

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	6/T4/T3 Gb IP66			
VALVE TYPE	DOUBLE SOLE (with or witho	ENOID VALVES ut transducer)	SINGLE SOLENOID VALVES (with or without transducer)			
Temperature class (only for Group II)	Т4	T3 (option /7)	Т6	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	o IEC 144 when correct see se	etly coupled with the re	elevant cable gland		
Mechanical construction	Flame proof housing	classified Ex d, accord	ling to EN 60079-0: 200	06, EN 60079-1: 2007		
Cable entrance and electrical wiring	M	Internal terminal board 20x1.5 threaded conne	I for cable connections ection for cable entran	s ce		

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

Ex-proof ZA valves are proportional valves equipped with specific solenoids and inte-gral 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 certi-fication, 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 propa-gation 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 ana-log 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.

Assembly position	Any position
Subplate surface finishing	Roughness index, $\sqrt{\frac{0.4}{2}}$ flatness ratio 0,01/100 (ISO 1101)
Ambient temperature	See section 1
Fluid	Hydraulic oil as per DIN 51524 535 for other fluids see model code sections
Recommended viscosity	15 ÷100 mm²/s at 40°C (ISO VG 15÷100)
Fluid contamination class	ISO 18/15 achieved with in line filters of 10 μm and $\beta_{10}{\geq}75$ (recommended)
Fluid temperature	-20°C +60°C (standard and /WG seals) -20°C +80°C (/PE seals)

3 CERTIFICATION

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

3.1 GROUP II, ATEX

	Ex,	> = ATEX ide	entification	for	explosive	atmospl	heres
١	\simeq		sinnoanon	101	explosive	aunospi	10103

- II = Group II for surfaces plants
- = High protection (equipment category) 2
- G = For gas and vapours
- IIC = Gas group
- T6/T5/T4/T3 = Temperature class of solenoid surface referred to
 - the max ambient temperature = Possibility of explosive atmosphere during normal functioning
 - = Low probability of explosive atmosphere

Zone 2

Zone 1

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

3.2 GROUP II, IECEx

Ex = Equipment for explosive atmospheres = Flame proof housing

- IIC = Gas group
- T6/T5/T4/T3 = Temperature class of solenoid surface
- = Equipment protection level, high level Gb protection for explosive Gas atmospheres IP66= Protection degree

d = Flame proof housing



(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.

MODEL CODE OF EX-PROOF PROPORTIONAL DIRECTIONAL VALVES PILOT OPERATED 6 LES PS 7 1 7 ** 1 DPZA /IE 2 1 5 Μ 1 _ --_ L Synthetic fluids: WG= water-glycol = size 10 = size 16 = size 25 DPZA PE =phosphate ester Certification (omit for Atex) IE = IECEX Series number **AES** = without integral position transducer **LES** = with double integral position transducer Options for ambient temperature up to 60°C
 solenoid with integral digital electronics at side of port A of main stage for -AES version and at side of port B for -LES version 7 B Communication interfaces PS = Serial (1) BC = CANoper DE = internal drain external pilot
 pressure reducing valve for piloting (2) standard for DPZA-LES-1 BP = PROFIBUS DP G current reference 4÷20mA (only for -LES) (3) Valve size (ISO 4401) w = power limitation function (only AES) 1= size 10 2= size 16 3= size 25 Cable entrance threaded connection: Configuration: see section 7 **M** = M20x1,5 (6H/6g) 5 = external plus central position, spring centered 7 = 3 positions, spring centered Spool size: see section 7 Spool overlapping in central position, see section 7 0 = zero overlapping (only for -LES with spool type L)
1 = P, A, B, T positive overlapping
3 = P positive overlapping; A, B, T, negative Spool type \mathbf{L} = linear; \mathbf{S} = progressive; \mathbf{D} = as \mathbf{S} , but with P-A = Q, P-B = Q/2 Serial interface always present for AES-BC and AES-BP (1)Pressure reducing valve with fixed setting (40 bar for DPZA-1 and -2; 100 bar for DPZA-3) 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 (2)(3) Software selectable for AES Note: For the valves functional characteristics see: table F170 (DPZA-AES); table F175 (DPZA-LES) For mounting surface dimensions see table P005 For the digital drivers technical data and functional parameters setting, see: table G115 (-AES); G210 (-LES) 7 HYDRAULIC CHARACTERISTICS OF DPZA-AES AND DPZA-LES (based on mineral oil ISO VG 46 at 50 °C) Hydraulic symbols of -AES version *71 *71/B *73 *73/B rif. ii. *51/B *53/B 5 *53 rif. #<u>.</u> Hydraulic symbols of -LES version *70 *70/B *71 *71/B 57 W M W €=% *73 *51 *73/B *51/B -13= 5 *53 *53/B *60 *60/B FØ-0 -51= ΛΛ + + N= NH DPZA-3 DPZA-1 DPZA-2 Valve model 0, 1, 3 1, 3 0, 1, 3 0, 1, 3 1, 3 0, 1, 3 1, 3 0, 1, 3 0, 1, 3 1.3 0, 1, 3 Spool overlapping L5 (2) S5 D5 DL5(3) L3 (3) S3 D3 L5 (2) **S**5 D5 DL5 (3) L5 (2) **S**5 D5 DL5 (3) Spool type and size (1) Max flow: [l/min] at $\Delta p = 10$ bar 100.60 130.80 180.130 200.145 360.220 390.240 100 130 200 180 390 360 680 620:380 at $\Delta p = 30$ bar 160 160:100 225 225:130 340 310 310:225 340:250 620 680:410 180:110 550:300 max permissible flow 180 550 760 640 640:460 680:500 1450 1350 1350:820 1450:880 ports P, A, B, X = 350; T = 250 (5 for option /D)Y = 5Pressure limits [bar] spool overlapping 0 <80 (AES); <50 (LES) <100 (AES) <70 (LES) <120 (AES) <75 (LES) Response time [ms] (4) spool overlapping 1-3 <80 (AES); <50 (LES) <70 (LES) <75 (LES) <100 (AES) <120 (AES) Hysteresis [%] ≤ 5% (AES) ≤ 0,1% (LES) Repeatability ±1% (AES) ±0,1% (LES) Thermal drift zero point displacement < 1% at $\Delta T = 40^{\circ}C$ Additional spool for -LES, see table F175
 For zero overlapping spool **0L5**, the valve offset position (with switch-off power supply) is 1 ÷ 6% P-B/A-T

(3) Only for LES version

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



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)

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

Hydraulic symbols																			
	b	*40-L*(*40-D* *40-DT *40-T*(*40-V*;	3 3 ⁻*3 3 3				(+-+ ;			<u>rif.</u> *, 	40-L*1 40-D*1 40-DT' 40-T*1 40-V*1	[•] 1		B A A B A A A A A A A A A A A A A	+ * *		b	*60 *60)-L*1)-V*1
$ \begin{array}{c} *40-L^*3/B \\ *40-D^*3/B \\ *40-D^*3/B \\ *40-T^*3/B \\ *40-V^*3/B \end{array} \xrightarrow{\text{rf.}}_{A} \xrightarrow{B} \\ a \end{array} \xrightarrow{\text{rf.}}_{A} \xrightarrow{B} \\ *40-L^*1/B \\ a \end{array} \xrightarrow{\text{rf.}}_{A} \xrightarrow{B} \\ *40-D^*1/B \\ *40-V^*1/B \\ a \end{array} \xrightarrow{\text{rf.}}_{A} \xrightarrow{B} \\ *40-V^*1/B \\ a \end{array} \xrightarrow{\text{rf.}}_{A} \xrightarrow{B} \\ *60-L^*1/B \\ *60-V^*1/B \\ a \end{array} \xrightarrow{\text{rf.}}_{A} \xrightarrow{B} \\ *60-V^*1/B \\ a \end{array} \xrightarrow{\text{rf.}}_{A} \xrightarrow{B} \\ *60-V^*1/B \\ a \end{array}$											M								
Valve model							DLHZ	:A-T*								DLK	ZA-T*		
Pressure limits	[bar]		ports P, A, B = 350; T = 210 (250 with external drain /Y)									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 at $\Delta p = 30$ bar at $\Delta p = 70$ bar max permissible flow	[l/min]	2,5 4 8	4,5 7 14	5 8 16	9 14 30	13 20 40	1 2 5	8 8 0		26 40 70		26- 40- 70-	÷13 ÷20 ÷40	40 60 90		60 100 160		60 10 16)÷33 0÷50 0÷80
Leakage [cm ³ /min] at P = 10	0 bar (1)	<100	<200	<100	<300	<150	<500	<200	<900	<200	<200	<700	<200	<1000	<1500	<400	<400	<120	0 <400
Fail safe connections			F	P→A	1			P →	В		1	А	→ T	1			B →	T	
Leakage [cm ³ /min]	Fail safe 1			50				70)				70				50		
at P = 100 bar (2)	Fail safe 3			50				70)				70				50		
Flow [I/min] (3) DLHZA	Fail safe 3			-				-				15	5÷30				10÷2	20	
DLKZA				-				-				4(0÷60				25÷	10	
Response time	[ms]		≤ 10 ≤ 15																
Hysteresis	[%]		≤ 0,1% ≤ 0,1%																
Thermal drift							zer	o poin	t displ	aceme	ent < 1	% at 2	$\Delta T = 4$	0°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 $\Delta p = 35$ bar per edge and 50°C oil temperature.



(1) Serial interface always present for AES-BC and AES-BP

(2) 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)

11 HYDRAULIC CHARACTERISTICS







Note: For mounting surface dimensions see table P006

TYPICAL FUNCTIONS OF CARTRIDGES



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





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

(2) 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)







Note: For mounting surface dimensions see table P006

section (1)

Area ratio

1:1

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





(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)

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

Hydraulic symbols Note: In three-way connection port P is open In two-way connection port P must be Port T must always be plugged.	<u>1</u>	f.		P	QVHZA QVKZA	-AES -AES		<u>rif.</u>			P	QVHZA-1 QVKZA-1	TES		
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) [cm ³ /min]		15	20	30	50	60	15	20	30	50	60	85	100	85	100
Regulating ∆p [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]	4	0	35	50	55	50 60				60	70	100	70	100

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

17.1 TYPICAL APPLICATIONS



18 ELECTRONICS WIRING

18.1 MAIN CONNECTIONS FOR ALL MODELS

PIN	ENTRANCE	DESCRIPTION	TECHNICAL SPECIFICATION
1	3	ENABLE	Enabling input, normal working = 24 VDC
2	3	VLO	Power supply (logic stage)
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	conconnection only for aduate solehold valves
7	3	INPUT-	Reference signal ±10 VDC or 0 ÷10 VDC (2) (3)
8	3	MONITOR	±10 VDC or 0 ÷ 10 VDC (1) (3) ±5 VDC (only for -AES)
9	3	INPUT+	Reference signal ± 10 VDC or 0 \div 10 VDC (2) (3)
10	3	VO	Power supply (power stage)
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 ÷ 20mA) for option /I (not for -AES)

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

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

18.3 -PS COMMUNICATION INTERFACE (M8 connector)

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

(4) For -BC and -BP versions, the Serial communication interface is always available for eventual valve's parameter setting through the E-SW programming software.

In -BC and -BP versions, the Serial communication interface is available with M8 connector inside the electronic box, see Fig.2

18.4 -BC and -BP COMMUNICATION INTERFACE CONNECTIONS

DIN	CABLE	DESCRIPTION							
FIN	ENTRANCE	-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)



18.5 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



The above operation must be performed in a safety area.

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

For -BC and -BP versions the valve is directly driven through the fieldbus interface, which connections are available on the terminal board internal to the electronics housing. Depending to the type of connection to the fieldbus network, one or two cable entrances can be used (see section 20 TAB.I)

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

- (2) Additional cable entrance for -BC, -BP communication interfaces
- (3) Cable entrances for power supply and main connections
- 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



connection ——



19 SOFTWARE TOOLS

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

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

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

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

For a more detailed decription 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

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

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

E-A-BC-USB/DB9, E-C-BC-DB9/RA and E-TRM-BC-DB9/DB9

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

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

20 MODEL CODE OF CABLE GLANDS AND THREADED PLUGS

Atos can supply 2 different kind of cable glands, depending to the cable's diameter used by the costumer. The cable glands and the threaded plugs (to be ordered separately) are ATEX certified according to EN 60079-0 and EN 60079-1 сн. 24 CH. 27 сн. 27 Atos codes for cable glands and threaded plugs: SP-ZMX-S = brass cable gland, protection degree IP 66 420×1.5 threaded connection M20x1,5 (6H/6g). ſΩ. M20x' Cable size 3 2 ÷ 8 7 mm SP-ZMX-L = brass cable gland, protection degree IP 66 threaded connection M20x1,5 (6H/6g). 15 Cable size 6,5 ÷ 14 mm SP-ZMX-S SP-ZMX-L P-ZMX-T =brass threaded plug, protection degree IP 66 cable Ø 3,2÷8,7 mm cable Ø 6,5÷14 mm threated connection M20x1,5 (6H/6g).

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

• Atex certified cable gland code SP-ZMX-S, for factory wired connections

- Atex certified threaded plugs code SP-ZMX-T, for connections not to be used
- for connections available for the 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	Tc	be ordere	ed separate	əly	Oshana	Notos				
communication interfaces	Cable	gland	Threaded plug		Scheme	Notes				
-PS	quantity 1	3	none	none		Cable entrance 1 and 2 are factory plugged Cable entrance 3 is open for costumers Cable entrance 4 is factory plugged or wired depending to the valve model				
-BC, -BP "via stub" connection	2	1, 3	1	2		Cable entrance 2 is factory plugged Cable entrance 3 is open for costumers Cable entrance 4 is factory plugged or wired depending to the valve model				
-BC, -BP "daisy chain" connection	3	1, 2, 3	none	none	$ \begin{array}{c c} p_{1 & 2} \\ \hline p_{1 & 2} \\ \hline 0 & 0 \\ $	Cable entrance 3 is open for costumers Cable entrance 4 is factory plugged or wired depending to the valve model				

21 MASS

VALVE TYPE	MASS (Kg)	VALVE TYPE	MASS (Kg)	VALVE TYPE	MASS (Kg)						
DHZA-*-05	8,2	DPZA-*-27	18,7	AGMZA-*-10	12,2	LIMZA-*-5	19,2	RZGA-*-010	9	QVHZA	8,6
DHZA-*-07	9	DPZA-*-35	22	AGMZA-*-20	16	LIMZA-*-6	28	RZGA-*-033	9,6	QVKZA	9,5
DKZA-*-05	9	DPZA-*-37	23	AGMZA-*-32	18,5	LICZA-*-1	13,6	AGRCZA-*-10	13,6		
DKZA-*-07	9,6	DLHZA	8,5	LIMZA-*-1	10,3	LICZA-*-2	14,6	AGRCZA-*-20	14,6		
DPZA-*-15	13,6	DLKZA	10,2	LIMZA-*-2	10,8	LICZA-*-3	17,7	LIRZA-*-1	17,7		
DPZA-*-17	14,6	RZMA-*-010	9	LIMZA-*-3	12	LICZA-*-4	8,2	LIRZA-*-2	8,2		
DPZA-*-25	17,7	RZMA-*-030	9,3	LIMZA-*-4	15,7	LICZA-*-5	9	LIRZA-*-3	9		

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



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



* for option /H add 40mm to the dimension



