




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).

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

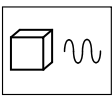
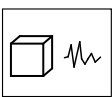
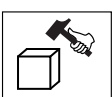
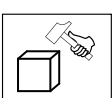
2 IP INGRESS PROTECTION CLASSIFICATION according to CEI EN 60529

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
IP20	2 = protected against solid bodies of superior dimensions to 12 mm; protect against the access with a finger	0 = not protect
IP66	6 = totally protect against the powder; protect against the access with a wire	6 = protect against powerful water jets
IP67		7 = protect against the effects of temporary immersion

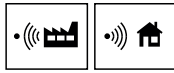
3 MECHANICAL RESISTANCE TEST CONDITIONS according to CEI EN 60068-2-6 (Vibrations, Sine & Random) - CEI EN 60068-2-27 (Shock)

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

	Sine test	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
	Random test	20-2000 Hz Spectral acceleration density 0.05 g ² /Hz Testing time 30 min. each axis Tested on three axes X, Y, Z
	Shock test	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
	Shock test	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:

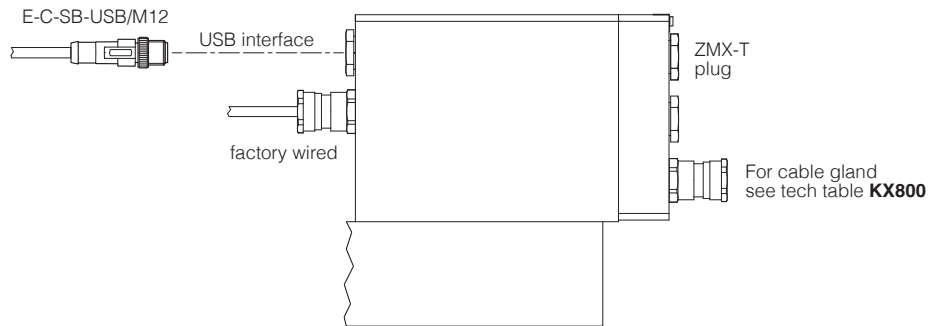
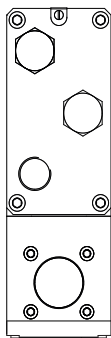
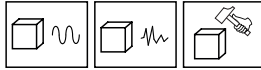


Temperature:

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

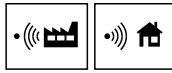
Flow valves:

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

Ingress Protection:

IP66 / IP67

EMC:

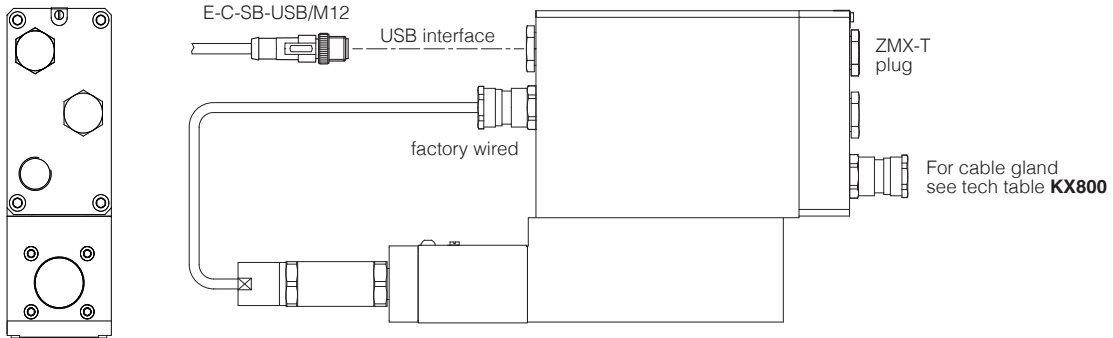
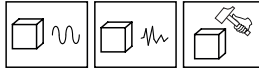


Temperature:

Ambient **-40°C ÷ +60°C**

Storage **-40°C ÷ +70°C**

Mechanical Resistance:



Note:

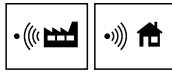
above data refer to the electronics only and may differ from those indicated in the technical table of the valve, which shows complete product data

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:

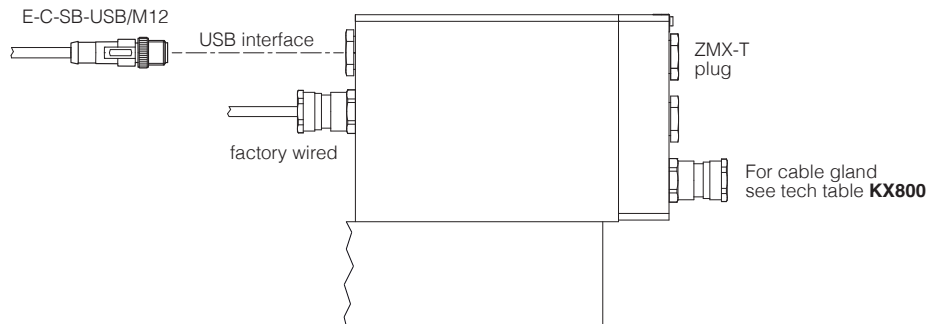
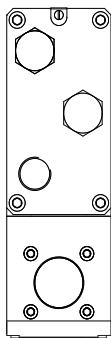
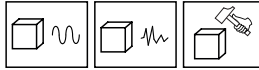


Temperature:

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

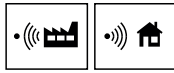
Flow valves:

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

Ingress Protection:

IP66 / IP67

EMC:

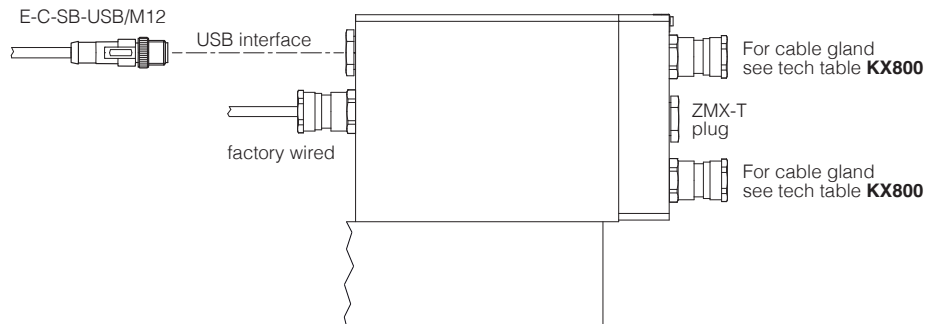
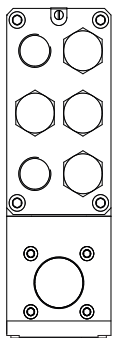
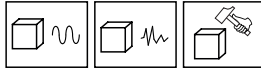


Temperature:

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

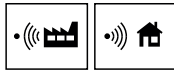
High performance directionals, with P/Q controls:

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

Ingress Protection:

IP66 / IP67

EMC:

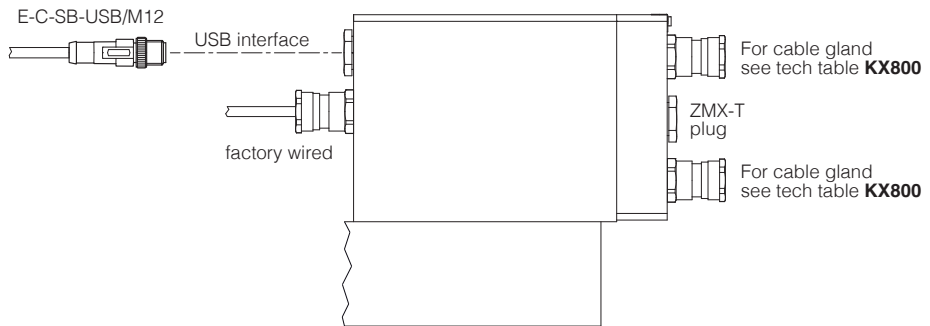
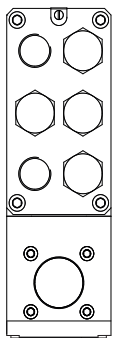
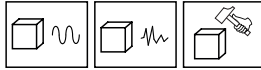


Temperature:

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:

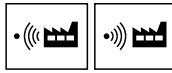
IP20

Temperature (1):

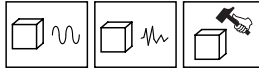
Ambient **-20°C ÷ +60°C**

Storage **-25°C ÷ +85°C**

EMC:



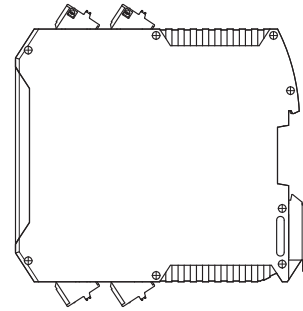
Mechanical Resistance:



(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:

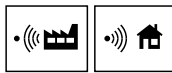
IP20

Temperature:

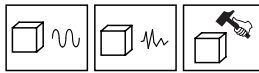
Ambient **-20°C ÷ +60°C**

Storage **-25°C ÷ +85°C**

EMC:



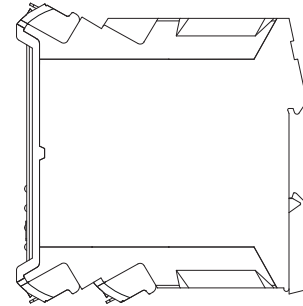
Mechanical Resistance:



Electronics drivers:

E-BM-AES/A technical table GS050

E-BM-RES/A technical table GS203



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

Ingress Protection:

IP20

Temperature (1):

Ambient **-20°C ÷ +60°C**

Storage **-25°C ÷ +85°C**

EMC:



Mechanical Resistance:



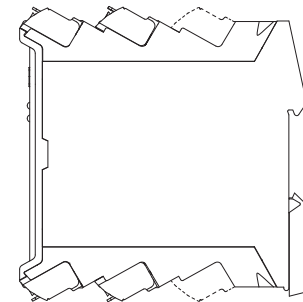
(1) Ambient temperature for TES/LES: -20°C ÷ +50°C

Electronics drivers:

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

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

E-BM-TID/LID/A technical table GS235 - phase-out



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

Ingress Protection:

IP20

Temperature:

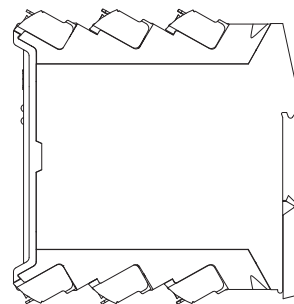
Ambient **-20°C ÷ +50°C**

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:

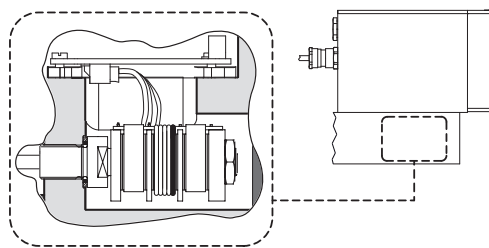
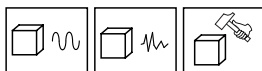
Ambient **-40°C ÷ +60°C**

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:

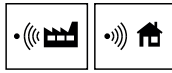
QVHZA-TES technical table FX430
QVKZA-TES technical table FX430

14 E-THA-4 LVDT transducers

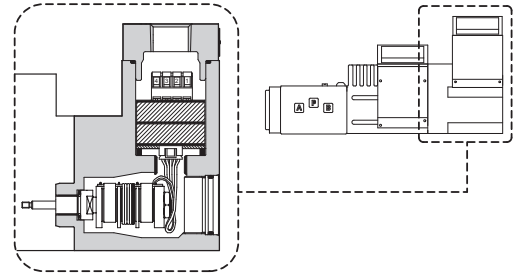
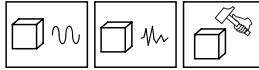
Ingress Protection:
IP66 / IP67

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

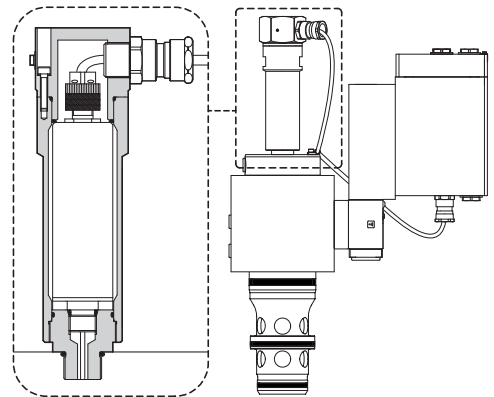
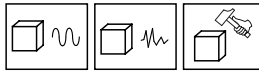
Ingress Protection:
IP66 / IP67

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)**

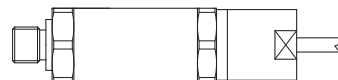
EMC:

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:

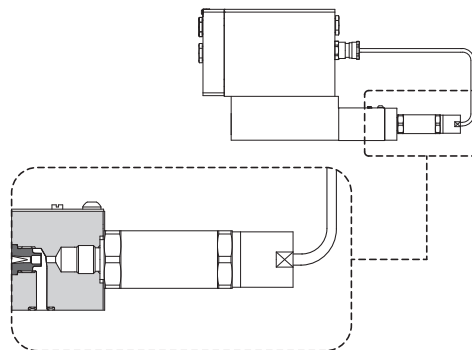
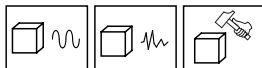
Ambient **-40°C ÷ +60°C**

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