional controls - ATEX, IECEx or Rostechnadzor Russian certification

On/off and proportional valves equipped with explosion-proof solenoids available with following certifications and protection modes:

**Solenoids group II** for surface plants with gas, vapours and dust environment
- ATEX 94/9/EC: Ex II 2 GD Ex d IIC T6/T4/T3,
- IECEx worldwide recognized safety certification, Ex d IIC T6/T4/T3
- Rostechnadzor Russian Certification Ex d IIC T6/T4/T3

**Solenoids group I** for surface, tunnels or mining plants
- ATEX 94/9/EC: Ex I M2 Ex d I Mb
- IECEx: Ex d I Mb

The solenoid case is 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. DHA and DLOH valves conform to SIL 3 safety level (TÜV approved). These solenoids are applied to hydraulic valves for application in explosion-hazardous environments.

### Table E120-24/E

#### 1 EXPLOSION PROOF SOLENOIDS: MAIN DATA

<table>
<thead>
<tr>
<th>SOLENOID TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP II, ATEX</strong></td>
</tr>
<tr>
<td><strong>GROUP II, IECEx</strong></td>
</tr>
<tr>
<td><strong>GROUP I, ATEX (MINING)</strong></td>
</tr>
<tr>
<td><strong>GROUP I, IECEx (MINING)</strong></td>
</tr>
<tr>
<td><strong>GROUP II, Rostechnadzor</strong></td>
</tr>
</tbody>
</table>

**Solenoid code**
- OZA-A
- OZAI-A
- OZAM-A
- OZAMI-A
- OZA/RU-A

**Voltage code**
- 12 DC
- 24 DC
- 12 AC
- 24 AC
- 12 VDC
- 24 VDC

**Power consumption**
- 35W
- 8W

**Coil insulation Class**
- H

**Protection degree**
- IP 67 According to IEC 144 when correctly coupled with the relevant cable gland PA* see section 26

**Duty factor**
- 100%

**Mechanical construction**
- Flame proof housing classified Ex d, according to EN 60079-0: 2006, EN 60079-1: 2007

**Cable entrance and electrical wiring**
- Threaded connection for cable entrance, vertical (standard) or Horizontal (option /O). See section 26 for cable gland

**Voltage**
- 12 DC, 24 DC
- 12 AC, 24 AC

**Ambient temperature**
- -40 ÷ +40°C

**Note:**
- For ex-proof proportional valves with integral digital drivers, see table F600

#### 2 EXPLOSION PROOF SOLENOIDS: TEMPERATURE DATA

<table>
<thead>
<tr>
<th>METHOD OF PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP II, ATEX</strong></td>
</tr>
<tr>
<td><strong>GROUP II, IECEx</strong></td>
</tr>
<tr>
<td><strong>GROUP I, ATEX (MINING)</strong></td>
</tr>
<tr>
<td><strong>GROUP I, IECEx (MINING)</strong></td>
</tr>
<tr>
<td><strong>GROUP II, Rostechnadzor</strong></td>
</tr>
</tbody>
</table>

**Temperature class (only for Group II)**
- T4
- T3 (option (T))
- T6
- T4 (option (T))

**Surface Temperature**
- ≤ 135 °C
- ≤ 200 °C
- ≤ 85 °C
- ≤ 135 °C

**Ambient Temperature**
- ≤ -40 °C
- ≤ +70 °C

**Rating**
- 35W
- 8W

**Note:**
- For alternating current supply a rectifier bridge is provided built-in the solenoid

---

*IP 67: Protection against solid objects and water splashes.*

*PA*: Protection against oil, water, and dust.

*SIL 3*: Safety Integrity Level.

(1) For alternating current supply a rectifier bridge is provided built-in the solenoid.
In the following are resumed the valves marking according to ATEX Group I, ATEX and IECEx Group II, Rostechnadzor certifications.

### 3.1 GROUP II, ATEX

**Ex** = ATEX identification for explosive atmospheres equipments  
**I** = Group II for surfaces plants  
**G** = Gas group  
**T6/T4/T3** = Temperature class of solenoid surface  
**Gb** = Equipment protection level, high level protection for explosive Gas atmospheres  
**Ex tb** = Equipment protection by enclosure “Ib”  
**IIC** = Suitable for conductive dust (applicable also IIIB and/or IIIA)  
**Db** = Equipment protection level, high level protection for explosive Dust atmospheres  
**IP67** = Protection degree  

**Zone 1 (gas) and 21 (dust)** = Possibility of explosive atmosphere during normal functioning  
**Zone 2 (gas) and 22 (dust)** = Low probability of explosive atmosphere

### 3.2 GROUP II, IECEx

**Ex d** = Equipment for explosive atmospheres, flame proof housing  
**IIC** = Gas group  
**T6/T4/T3** = Temperature class of solenoid surface  
**tb** = Dust ignition protection  
**IIC** = Gas group  
**T6/T4/T3** = Temperature class of solenoid surface  
**Gb** = Equipment protection level, high level protection for explosive Gas atmospheres  
**Ex tb** = Equipment protection by enclosure “Ib”  
**IIC** = Gas group  
**T6/T4/T3** = Temperature class of solenoid surface  
**Gb** = Equipment protection level, high level protection for explosive Gas atmospheres  
**Ex tb** = Equipment protection by enclosure “Ib”  
**IIC** = Gas group  
**T6/T4/T3** = Temperature class of solenoid surface  
**Gb** = Equipment protection level, high level protection for explosive Gas atmospheres  
**Ex tb** = Equipment protection by enclosure “Ib”

### 3.3 GROUP I, ATEX (mining)

**Ex** = ATEX identification for explosive atmospheres equipments  
**I** = Group I for mines and surface plants  
**M2** = High protection (equipment category)  
**d** = Flame proof housing  
**I** = Gas group (Methane)  
**Mb** = Equipment protection level, high level protection for explosive atmospheres

### 3.4 GROUP I, IECEx (mining)

**Ex d** = Equipment for explosive atmospheres, flame proof housing  
**I** = Group I for mines and surface plants  
**M2** = High protection (equipment category)  
**d** = Flame proof housing  
**I** = Gas group (Methane)  
**Mb** = Equipment protection level, high level protection for explosive atmospheres

### 3.5 ROSTECHNADZOR

Rostechnadzor certification acknowledges the whole ATEX Directive 94/9/EC. For this reason the solenoids report the ATEX nameplate in addition to the Rostechnadzor one. This certification is available only for gas environment (not for dust).

**EX** = ATEX identification for explosive atmospheres equipments  
**I** = Group I for mines and surface plants  
**M2** = High protection (equipment category)  
**d** = Flame proof housing  
**I** = Gas group (Methane)  
**Mb** = Equipment protection level, high level protection for explosive atmospheres

---

Note: According to EN60079-0 the valves with ATEX certification can be coated with a non-metallic material (for ex. painted), observing the maximum thickness:  
Group **IC** = 0.2 mm max

---

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

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MODEL CODE OF SPOOL TYPE ON-OFF DIRECTIONAL SOLENOID VALVES

DHA / IE - 0 63 1/2 / PA - GK / 7 24DC ** /

DHA = spool type - direct
DPHA = spool type - piloted

Optional certifications (omit for Group II ATEX)
IE = IECEx, Group I
IEM = IECEx, Group I (mining)
M = ATEX, Group I (mining)
RU = Rostechnadzor (Russian), Group II

Valve size (ISO 4401)
for DHA: 0 = 06
for DPHA: 1 = 10
2 = 16
4 = 25
6 = 32

Valve configuration, DHA see section /L51883 and DPHA see section /L51884

Spool type, DHA see section /L51883 and DPHA see section /L51884

Optional cable gland:
PA = with threaded cable gland, see section [3]

Solendion threaded connection:
GK = GK-1/2” ISO/UNI-6125 (tapered)
NPT = 1/2” NPT ANSI B2.1 (tapered)
M = M20x1.5 UNI-4535 (6H/6g)

Series number
Voltage code - see section [1]

Options:
7 = for ambient temperature up to 70°C (not for Group I)
A = solenoid at side of port B (for single solenoid valves)
M = vertical hand lever (only for DHA) (2)
O = horizontal cable entrance (1)
WP = prolonged manual override protected by metallic cap

Only for DPHA:
/D = Internal drain
/E = External pilot pressure
/H = Adjustable chokes (meter-out to the pilot chambers of the main valve)
/H9 = Adjustable chokes (meter-in to the pilot chambers of the main valve)
/LS = Only for DPHA-2 and DPHA-4 plug with calibrated restrictor on port P of pilot valve
/S = Man spool stroke adjustment (not for DPHA-1)

NOTES:
- For DP*-1 are available only spools: 0, 0/2, 1, 1P, 1/2, 1/2P, 3, 3P, 4, 7
- For DP*-6 are available only spools: 0, 1, 2, 3, 4, 5, 58, 6, 7, 8, 19, 91
7 MODEL CODE OF POPPET TYPE LEAK FREE DIRECTIONAL SOLENOID VALVES

DLO H – 2 A / PA - GK - AO / 7 24DC ** /

Directional control valve
poppet type, size 06

H = max flow 12 l/min
K = max flow 30 l/min
2 = two way (only for DLOH)
3 = three way

Valve configuration, see section 8

A = open in rest position
C = closed in rest position

Valve type configuration, see section /L51886

A = open in rest position
C = closed in rest position

Series number

Voltage code - see section /L51879

Options:

7 = for ambient temperature up to 70°C (not for Group I)
O = horizontal cable entrance (not for group I Atex)
R = with check valve on port P (only for DLOH)
WP = prolonged manual override protected by metallic cap

Certification type

AO = ATEX, Group II
AO/IE = IECEx, Group II
AO/IEM = IECEx, Group I (mining)
AO/M = ATEX, Group I (mining)
AO/RU = Rostechnadzor (Russian), Group II

Seals material (1):
omit for NBR (mineral oil & water glycol)
PE = FPM

8 CONFIGURATION OF DLOH/AO*/ AND DLOK/AO*/

9 \(\frac{Q}{\Delta p}\) DIAGRAMS OF ON/OFF DIRECTIONAL CONTROLS (based on mineral oil ISO VG 46 at 50°C)

DHA

INTERNAL LEAKAGE of DLOH and DLOK less than 5 drops/min (0,36 cm³/min) at max pressure.

10 OPERATING LIMITS OF ON/OFF DIRECTIONAL CONTROLS (based on mineral oil ISO VG 46 at 50°C)

The diagram have been obtained with warm solenoids and power supply at lowest value (V nom-10%). For DHA valves the curves refer to application with symmetrical flow through the valve (i.e. P → A and B → T). In case of asymmetric flow the operating limits must be reduced.

Flow rate [l/min]

10.1 Pressure limits: P, A, B = 350 bar; T = 210 bar

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11 MODEL CODE OF PRESSURE RELIEF VALVES

AGAM - pressure relief valve: subplate mounting, see tab. C066
ARAM = pressure relief valve: threatened connections, see tab. 2458

Valve size
for AGAM:
10 (ISO 6264) 20 = G 3/4”
32 (ISO 6264) 32 = G 1 1/4”

Number of the different setting pressures:
1 = one setting pressure
2 = two setting pressure
3 = three setting pressure

Valve configuration
0 = venting with de-energized solenoid
1 = venting with energized solenoid
2 = without venting

Max regulated pressure of first (second / third) setting see section C066.

Optional cable gland:
PA = with threaded cable clamp, see section C066

(1) Option /BT = low temperature -40°C also available on request (not for group I ATEX -mining-)

12 HYDRAULIC CHARACTERISTICS

AGAM-**/10 AGAM-**/20 AGAM-**/32
AGAM-**/11 AGAM-**/21 AGAM-**/31
AGAM-**/22 ARAM-**/20
AGAM-**/21 ARAM-**/21
AGAM-**/22 ARAM-**/22

Valve model
Size 10 Size 20 Size 32
Setting
Max pressure port P' [bar] 350
Pressure range [bar] 4÷50; 6÷100; 7÷210; 8÷350
Max flow AGAM [(l/min)] 200 400 600
Max flow ARAM [(l/min)]

(1) Option /BT = low temperature -40°C also available on request (not for group I ATEX -mining-)

13 MODEL CODE OF COVERS FOR CARTRIDGE VALVES

LIDEB - 1 / PA - GK - AO - O 24DC

LIDEBH* = with solenoid valve and shuttle valve for pilot selection
LIDEW* = with solenoid valve for pilot selection

Valve configuration (see H036 section)

Optional cable gland:
PA = with threaded cable gland, see section C066

Solenoid threaded connection:
GK = GK-1/2" ISO/UNI-6125 (tapered)
NPT = 1/2" NPT ANSI B2.1 (tapered)
M = M20x1,5 UNI-4535 (6H/6g)

Seals material (1): omit for NBR (mineral oil & water glycol)
PE = FPM

(1) Option /BT = low temperature -40°C also available on request (not for group I ATEX -mining-)

14 HYDRAULIC SYMBOLS
15 MODEL OF PROPORTIONAL DIRECTIONAL VALVES

**DHZA** = size 06
**DKZA** = size 10
**DPZA** = size 16 = size 25

Optional certifications (not for Group II ATEX):
IE = IEEx, Group II
EM = EXEx, Group I (mining)
M = ATEx, Group I (mining)
RU = Rosezhezradzor (Russian), Group II

Valve size (ISO 4401):
DHZA = size 06
DKZA = size 10
DPZA = size 16

Configuration, DHZA and DKZA see section 16, DPZA see section 17.

**L** = 3 position, position centered
**T** = linear;
**S** = progressive; D = as S, but with P-A = Q, P-B = Q/2

(1) Option **/BT** = low temperature -40°C also available on request only for valves -A without integral position transducer (not for group I ATEX -mining-)
(2) Option **/BT** available only for DHZA configuration 51, 53, 71, spool type S3, S5, D3, D5, L3, L5

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

**Hydraulic symbols**

- **a**: P, A, B, X
- **b**: T
- **c**: P-A, Q, P-B, Q/2
- **d**: S
- **e**: D

**Valve model**

**DHZA-A**

**DHZA-T**

**DKZA-A**

**DKZA-T**

**Spool overlapping**

<table>
<thead>
<tr>
<th>1, 3</th>
<th>1, 3</th>
<th>1, 3</th>
<th>1, 3</th>
<th>1, 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>L14</td>
<td>L1</td>
<td>S2</td>
<td>S3, L3, D3</td>
<td>S5, L5, D5</td>
</tr>
<tr>
<td>70</td>
<td>50</td>
<td>40</td>
<td>40</td>
<td>90</td>
</tr>
</tbody>
</table>

**Pressure limits**

- ports P, A, B = 350; T = 160 (250 with external drain Y)

**Max flow**

- at Ap = 10 bar (P-T)
- at Ap = 30 bar (P-T)

**Response time (2)**

- < 30 (A) ≤ 15 (T)
- < 40 (A) ≤ 20 (T)

**Hysteresis (%)**

- ≤ 5% (A) ≤ 0,2% (T)
- ≤ 5% (A) ≤ 0,2% (T)

**Repeatability**

- ± 1% (A) ± 0,1% (T)
- ± 1% (A) ± 0,1% (T)

1. Additional spools and configurations for -T execution, see table F172.
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.

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

**Hydraulic symbols**

- **a**: P, A, B, X
- **b**: T
- **c**: P-A, Q, P-B, Q/2
- **d**: S
- **e**: D

**Valve model**

**DPZA-1**

**DPZA-2**

**DPZA-4**

**DPZA-6**

**Spool type and size**

<table>
<thead>
<tr>
<th>L5</th>
<th>S5</th>
<th>D5</th>
<th>S3</th>
<th>D3</th>
<th>L5</th>
<th>S5</th>
<th>D5</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>100</td>
<td>100-60</td>
<td>130</td>
<td>130-90</td>
<td>200</td>
<td>180</td>
<td>160-130</td>
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<tr>
<td>160</td>
<td>160</td>
<td>160-103</td>
<td>225</td>
<td>225-135</td>
<td>340</td>
<td>310</td>
<td>260-225</td>
</tr>
<tr>
<td>180</td>
<td>180</td>
<td>180-110</td>
<td>350</td>
<td>350-300</td>
<td>550</td>
<td>460</td>
<td>300-460</td>
</tr>
<tr>
<td>390</td>
<td>390</td>
<td>390-200</td>
<td>640</td>
<td>640-340</td>
<td>1450</td>
<td>1350</td>
<td>1150-2150</td>
</tr>
<tr>
<td>690</td>
<td>690</td>
<td>690-310</td>
<td>1150</td>
<td>1150-950</td>
<td>3250</td>
<td>3250-1150</td>
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<tr>
<td>860</td>
<td>860</td>
<td>860-640</td>
<td>4150</td>
<td>4150-2350</td>
<td>6500</td>
<td>6500-6500</td>
<td></td>
</tr>
<tr>
<td>1030</td>
<td>1030</td>
<td>1030-3800</td>
<td>8800</td>
<td>8800-3800</td>
<td>12000</td>
<td>12000-12000</td>
<td></td>
</tr>
</tbody>
</table>

**Max flow**

- at Ap = 10 bar (P-T)
- at Ap = 30 bar (P-T)

**Response time (1)**

- < 80 ≤ 100
- < 120

**Hysteresis (%)**

- ≤ 5%
- ≤ 5%

**Repeatability**

- ± 1%
- ± 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.

ELECTRONIC DRIVERS TO BE USED WITH EX-PROOF PROPORTIONAL VALVES
- Atos driver for proportional valves type **-A** (without transducer): E-ME-AC, see tab. G035
- Atos driver for proportional valves type **-T** (with transducer): E-ME-T, see tab. G140

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MODEL CODE OF SERVOPROPORTIONAL VALVES

DLHZAz /IE- T - 0 4 0 - L 7 3 / PA - GK / 7 ** /

Optional certifications (omit for Group II ATEX)
IE = IECEx, Group II
HE = IECEx, Group I (mining)
M = ATEX, Group I (mining)
RU = Restechnadzor (Russian), Group II

T = with integral position transducer

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

Optional cable gland:
PA = with threaded cable gland, see section

Configuration, see section:
4 = spring offset with fail safe
6 = spring offset

Spool overlapping in central position, see section:
0 = P, A, B, T positive overlapping

Spool type:
L = linear;
T = not linear (1);
D = different-linear (1);
V = progressive;
DT = as D but with non-linear regulation (1);

Pressure limits [bar]
DLHZAz-T* ports P, A, B = 350;
T = 210 (250 with external drain /Y)

DLKZA-T* ports P, A, B = 315;
T = 210 (250 with external drain /Y)

Valve model

Pressure limits [bar]

Max flow (1) [l/min]
at Δp = 30 bar
at Δp = 70 bar
max permissible flow

Leakage [cm³/min] at P = 100 bar (2)

Fail safe connections

Valve model

Leakage [cm³/min] at P = 100 bar (3)

Flow [l/min] (4)

Response time [ms]

Hysteresis [%]

Thermal drift

Notes:
- Above performance data refer to valves coupled with Atos electronic drivers, see table G140.
- The flow regulated by the directional proportional valves is not pressure compensated, thus it is affected by the load variations. To keep constant the regulated flow under different load conditions, modular pressure compensators are available (see tab. D150).
- (1) For different Δp, the max flow is in accordance to the diagrams in section 13.2
- (2) Referred to spool in neutral position and 50°C oil temperature.
- (3) Referred to spool in fail safe position and 50°C oil temperature.
- (4) Referred to spool in fail safe position at Δp = 35 bar per edge and 50°C oil temperature.

(1) Spool type D, DT and T are available only for valve with fail safe position DLHZAz-*-040 and DLKZA-*-040

(1) Spool type D, DT and T are available only for valve with fail safe position DLHZAz-*-040 and DLKZA-*-040.
20 MODEL CODE OF PRESSURE COMPENSATED PROPORTIONAL FLOW CONTROL VALVES

QVHZA / IE - T - 06 / 12 / PA - GK / * / * / ** / *

QVKZA = size 10

Optional certifications (omit for Group II ATEX)
IE = IECEx, Group II
IEE = IECEx, Group I (mining)
M = ATEX, Group I (mining)
RU = Rostechnadzor (Russian), Group II

A = without position transducer
T = with integral position transducer

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

Max regulated flow:
QVHZA
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

Optional cable gland:
PA = with threaded cable clamp, see section

(1) Options:
7 = for ambient temperature up to 70° C (not for Group I)
E = external pilot (only for AGMZA)
O = horizontal cable entrance (not for Group I ATEX)
P = with integral mechanical pressure limiter (only for LIMZA)
Y = external drain (only for AGMZA)

WS = prolonged manual override protected by metallic cap (only for -A versions)

Series number
PE = FMA

Seals material (1):
omit for NBR (mineral oil & water glycol)

(2) Options:
7 = for ambient temperature up to 70° C (not for Group I)
C = current feedback signal 4÷20 mA (only for -T versions)
D = quick venting (only for -A versions)
O = horizontal cable entrance (only for -A versions, not for Group I ATEX)

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

Hydraulic symbols

Note: In three-way versions port P is open.
In two-way versions port P must be plugged.
Port T must always be plugged.

Valve model
QVHZA-A
QVHZA-T
QVKZA-A
QVKZA-T

Valve size
06
10

Max pressure for ports P, A, B [bar]
3.5
12
18
36
45
65
90

Max regulated flow [l/min]
3 = 3.5
12 = 12
18 = 18
36 = 36
45 = 45
65 = 65
90 = 90

Min regulated flow (1) [cm³/min]
15
20
30
50
60
80
100

Regulating Δp [bar]
4 - 6
10 - 12
15
4 - 6
10 - 12
15

Max flow on port A [l/min]
40
50
60
50
60
70
100

Max flow on port A [l/min]
40
50
60
50
60
70
100

Above performance data refer to valves coupled with Atos electronic drivers.

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

(2) Option /BT = low temperature -40°C also available on request only for valves -A without integral position transducer (not for group I ATEX)

22 MODEL CODE OF PRESSURE RELIEF AND COMPENSATOR VALVES

RZMA / IE - A - 010 / 250 / PA - GK / * / * / ** / *

HZMA = modular size 06
AGMZA = subplate size 10, 20, 32
LIMZA = cartridge (1)

Optional certifications (omit for Group II ATEX)
IE = IECEx, Group II
IEE = IECEx, Group I (mining)
M = ATEX, Group I (mining)
RU = Rostechnadzor (Russian), Group II

A = without integral pressure transducer

Valve model
RZMA
HZMA
AGMZA
LIMZA
LICZA

Valve size code 010 030 030 10 20 32 1 2 3 4 5 6 8 1 2 3 4 5

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 40 200 400 600 200 400 750 1000 2000 3000 200 400 750 1000 2000

Seals material (1):
omit for NBR (mineral oil & water glycol)

(1) For the code of the ISO cartridge to use with LIMZA and LICZA, see tab. F300 section [3].

(2) Option /BT = low temperature -40°C also available on request (not for group I ATEX)

23 HYDRAULIC CHARACTERISTICS

Valve model
RZMA
HZMA
AGMZA
LIMZA
LICZA

Size code 010 030 030 10 20 32 1 2 3 4 5

Valve size code 010 030 030 10 20 32 1 2 3 4 5

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 40 200 400 600 200 400 750 1000 2000 3000 200 400 750 1000 2000
MODEL CODE OF PROPORTIONAL PRESSURE REDUCING VALVES

**RZGA** / * / ** - A - 010 / 210 / PA - GK / * / ** / **

Pressure reducing:
- RZGA = subplate size 06
- HZGA = modular size 06
- KZGA = modular size 10
- AGRCZA = subplate size 10, 20
- LIRZA = cartridge

Optional certifications (omit for Group II ATEX):
- IE = IECEx, Group II
- IEM = IECEx, Group I (mining)
- RU = Rostechnadzor (Russian), Group II

A = without integral transducer

Valve size:
see section B for size code

Max regulated pressure
see section C

Optional cable gland
PA = with threaded cable clamp, see section D

Note: for the code of the ISO cartridge to use with LIRZA, see tab. F300 section G.

(1) Option /BT = low temperature -40°C also available on request (not for Group I Atex -mining-)

HYDRAULIC CHARACTERISTICS

<table>
<thead>
<tr>
<th>Valve model</th>
<th>RZGA</th>
<th>HZGA</th>
<th>KZGA</th>
<th>AGRCZA</th>
<th>LIRZA</th>
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</thead>
<tbody>
<tr>
<td>Size code</td>
<td>010</td>
<td>033</td>
<td>031</td>
<td>031</td>
<td>10</td>
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<tr>
<td>Valve size</td>
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<td>10</td>
<td>20</td>
<td>1</td>
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<tr>
<td>Max regulated pressure</td>
<td>[bar]</td>
<td>32</td>
<td>102</td>
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<tr>
<td>Min regulated pressure</td>
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<td>1</td>
<td>1</td>
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<tr>
<td>Max pressure at port P</td>
<td>[bar]</td>
<td>315</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max pressure at port T</td>
<td>[bar]</td>
<td>210</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Max flow</td>
<td>[l/min]</td>
<td>12</td>
<td>40</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

The cable glands PA and PAM, are available on request certified ATEX according to EN 60079-0 and EN 60079-1.

The cable gland PAIE, is certified IECEx according to the following standards:
- IEC 60079-0, IEC 60079-1, IEC 61241-0, IEC 61241-1

PA19 cable size 7÷9,5 mm
PA12 size cable 9÷12 mm

The valves must be connected to the power supply using the terminal board inside the solenoid.

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

Additional equipotential grounding can also be performed by the user on the external facility provided on the solenoid case.

Minimum section of external ground wire = 4 mm².

Minimum section of internal ground wire = the same of supply wire.

In order to reach the terminal board inside the solenoid, the top plate of the solenoid must be removed.

Solenoids are provided with threaded connection for cable entrance:
- GK-1/2" GAS (ISO/UNI 6125) or M20x1.5 (UNI-4535) or 1/2"NPT (ANSI B2.1)

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

Note: special cable clamps PG12, PA(M)112/* are available on request and they have to be ordered separately.

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