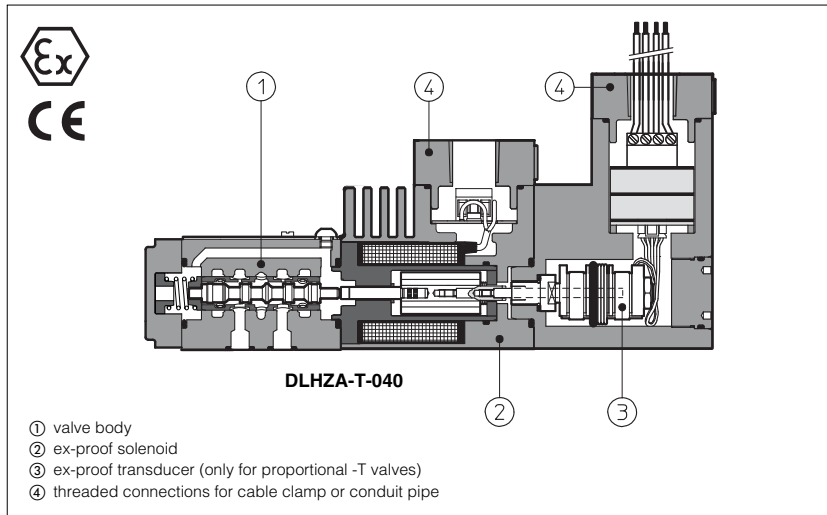


Explosion-proof solenoid valves

on/off and proportional controls - ATEX or Rostechnadzor Russian certification



On/off and proportional valves equipped with explosion-proof solenoids certified according to ATEX 94/9/CE, protection mode:

- Ex II 2 G Ex d IIC T6/T4/T3 (solenoids group II for surface plants with gas or vapours environment, category 2, zone 1 and 2);
- Ex I M2 Ex d I (solenoids group I for surface, tunnels or mining plants).
- Rostechnadzor Russian Certification, available for Group II solenoids

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.

1 EXPLOSION PROOF SOLENOIDS: MAIN DATA

SOLENOID TYPE	PROPORTIONAL		ON-OFF
	without transducer	with transducer	
Group II, ATEX	OZA-A	OZA-T	OA
Solenoid code Group I, ATEX (mining)	OZAM-A	OZAM-T	OAM
Group II, Rostechnadzor	OZA/RU-A	OZA/RU-T	OA/RU
Voltage code	VDC ±10%	12 DC, 24 DC	12DC, 24DC, 28DC, 48DC, 110DC, 125DC, 220DC
	VAC 50/60 Hz ±10%	-	12AC, 24AC, 110AC, 230AC (1)
Power consumption	35W		8W
Coil insulation	Class H		
Protection degree	IP 66 According to IEC 144 when correctly coupled with the relevant cable gland SP-PA*, see section 27		
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	Internal terminal board for cable connection Threaded connection for cable entrance, vertical (standard) or Horizontal (option /O). See section 27 for cable gland		

(1) For alternating current supply a rectifier bridge is provided built-in the solenoid

2 EXPLOSION PROOF SOLENOIDS: TEMPERATURE DATA

SOLENOID TYPE	PROPORTIONAL (with and without transducer)		ON/OFF	
	T4	T3 (option /7)	T6	T4 (option /7)
Method of protection	Ex d			
Temperature class (only for Group II)	T4	T3 (option /7)	T6	T4 (option /7)
Surface temperature	Group II, ATEX	≤ 135 °C	≤ 85 °C	≤ 135 °C
	Group I, ATEX (mining)	150 °C		
	Rostechnadzor	≤ 135 °C	≤ 200 °C	≤ 85 °C
Ambient temperature	Group II, ATEX	-40 ÷ +40 °C (2)	-40 ÷ +45 °C (2)	-40 ÷ +70 °C (2)
	Group I, ATEX (mining)	-20 ÷ +60		-20 ÷ +70
	Rostechnadzor	-40 ÷ +40 °C	-40 ÷ +70 °C	-40 ÷ +45 °C

(2) The group II solenoids are ATEX certified for minimum temperature -40°C. Select /BT in the valve code for application with minimum ambient temperature -40°C

3 CERTIFICATIONS

In the following are resumed the valves marking according to ATEX group I, Group II and Rostechnadzor certification.

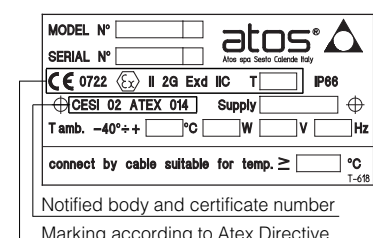
3.1 GROUP II, ATEX and Rostechnadzor

- Ex** = 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/T4/T3** = Temperature class of solenoid surface referred to +40°C ambient temperature
- Zone 1 (and 2)** = Possibility of explosive atmosphere during normal functioning (low probability of explosive atmosphere)

3.2 GROUP I (mining), ATEX

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

3.3 EXAMPLE OF NAMEPLATE MARKING



4 MODEL CODE OF SPOOL TYPE ON-OFF DIRECTIONAL SOLENOID VALVES

DHA

/ *

- 0

63

1/2

/ PA

- GK

/ 7

24DC

/ *

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

Optional certifications (omit for Group II ATEX)

M = Group I, ATEX (mining)
RU = Group II, Rostechnadzor (Russian)

Valve size (ISO 4401)

for DHA **0** = 06
for DPHA **1** = 10 **2** = 16 **3** = 25

Valve configuration, DHA see section 5 and DPHA see section 6

Spool type, DHA see section 5 and DPHA see section 6

Optional cable gland:

PA = with threaded cable gland, see section 27

(1) Not for group I, ATEX (mining)

Synthetic fluids:
WG = water-glycol
PE = phosphate ester
Low temperature execution:
BT = low temperature -40°C (1)

Series number

Voltage code - see section 11

Options:

7 = for ambient temperature up to 70°C
A = solenoid at side of port B (for single solenoid valves)
MV = horizontal hand lever (only for DHA)
O = horizontal cable entrance (1)
WP = prolonged manual override protected by metallic cap

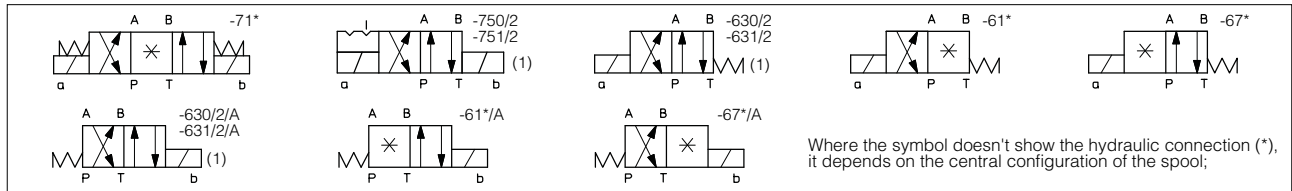
Only for DPHA:

/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).
/S = Main spool stroke adjustment (only for DPHA-2, -3).

Solenoid threaded connection:

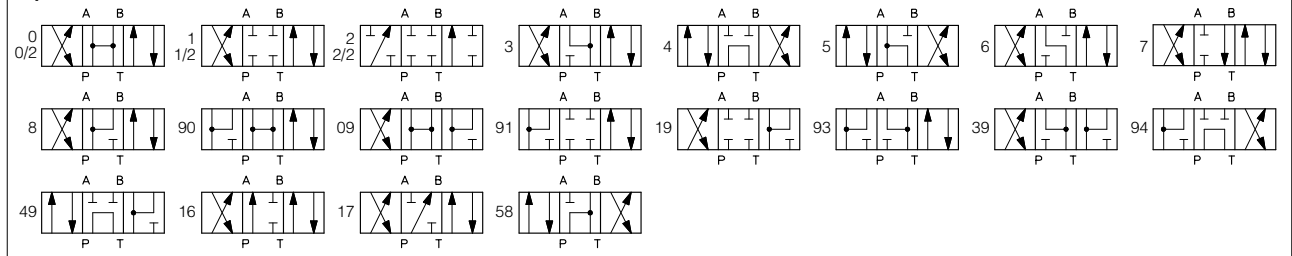
GK = GK-1/2" ISO/UNI-6125 (tapered)
NPT = 1/2" NPT ANSI B2.1 (tapered)
M = M20x1,5 UNI-4535 (6H/6g)

5 CONFIGURATION OF DHA VALVES

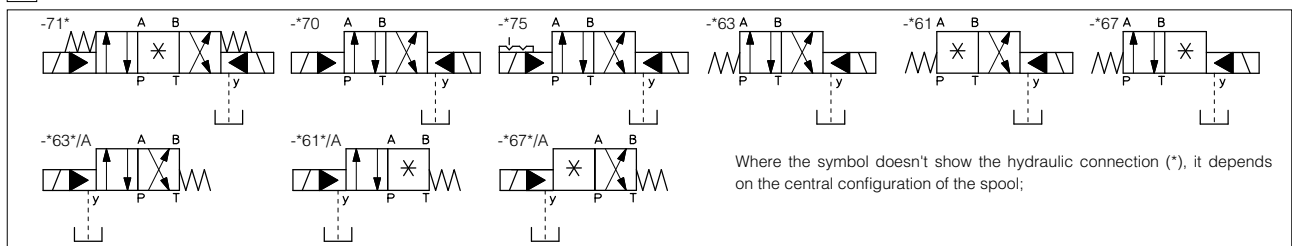


(1) Configurations 63 and 75 are available only for spool type 0/2, 1/2 and 2/2

Spools for DHA valves

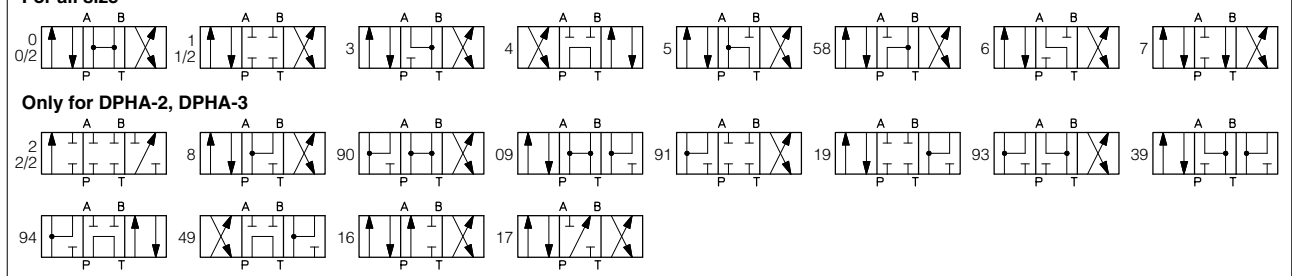


6 CONFIGURATION OF DPHA VALVES



Spools for DPHA valves

For all size



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

Optional cable gland:
PA = with threaded cable gland, see section 27

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)

Synthetic fluids (1):
WG= water-glycol
PE =phosphate ester

Series number

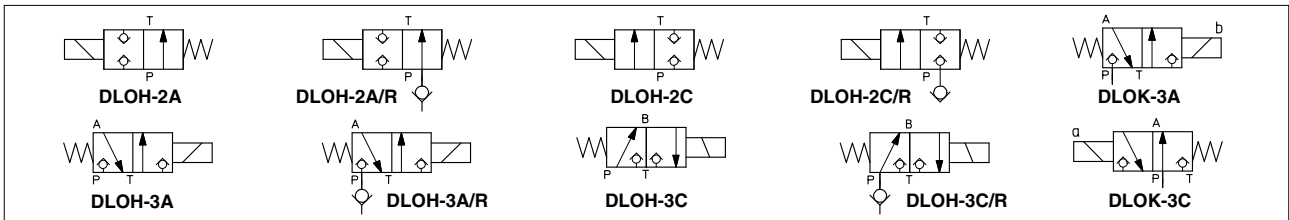
Voltage code - see section 11

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

Certification type
AO = Group II, ATEX
AO/M = Group I, ATEX (mining)
AO/RU = Group II, Rostechnadzor (Russian)

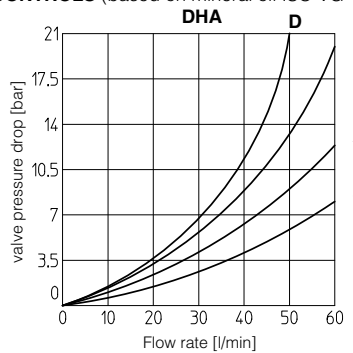
(1) Option **/BT** = low temperature -40°C also available on request (not for group I ATEX -mining-)

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



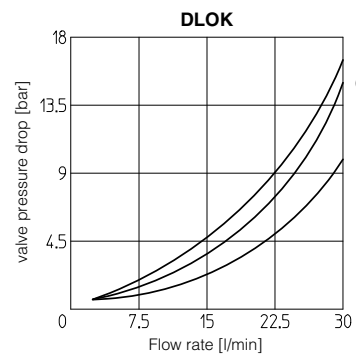
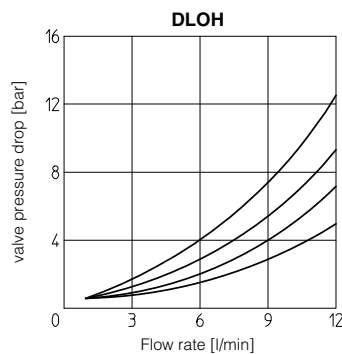
9 Q/Δp DIAGRAMS OF ON/OFF DIRECTIONAL CONTROLS (based on mineral oil ISO VG 46 at 50°C)

Flow direction \ Spool type	Flow direction				
	P→A	P→B	A→T	B→T	P→T
0	C	C	C	C	
0/2, 1, 1/2	A	A	A	A	
3	A	A	C	C	
4, 5	D	D	D	D	A
6	A	A	C	A	
7	A	A	A	C	
8	C	C	B	B	



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

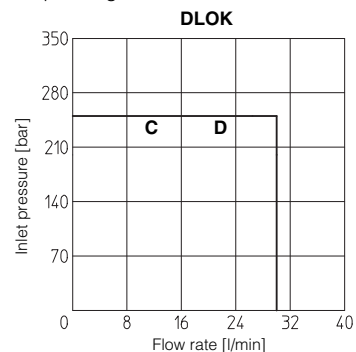
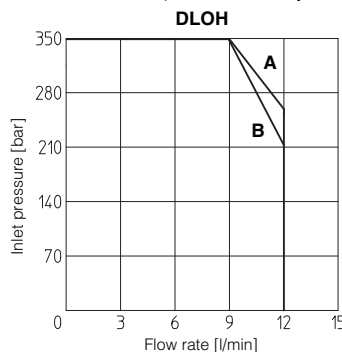
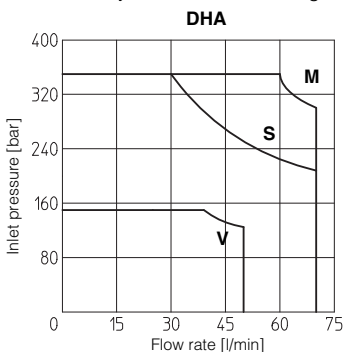
Flow direction \ Valve type	Flow direction	
	P → A (1) (P → B)	A → T (B → T)
DLOH-2A	B	-
DLOH-2C	C	-
DLOH-3A	D	C
DLOH-3C	C	A
DLOK-3A	G	F
DLOK-3C	F	E



(1) For two-way valves pressure drop refers to P→T

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

The diagram has 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.



M = Spools 0, 1, 8; **V** = Spools 4, 5.
S = Spools 0/2, 1/2, 3, 6, 7;

A = DLOH-3A;
B = DLOH-2A, DLOH-3C.

C = DLOK-3A;
D = DLOK-3C.

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

11 MODEL CODE OF PRESSURE RELIEF VALVES

AGAM - 20 / 2 0 /210/100/100 / PA - NPT - AO / O 24 DC ** /*

AGAM = pressure relief valve: subplate mounting, see tab. C066
ARAM = pressure relief valve: threaded connections, see tab. C045

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

Number of the different setting pressure values:
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 12

Optional cable gland:

PA = with threaded cable clamp, see section 27

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

Synthetic fluids (1):
WG = water-glycol
PE = phosphate ester

Series number

Voltage Code, see section 11

Options:

- 7** = for ambient temperature up to 70°C
- E** = external pilot
- O** = horizontal cable entrance (not for group I Atex)
- V** = regulating handwheel
- WP** = prolonged manual override protected by metallic cap
- Y** = external drain

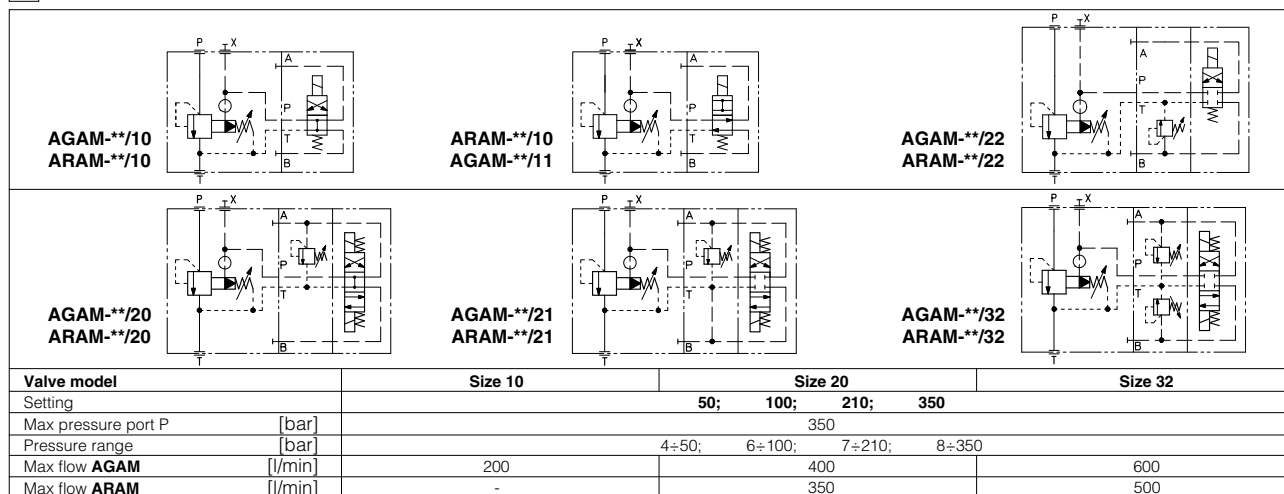
Certification type:

- AO** = Group II, ATEX
- AO/M** = Group I, ATEX (mining)
- AO/RU** = Group II, Rostechnadzor (Russian)

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)

12 HYDRAULIC CHARACTERISTICS



13 MODEL CODE OF COVERS FOR CARTRIDGE VALVES

LIDEW - 1 / PA - GK - AO - O 24DC ** /* *

Cover type:
LIDBH* = with solenoid valve and shuttle valve for pilot selection
LIDEW* = with solenoid valve for pilot selection
 * = valve configuration (see H030 section 2)

Size (ISO 7368)
1 = 16; **2** = 25; **3** = 32; **4** = 40; **5** = 50; **6** = 63; **8** = 80 (only for LIDEW);

Optional cable gland:

PA = with threaded cable gland, see section 27

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)

Certification type

- AO** = Group II, ATEX
- AO/M** = Group I, ATEX (mining)
- AO/RU** = Group II, Rostechnadzor (Russian)

Synthetic fluids (1):
WG = water-glycol
PE = phosphate ester

Series number

Voltage code - see section 11

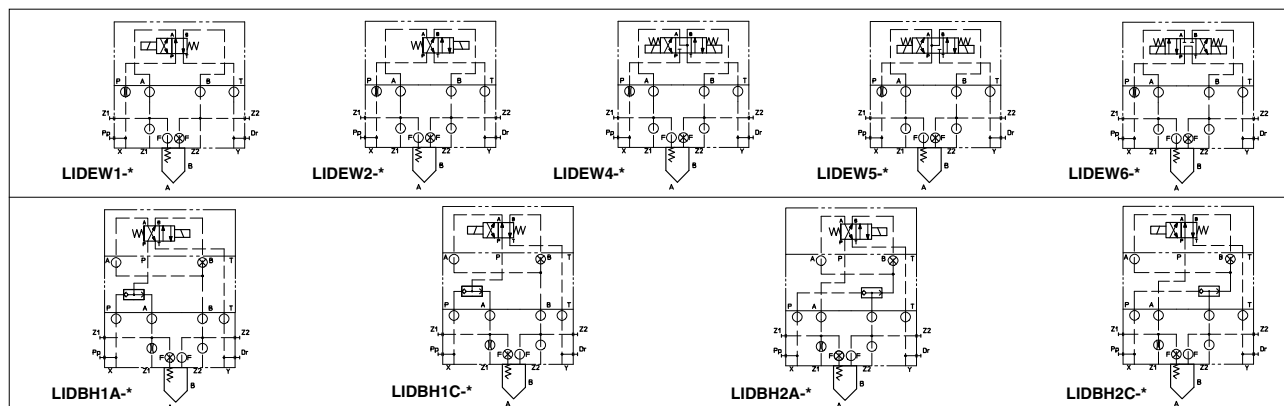
Options:

- 7** = for ambient temperature up to 70°C
- B** = cartridge piloted via port "B" of solenoid pilot valve
- E** = external attachments X (1/4" GAS) and underneath port X supplied plugged (only for sizes 40..80)
- O** = horizontal cable entrance (not for group I Atex)
- WP** = prolonged manual override protected by metallic cap

Note: for the code of the ISO cartridge to use with the above covers see tab. H003, section 2 and tab. H030, section 3.

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

14 HYDRAULIC SYMBOLS



15 MODEL CODE OF PROPORTIONAL DIRECTIONAL VALVES

DHZA - / * - T - 0 7 1 - L 5 / PA - GK / 7 / * ** / *

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

Optional certifications (omit for Group II ATEX)

M = Group I, ATEX (mining)
RU = Group II, Rostechnadzor (Russian)

A = without integral position transducer
T = with integral position transducer (not for DPZA)

Valve size (ISO 4401)

DHZA DKZA DPZA
0 = size 06 **1** = size 10 **1** = size 10
2 = size 16 **3** = size 25

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

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

Spool overlapping in central position, DHZA and DKZA see section 16, DPZA see section 17

1 = P, A, B, T positive overlapping
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) Option **/BT** = low temperature -40°C also available on request (not for group I ATEX -mining-)

Synthetic fluids (1):
WG = water-glycol
PE = phosphate ester

Series number

Omit for standard coil 12 V_{DC}:

24 = with 24 V_{DC} coils (only A version)

Options:

- 7** = for ambient temperature up to 70°C
- B** = solenoid at side of port A (only for single solenoid valves)
- C** = position transducer with current feedback 4÷20 mA (only for -T)
- D** = internal drain (only for DPZA)
- E** = external pilot (only for DPZA)
- G** = pressure reducing valve for piloting (only for DPZA)
- MV** = horizontal hand lever (only for DHZA)
- O** = horizontal cable entrance (only for -A, not for group I ATEX)
- WP** = prolonged manual override protected by metallic cap (only for -A)
- Y** = external drain (only for DHZA and DKZA)

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)

Optional cable gland:

PA = with threaded cable gland, see section 27

Spool size: DHZA and DKZA see section 16, DPZA see section 17

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

Hydraulic symbols	*71, *71/B				*73, *73/B				*51				*53				*51/B				*53/B			
Valve model	DHZA								DKZA															
	-A -T				-A -T				-A -T				-A -T											
Spool overlapping	1, 3		1, 3		1, 3		1, 3		1, 3		1, 3		1, 3		1, 3		1, 3							
Spool type and size	L14		L1		S3, L3, D3		S5, L5, D5		S3, L3		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													
Max flow [l/min]	1		4,5		17		28		45		60													
at Δp = 10 bar (P-T)	2		8		30		50		80		105													
at Δp = 30 bar (P-T)	3		12		45		60		100		110													
at Δp max (P-T)																								
Response time (1) [ms]	< 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) 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	*71, *71/B			*73			*51			*53			*51/B			*53/B						
Valve model	DPZA-1						DPZA-2						DPZA-3									
Spool type and size	L5		S5		D5		S3		D3		L5		S5		D5		L5		S5		D5	
Pressure limits [bar]	Ports P, A, B, X = 350; T = 250; Y = 0																					
Max flow [l/min]	100		100		100 : 60		130		130 : 80		200		180		180 : 130		390		360		360 : 220	
at Δp = 10 bar	160		160		160 : 100		225		225 : 135		340		310		310 : 225		680		620		620 : 380	
at Δp = 30 bar	190 (350)		190 (350)		190 (350)		500 (150)		500 (150)		710 (130)		640 (130)		640 (130)		1350 (120)		1250 (120)		1250 (120)	
at Δp max = (...) bar																						
Response time (1) [ms]	< 80						< 100						< 120									
Hysteresis [%]	≤ 5%						≤ 5%						≤ 5%									
Repeatability	± 1%						± 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

18 MODEL CODE OF SERVOPROPORTIONAL VALVES

DLHZA / * - T - 0 4 0 - L 7 3 / PA - GK / 7 ** / *

DLHZA = size 06
DLKZA = size 10

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

T = with integral position transducer

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

Configuration, see section 19
4 = external plus central position, spring centered
6 = 3 position, spring centered

Spool overlapping in central position, see section 19
0 = P, A, B, T positive overlapping

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

Synthetic fluids (1):
WG = water-glycol
PE = phosphate ester

Series number

Options:
7 = for ambient temperature up to 70°C
B = solenoid at side of port A
C = position transducer with current feedback 4-20 mA
Y = external drain

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)

Optional cable gland:
PA = with threaded cable gland, see section 27

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

Spool size: see section 19

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

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

Valve model	DLHZA-T*						DLKZA-T*		
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		60		
Max flow at Δp = 30 bar [l/min]	4,5		9		18		40		
Max flow at Δp max bar [l/min]	7		14		28		55		
Leakage [cm³/min] at P = 100 bar (1)	< 200		< 300		< 500		< 900		< 200
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.

20 MODEL CODE OF PRESSURE COMPENSATED PROPORTIONAL FLOW CONTROL VALVES

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

QVHZA = size 06
QVKZA = size 10

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

A = without position transducer
T = with integral position transducer

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

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

Optional cable gland:
PA = with threaded cable clamp, see section 27

Synthetic fluids (1):
WG = water-glycol
PE = phosphate ester

Series number

Omit for standard coil 12 V_{DC}:
24 = with 24 V_{DC} coils (only A version)

Options:
7 = for ambient temperature up to 70°C
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)
WP = prolonged manual override protected by metallic cap (only for -A versions)

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)

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

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

Hydraulic symbols														
	QVHZA-A						QVHZA-T							
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							
Valve size	06						06							
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	
Max flow on port A [l/min]	40		35		50	50		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.

22 MODEL CODE OF PROPORTIONAL PRESSURE RELIEF AND COMPENSATOR VALVES

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

Pressure relief:
RZMA = subplate size 06
HZMA = modular size 06
AGMZA = subplate size 10, 20, 32
LIMZA = cartridge (1)
 Pressure compensator:
LICZA = cartridge (1)

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

A = without integral pressure transducer

Valve size:
 see section 23 for size code

Max regulated pressure:
 see section 23

Optional cable gland
PA = with threaded cable clamp, see section 27

Synthetic fluids (1):
WG = water-glycol
PE = phosphate ester

Series number

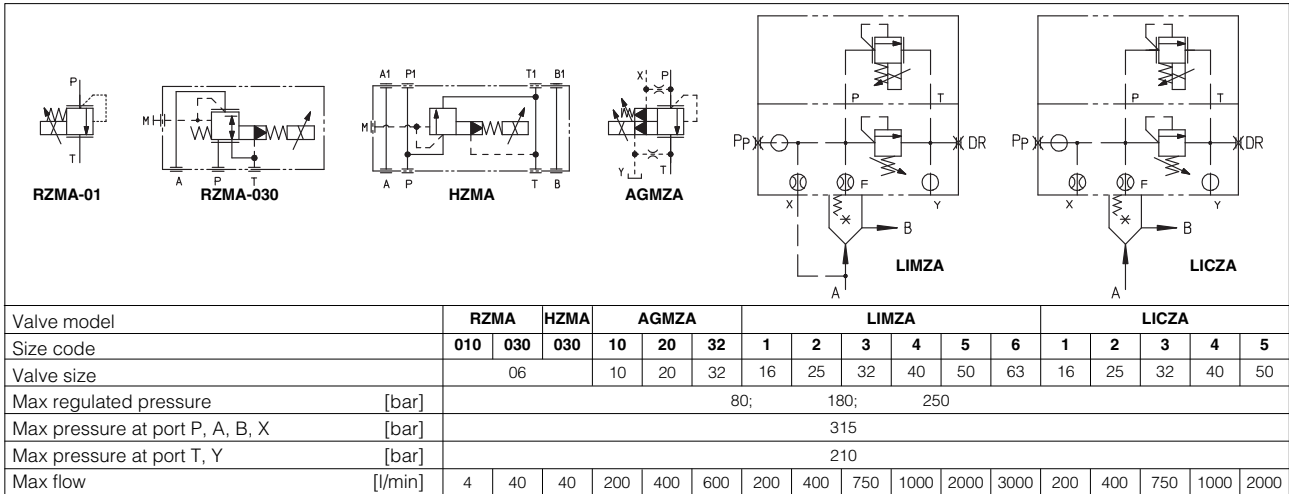
Omit for standard coil 12 VDC:
24 = with 24 VDC coils

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

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)

(1) For the code of the ISO cartridge to use with LIMZA and LICZA, see tab. F300 section 2.
 (2) Option /BT = low temperature -40°C also available on request (not for group I ATEX -mining-)

23 HYDRAULIC CHARACTERISTICS



24 MODEL CODE OF PROPORTIONAL PRESSURE REDUCING VALVES

RZGA / * - A - 010 / 250 / 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)
M = Group I, ATEX (mining)
RU = Group II, Rostechnadzor (Russian)

A = without integral transducer

Valve size:
 see section 23 for size code

Max regulated pressure:
 see section 23

Optional cable gland
PA = with threaded cable clamp, see section 27

Synthetic fluids (1):
WG = water-glycol
PE = phosphate ester

Series number

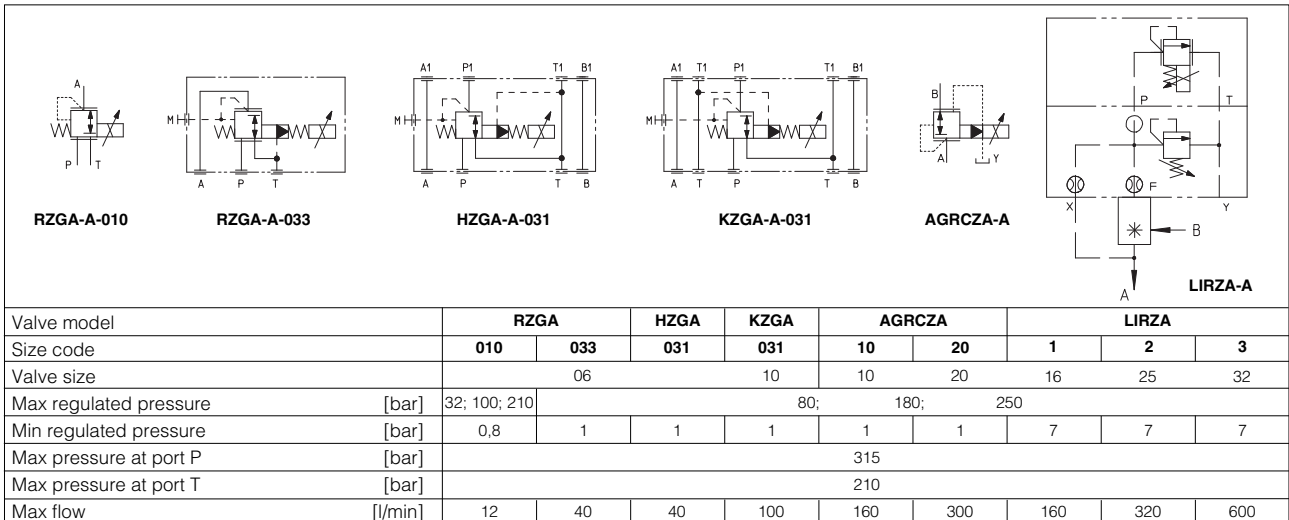
Omit for standard coil 12 VDC:
24 = with 24 VDC coils

Options:
7 = for ambient temperature up to 70° C
E = external pilot (only for AGRCZA)
O = horizontal cable entrance (not for group I ATEX)
P = with integral mechanical pressure limiter (only for AGRCZA and LIRZA)
R = with check valve (only for AGRCZA)

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)

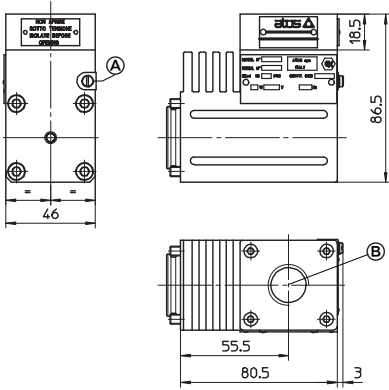
Note: for the code of the ISO cartridge to use with LIRZA, see tab. F300 section 2.
 (1) Option /BT = low temperature -40°C also available on request (not for group I ATEX -mining-)

25 HYDRAULIC CHARACTERISTICS

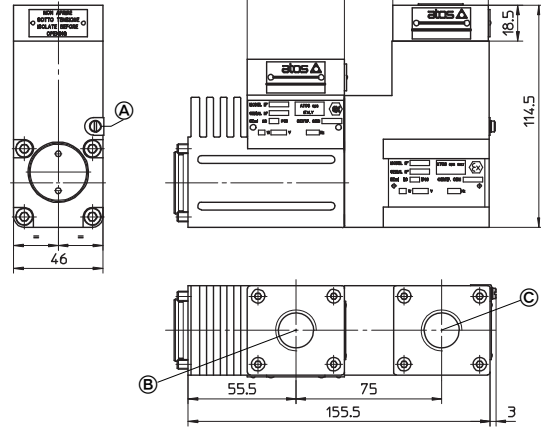


OA
OZA-A

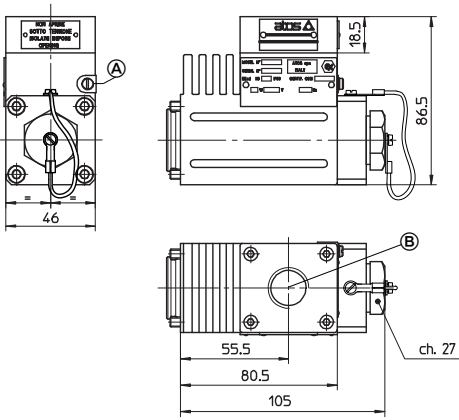
OA/M
OZA/M-A



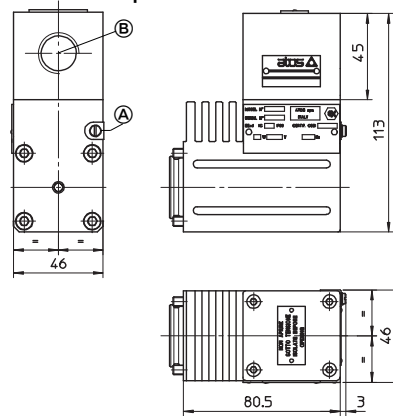
OZA-T OZA/M-T



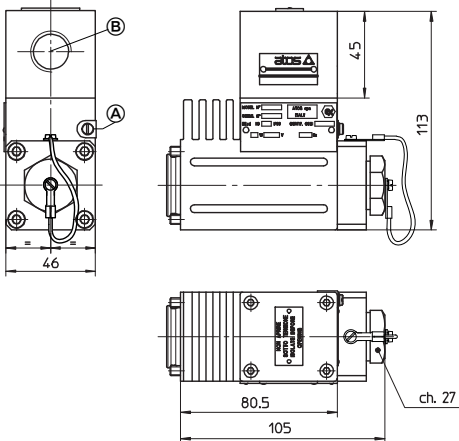
Option /WP



Option /O

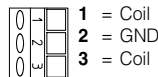


Option /OWP

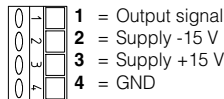


Ⓐ = screw terminal for additional equipotential grounding

Ⓑ = Solenoid wiring

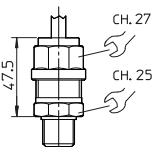


Ⓒ = Position transducer wiring



27 CABLE GLAND

CABLE GLAND SP-PA19/*
CABLE GLAND SP-PAM19/* - for valves with mining certification
(PG9 - IP67)



The cable glands are available on request certified ATEX according to EN 60079-0 and EN 60079-1.
 PA19 cable size 7÷9,5 mm
 PA112 cable size 9÷12 mm

Following codes have to be specified for spare cable glands:
SP-PA(M)19/GK = with threaded connection GK-1/2" ISO/UNI-6125 (tapered)
SP-PA(M)19/NPT = with threaded connection 1/2" NPT ANSI B2.1 (tapered)
SP-PA(M)19/M = with threaded connection M20x1,5 UNI-4535 (6H/6g).
 This cable gland must be blocked with loctite or similar or with a lock nut.

Note: special cable clamps PA112 (PG12) available on request only as spare parts.

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 be also 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)