




# EMC, climate and mechanical load compatibility for ex-proof components

Ex-proof electronic drivers, axis cards and transducers are the most critical valve components concerning the risk of electromagnetic interferences, water entrance and mechanical stress. As per applicable International Standards, the following tables summarize the environmental resistance features of Atos ex-proof electronic devices:

- on-board and off-board drivers
- on-board and off-board axis cards
- LVDT and pressure transducers

## 1 EMC ELECTROMAGNETIC COMPATIBILITY according to Directive 2014/30/UE

The EMC Directive identifies the ability of a device, equipment or system to function in an electromagnetic environment in a satisfactory manner (immunity), without produce intolerable electromagnetic interferences into any equipment in same environment (emission).

	<b>CEI EN 61000-6-2</b>	Immunity for industrial environments
	<b>CEI EN 61000-6-3</b>	Emission standard for residential, commercial and light-industrial environments
	<b>CEI EN 61000-6-4</b>	Emission standard for industrial environments

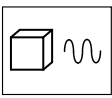
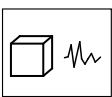
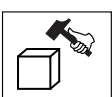
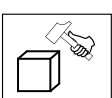
## 2 IP INGRESS PROTECTION CLASSIFICATION according to CEI EN 60529

IP (Ingress Protection) coding system indicates the degree of protection provided by an enclosure against access to hazardous parts, against ingress of solid foreign objects, ingress of water and to give additional information in connection with such protection. The minimum ensured IP protection reported for each component is intended with relevant connectors correctly installed.

Ingress Protection	Protection against solid objects	Protection against liquids penetration
<b>IP20</b>	<b>2</b> = protected against solid bodies of superior dimensions to 12 mm; protect against the access with a finger	<b>0</b> = not protect
<b>IP66</b>	<b>6</b> = totally protect against the powder; protect against the access with a wire	<b>6</b> = protect against powerful water jets
<b>IP67</b>		<b>7</b> = protect against the effects of temporary immersion

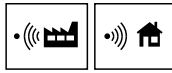
## 3 MECHANICAL RESISTANCE TEST CONDITIONS according to CEI EN 60068-2-6 (Vibrations, Sine & Random) - CEI EN 60068-2-27 (Shock)

The Mechanical Resistance test determines the ability of components, equipment and other articles to withstand specified severities of sinusoidal/random vibration and shock.

	<b>Sine test</b>	10 cycles 5-2000-5 Hz with logarithmic frequency variation 1 Octave/min 5-57 Hz amplitude 1.5 mm (p-p) 57-2000 Hz acceleration 10 g Tested on three axes X, Y, Z
	<b>Random test</b>	20-2000 Hz Spectral acceleration density 0.05 g <sup>2</sup> / Hz Testing time 30 min. each axis Tested on three axes X, Y, Z
	<b>Shock test</b>	Half sine wave shock 50 g / 11 ms Three tests for each axis, in positive and negative direction, for a total of 18 individual shocks Tested on three axes X, Y, Z
	<b>Shock test</b>	Half sine wave shock 30 g / 11 ms Three tests for each axis, in positive and negative direction, for a total of 18 individual shocks Tested on three axes X, Y, Z

Ingress Protection:  
**IP66 / IP67**

EMC:

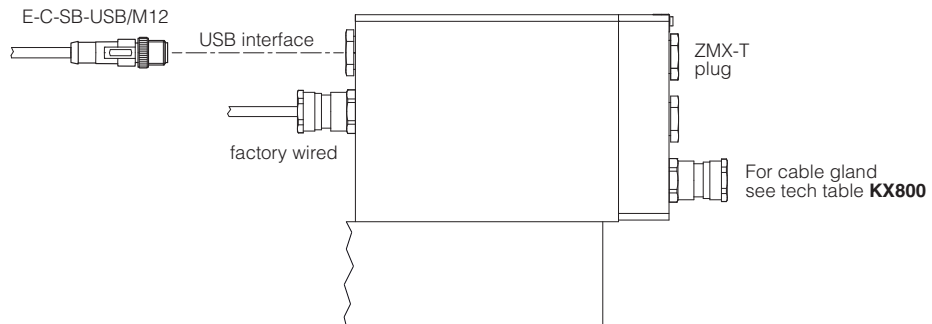
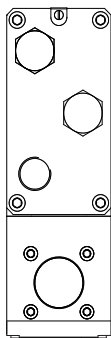
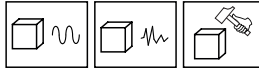


Temperature:

Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

Mechanical Resistance:



**Note:**

above data refer to the electronics only and may differ from those indicated in the technical table of the valve, which shows complete product data

Directional valves:

- DHZA-AES** technical table FX110
- DKZA-AES** technical table FX110
- DPZA-AES** technical table FX210

Pressure valves:

- RZMA-AES** technical table FX020
- AGMZA-AES** technical table FX020
- RZGA-AES** technical table FX050
- AGRCZA-AES** technical table FX050
- LICZA-AES** technical table FX310
- LIMZA-AES** technical table FX310
- LIRZA-AES** technical table FX310
- DHRZA-AES** technical table FX080

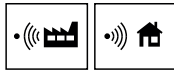
Flow valves:

- QVHZA-AES** technical table FX410
- QVKZA-AES** technical table FX410

Ingress Protection:

**IP66 / IP67**

EMC:

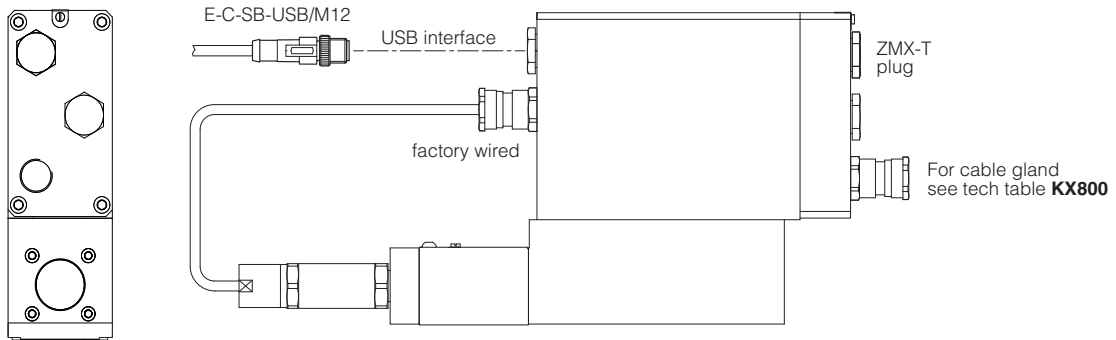
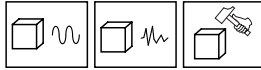


Temperature:

Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

Mechanical Resistance:



**Note:**

above data refer to the electronics only and may differ from those indicated in the technical table of the valve, which shows complete product data

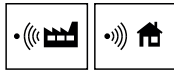
High performance pressure valves:

- RZMA-RES** technical table FX030
- AGMZA-RES** technical table FX030
- RZGA-RES** technical table FX060
- AGRCZA-RES** technical table FX060
- LICZA-RES** technical table FX320
- LIMZA-RES** technical table FX320
- LIRZA-RES** technical table FX320

Ingress Protection:

**IP66 / IP67**

EMC:

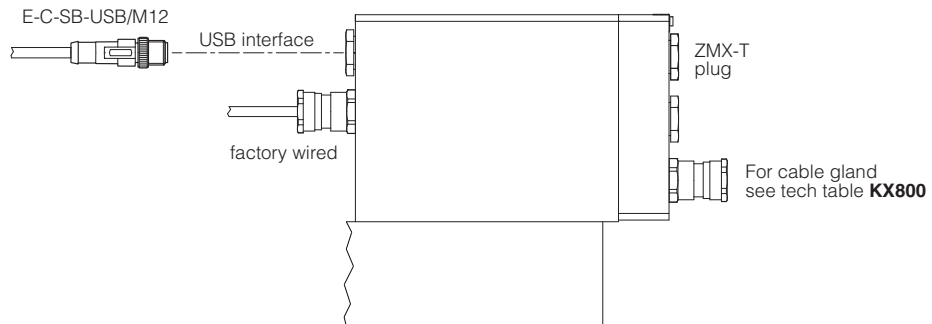
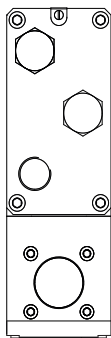
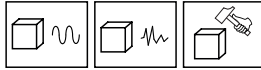


Temperature:

Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

Mechanical Resistance:



**Note:**

above data refer to the electronics only and may differ from those indicated in the technical table of the valve, which shows complete product data

Servoproportional directionals:

- DLHZA-TES** technical table FX150
- DLKZA-TES** technical table FX150
- DHZA-TES** technical table FX135
- DKZA-TES** technical table FX135
- DPZA-LES** technical table FX235
- LIQZA-LES** technical table FX380

High performance directionals:

- DHZA-TES** technical table FX130
- DKZA-TES** technical table FX130
- DPZA-LES** technical table FX230
- LIQZA-LES** technical table FX360

Flow valves:

- QVHZA-TES** technical table FX430
- QVKZA-TES** technical table FX430

Ingress Protection:  
**IP66 / IP67**

EMC:

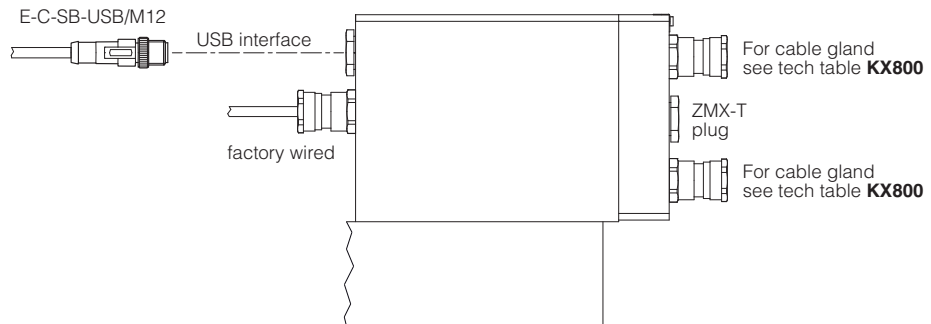
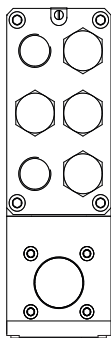
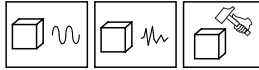


Temperature:

Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

Mechanical Resistance:



**Note:**

above data refer to the electronics only and may differ from those indicated in the technical table of the valve, which shows complete product data

Servoproportional directionals, with P/Q controls:

- DLHZA-TES** technical table FX150
- DLKZA-TES** technical table FX150
- DHZA-TES** technical table FX135
- DKZA-TES** technical table FX135
- DPZA-LES** technical table FX235
- LIQZA-LES** technical table FX380

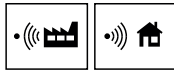
High performance directionals, with P/Q controls:

- DHZA-TES** technical table FX130
- DKZA-TES** technical table FX130
- DPZA-LES** technical table FX230

Ingress Protection:

**IP66 / IP67**

EMC:

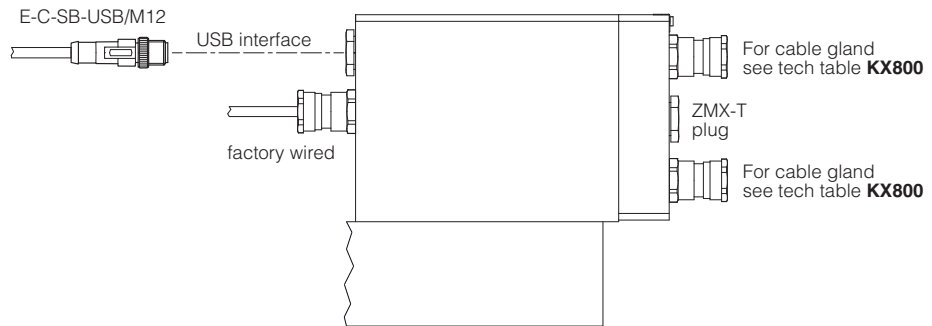
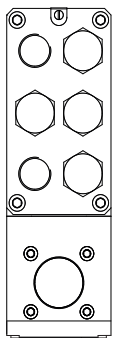
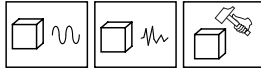


Temperature:

Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

Mechanical Resistance:



**Note:**

above data refer to the electronics only and may differ from those indicated in the technical table of the valve, which shows complete product data

Axis controls:

- DLHZA-TEZ** technical table FX610
- DLKZA-TEZ** technical table FX610
- DHZA-TEZ** technical table FX620
- DKZA-TEZ** technical table FX620
- DPZA-LEZ** technical table FX630

**9 E-BM-AS/A** off-board drivers

Ingress Protection:

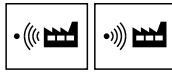
**IP20**

Temperature (1):

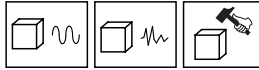
Ambient **-20°C ÷ +60°C**

Storage **-25°C ÷ +85°C**

EMC:



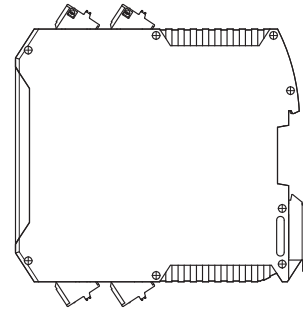
Mechanical Resistance:



(1) Ambient temperature for 05H version used for two single solenoid valves: -20°C ÷ +40°C

Electronics drivers:

**E-BM-AS/A** technical table G030



**10 E-BM-AES/A, E-BM-RES/A** off-board drivers

Ingress Protection:

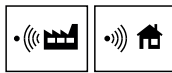
**IP20**

Temperature:

Ambient **-20°C ÷ +60°C**

Storage **-25°C ÷ +85°C**

EMC:



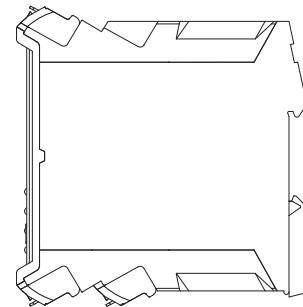
Mechanical Resistance:



Electronics drivers:

**E-BM-AES/A** technical table GS050

**E-BM-RES/A** technical table GS203



**11 E-BM-TID/A, E-BM-LID/A, E-BM-TEB/A, E-BM-LEB/A, E-BM-TES/A, E-BM-LES/A** off-board drivers

Ingress Protection:

**IP20**

Temperature (1):

Ambient **-20°C ÷ +60°C**

Storage **-25°C ÷ +85°C**

EMC:



Mechanical Resistance:



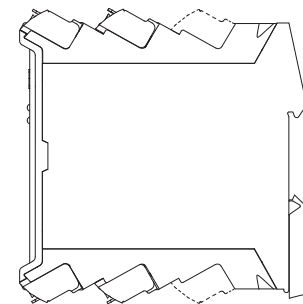
(1) Ambient temperature for TES/LES: -20°C ÷ +50°C

Electronics drivers:

**E-BM-TID/LID/A** technical table GS235

**E-BM-TEB/LEB/A** technical table GS230

**E-BM-TES/LES/A** technical table GS240



**12 Z-BM-TEZ/A, Z-BM-LEZ/A, Z-BM-KZ** off-board axis cards

Ingress Protection:

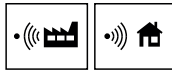
**IP20**

Temperature:

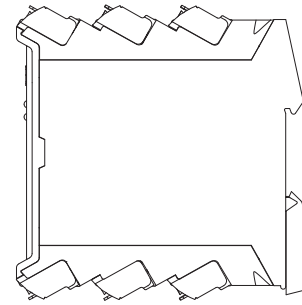
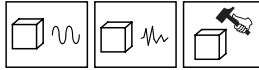
Ambient **-20°C ÷ +50°C**

Storage **-25°C ÷ +85°C**

EMC:



Mechanical Resistance:



Electronics axis controls:

**Z-BM-TEZ/LEZ/A** technical table GS330

**Z-BM-KZ** technical table GS340

**13 E-THTA-4** LVDT transducers

Ingress Protection:

**IP66 / IP67**

Temperature:

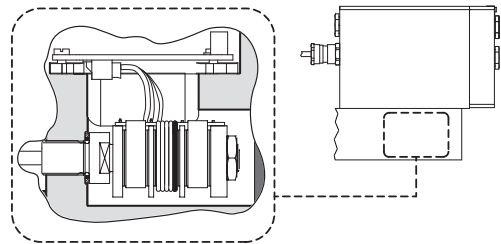
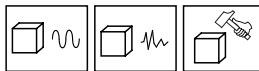
Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

EMC:



Mechanical Resistance:



**Note:** above data refer to the transducer only and may differ from those indicated in the technical table of the valve, which shows complete product data

Servoproportional directionals **(1)**:

**DLHZA-TES** technical table FX150  
**DLKZA-TES** technical table FX150  
**DHZA-TES** technical table FX135  
**DKZA-TES** technical table FX135  
**DPZA-LES** technical table FX235  
**LIQZA-LES** technical table FX380

High performance directionals **(1)**:

**DHZA-TES** technical table FX130  
**DKZA-TES** technical table FX130  
**DPZA-LES** technical table FX230  
**LIQZA-LES** technical table FX360

Axis controls **(1)**:

**DLHZA-TEZ** technical table FX610  
**DLKZA-TEZ** technical table FX610  
**DHZA-TEZ** technical table FX620  
**DKZA-TEZ** technical table FX620  
**DPZA-LEZ** technical table FX630

Flow valves:

**QVHZA-TES** technical table FX430  
**QVKZA-TES** technical table FX430



**14 E-THA-4 LVDT transducers**

Ingress Protection:

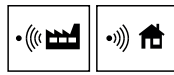
**IP66 / IP67**

Temperature:

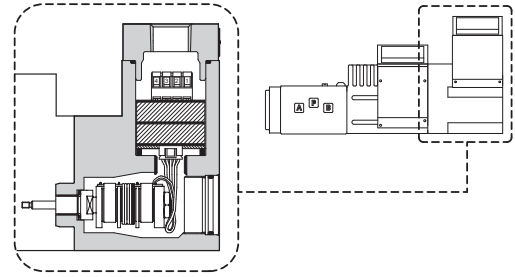
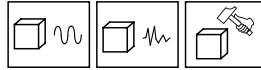
Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

EMC:



Mechanical Resistance:



**Note:** above data refer to the transducer only and may differ from those indicated in the technical table of the valve, which shows complete product data

Servoproportional directionals:

**DLHZA-T** technical table FX140  
**DLKZA-T** technical table FX140  
**DPZA-L** technical table FX237 (1)  
**DPZA-LES** technical table FX235 (2)  
**LIQZA-L** technical table FX370 (3)

High performance directionals:

**DHZA-T** technical table FX120  
**DKZA-T** technical table FX120  
**DPZA-T** technical table FX220 (2)  
**DPZA-L** technical table FX232 (1)  
**DPZA-LES** technical table FX230 (2)  
**LIQZA-L** technical table FX350 (3)

Flow valves:

**QVHZA-T** technical table FX420  
**QVKZA-T** technical table FX420

(1) For DPZA-L the E-THA-4 transducer is used for pilot and main stage  
 (2) For DPZA-LES and DPZA-T the E-THA-4 transducer is used for main stage  
 (3) For LIQZA-L the E-THA-4 transducer is used for pilot stage

**15 E-THTA-15 LVDT transducers**

Ingress Protection:

**IP66 / IP67**

Temperature:

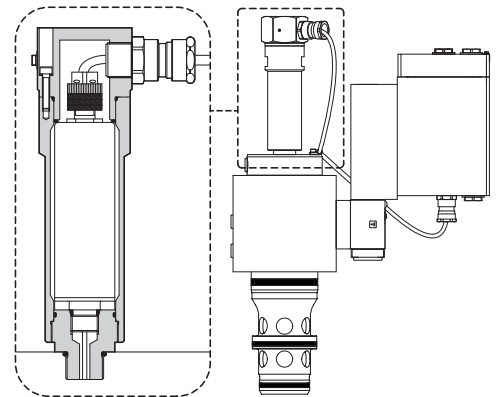
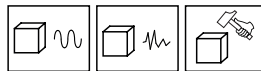
Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

EMC:



Mechanical Resistance:



**Note:** above data refer to the transducer only and may differ from those indicated in the technical table of the valve, which shows complete product data

Servoproportional directionals:

**LIQZA-LES** technical table FX380  
**LIQZA-L** technical table FX370

High performance directionals:

**LIQZA-LES** technical table FX360  
**LIQZA-L** technical table FX350

Ingress Protection:

**IP67**

Temperature:

Ambient **-40°C ÷ +102°C (T4)**

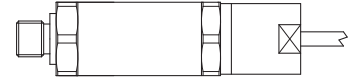
EMC:

**EN 61326 emission (group 1, class B) and interference immunity (industrial application)**

Mechanical Resistance:

**Shock: DIN EN 60068-2-27  
1000 g**

**Vibration: DIN EN 60068-2-6  
20 g**



**Note:** above data refer to the transducer only and may differ from those indicated in the technical table of the valve, which shows complete product data

Accessories:

**E-ATRA-7** technical table GX800

Ingress Protection:

**IP66 / IP67**

Temperature:

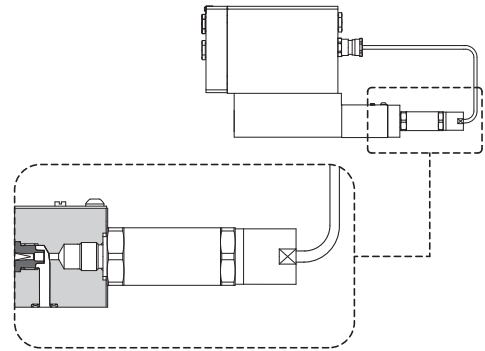
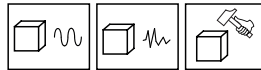
Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

EMC:



Mechanical Resistance:



**Note:** above data refer to the transducer only and may differ from those indicated in the technical table of the valve, which shows complete product data

High performance pressure valves:

**RZMA-RES** technical table FX030

**AGMZA-RES** technical table FX030

**RZGA-RES** technical table FX060

**AGRCZA-RES** technical table FX060

**LIMZA-RES** technical table FX320

**LIRZA-RES** technical table FX320

**LICZA-RES** technical table FX320