

# Compatibility for EMC, climate and mechanical load




for valve's drivers, controllers and transducers

Electronic drivers and transducers are the most critic valve's components concerning the risk of electromagnetic interferences, water entrance and mechanical stress.

This table resumes the environmental resistance tests for valve's drivers, controllers and transducers according to electromagnetic compatibility, IP protection, vibrations and mechanical shocks, as per the applicable International Standards.

- 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). Section **1** reports EMC compatibility level according to Directive 2004/108/CE.
- 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. Section **2** reports the IP classification according to the International Standard CEI EN 60529. The minimum ensured IP protection reported for each component is intended with relevant connectors correctly installed.
- The Mechanical Resistance test determines the ability of components, equipment and other articles to withstand specified severities of sinusoidal/random vibration and shock. Section **3** reports the tests conditions performed according to the International Standards CEI EN 60068-2-6 (Vibrations) and CEI EN 60068-2-27 (Shock).

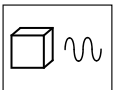

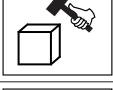
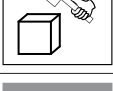


## 1 EMC ELECTROMAGNETIC COMPATIBILITY according to Directive 2004/108/CE

	<b>EN 61000-6-2</b> (ex EN 50082-2)	Immunity for industrial enviroments
	<b>EN 61000-6-3</b> (ex EN 50081-1)	Emission standard for residential, commercial and light-industrial enviroments
	<b>EN 61000-6-4</b> (ex EN 50081-2)	Emission standard for industrial enviroments

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

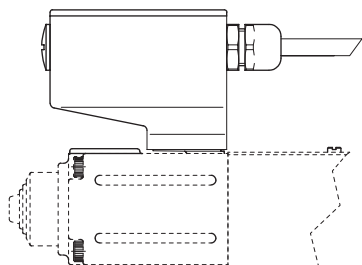
Ingress protection	Protection against solid objects	Protection against liquids penetration
<b>IP20</b>	<b>2</b> = protected against solid bodies of superior dimensions to 12 mm; protect against the access with a finger	<b>0</b> = not protect
<b>IP65</b>	<b>6</b> = totally protect against the powder; protect against the access with a wire	<b>5</b> = protect against water jets
<b>IP66</b>		<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) - CEI EN 60068-2-27 (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
	<b>Sine test (old procedure)</b>	0 ÷ 63 Hz; 0,7 ÷ 6 g
	<b>Shock test (old procedure)</b>	Shock 50 g; impact time 11 ms

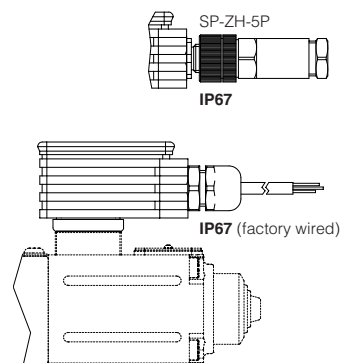
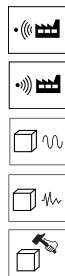
### 3 ELECTRONIC DRIVERS TYPE E-MI-AC, see table G010

minimum ensured protection **IP65**  
operating temperature  $0 \div +50\text{ }^{\circ}\text{C}$  (storage  $-20 \div +70\text{ }^{\circ}\text{C}$ )



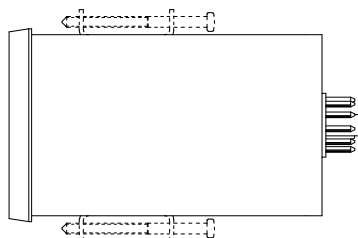
### 4 DIGITAL ELECTRONIC DRIVER TYPE E-MI-AS-IR, see table G020

minimum ensured protection **IP65**  
operating temperature  $-20 \div +50\text{ }^{\circ}\text{C}$  (storage  $-25 \div +85\text{ }^{\circ}\text{C}$ )



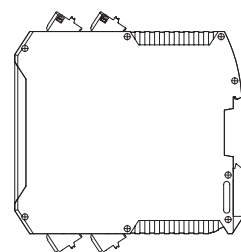
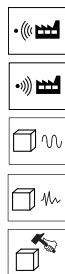
### 5 ELECTRONIC DRIVER TYPE E-BM-AC, see table G025

minimum ensured protection **IP20**  
operating temperature  $-10 \div +60\text{ }^{\circ}\text{C}$  (storage  $-20 \div +70\text{ }^{\circ}\text{C}$ )



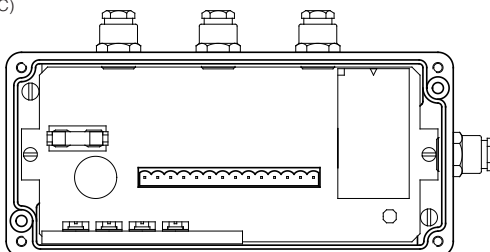
### 6 DIGITAL ELECTRONIC DRIVER TYPE E-BM-AS, see table G030

minimum ensured protection **IP20**  
operating temperature  $-20 \div +60\text{ }^{\circ}\text{C}$  (storage  $-25 \div +85\text{ }^{\circ}\text{C}$ )  
operating temperature on 05H version for two single solenoid valves  $-20 \div +40\text{ }^{\circ}\text{C}$



### 7 ELECTRONIC DRIVER TYPE E-RP-AC, see table G100

minimum ensured protection **IP65**  
operating temperature  $0 \div +50\text{ }^{\circ}\text{C}$  (storage  $-20 \div +70\text{ }^{\circ}\text{C}$ )

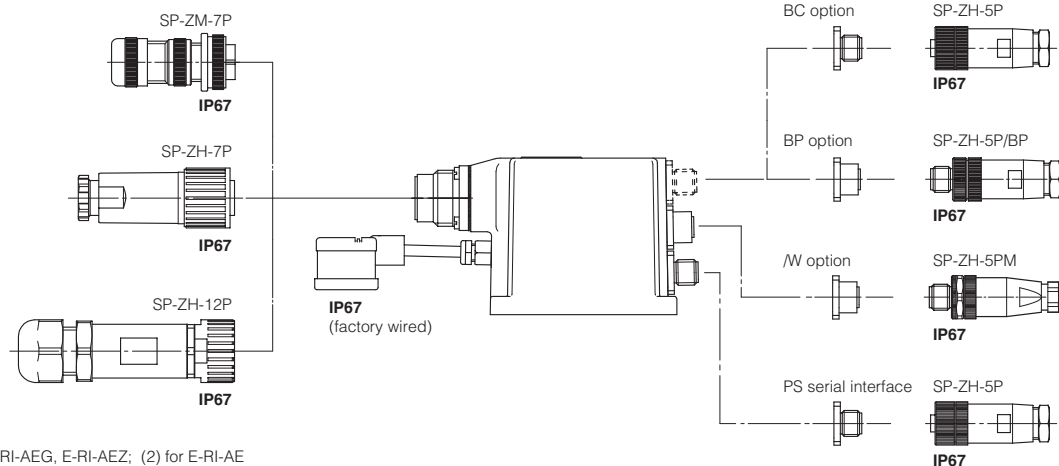


### 8 INTEGRAL ELECTRONIC DRIVERS TYPE

**E-RI-AE** analog, see table G110  
**E-RI-AEG** digital, see table G120

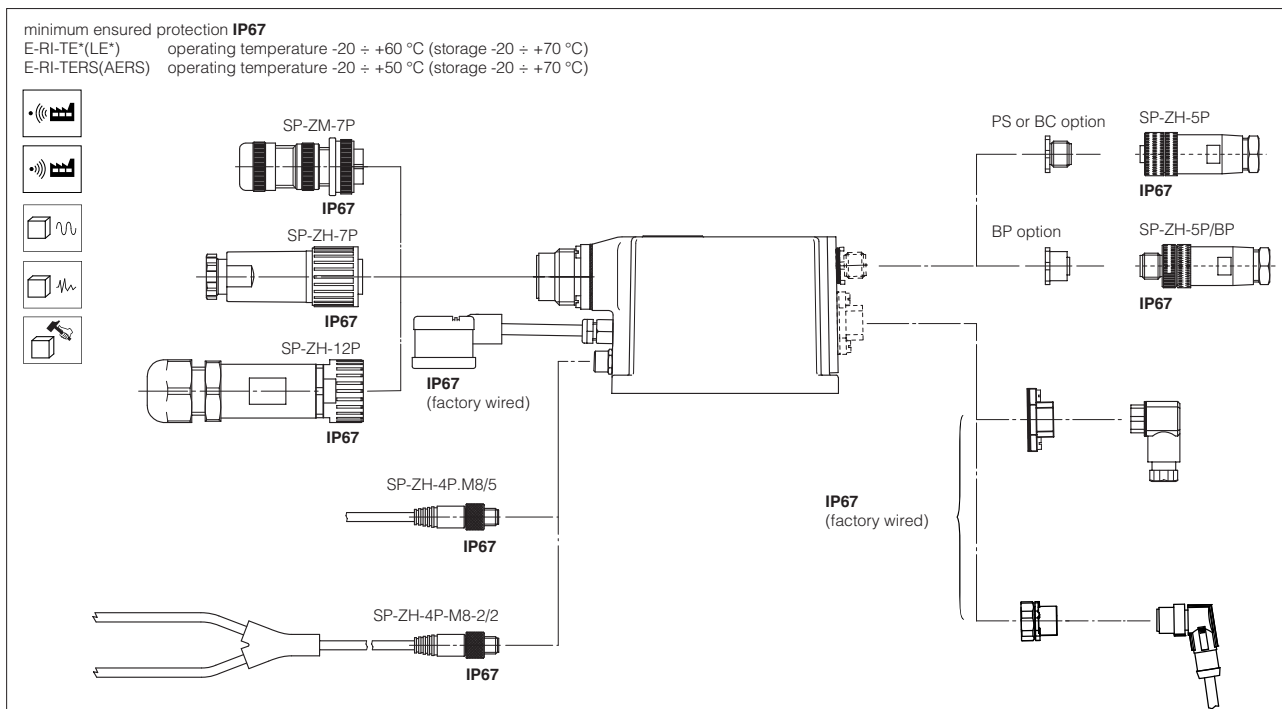
**E-RI-AES** digital, see table G115  
**E-RI-AEZ** digital, see table G120

minimum ensured protection **IP67** - operating temperature  $-20 \div +60\text{ }^{\circ}\text{C}$  (storage  $-20 \div +70\text{ }^{\circ}\text{C}$ )

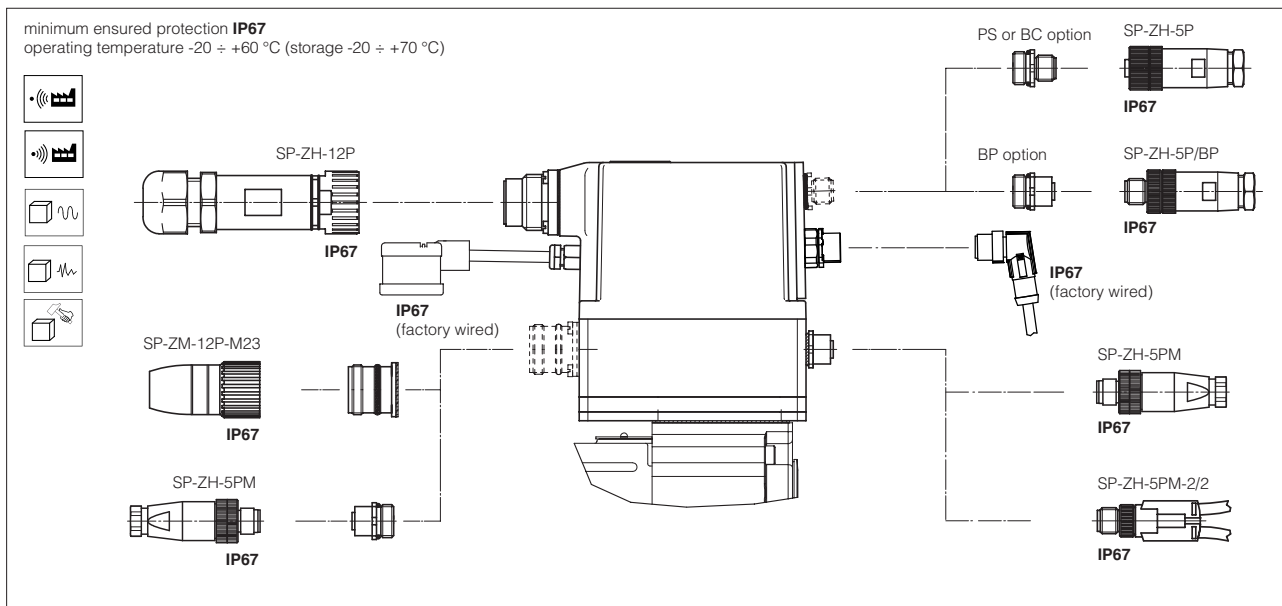


(1) for E-RI-AES, E-RI-AEG, E-RI-AEZ; (2) for E-RI-AE

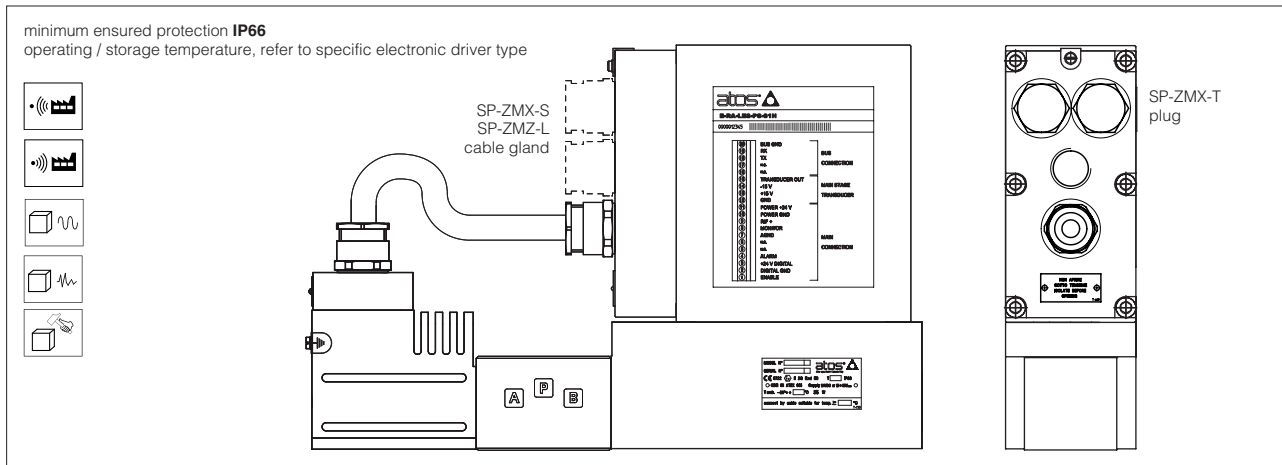
**9 INTEGRAL ELECTRONIC DRIVERS TYPE E-RI-TE(LE) analog, see table G200 E-RI-TERS(AERS) digital, see table G205**  
**E-RI-TES(LES) digital, see table G210, G212**



**10 INTEGRAL CONTROLLER TYPE Z-RI-TEZ, see table G330**



**11 INTEGRAL EX-PROOF DIGITAL DRIVER TYPE E-RA-AES, E-RA-TES(LES) AND E-RA-TERS(AERS) see table F600**

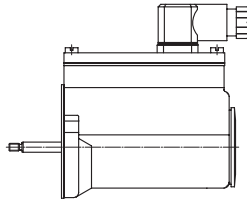
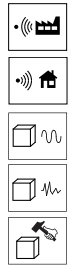


## 12 VALVE'S POSITION TRANSDUCERS

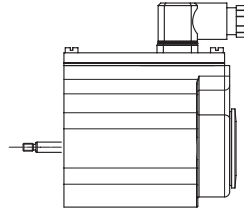
### ETH\*-4 (only for T valves)

minimum ensured protection **IP65**

operating temperature  $-20 \div +70$  °C (storage  $-20 \div +60$  °C)



Applied to valves:  
DHZO, see table F165  
DLHZO, see table F180  
QVHZO, see table F412

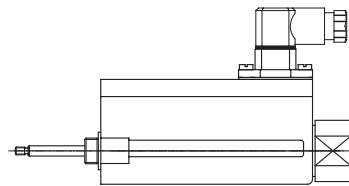


Applied to valves:  
DKZOR, see table F165  
DLKZOR, see table F180  
QVKZOR, see table F412

### ETH\*-8 (only for TE/LE valves)

minimum ensured protection **IP67**

operating temperature  $-20 \div +70$  °C (storage  $-20 \div +60$  °C)

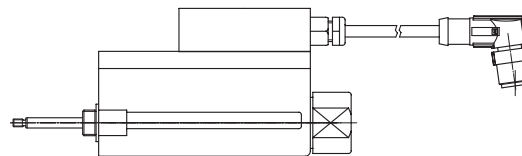
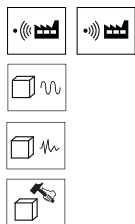


Applied to valves:  
DPZO-T (TE), see table F172  
LIQZO-T (TE), size 16 to 40, see table F320  
LIQZO-L size, 16 to 40, see table F330 and F340

### ETHR\*-8

minimum ensured protection **IP67**

operating temperature  $-20 \div +70$  °C (storage  $-20 \div +60$  °C)

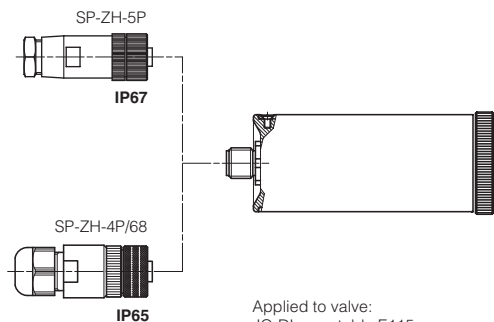


Applied to valves:  
LIQZO-LE (LES) size 16 to 40  
see table F330 and F340

### ETHFI-4/\*

minimum ensured protection **IP65 - IP67**

operating temperature  $-20 \div +70$  °C (storage  $-20 \div +50$  °C)

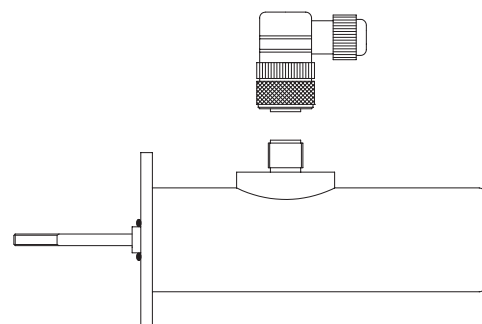
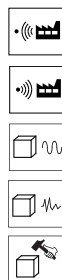


Applied to valve:  
JO-DL, see table E115

### X-ETH

minimum ensured protection **IP67**

operating temperature  $-20 \div +70$  °C (storage  $-20 \div +60$  °C)



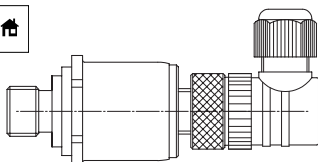
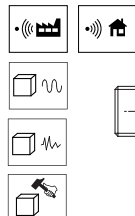
Applied to valves:  
LIQZO-T (TE, TES), size 50, see table F320  
LIQZO-L (LE, LES), size 50 to 100, see table F330 and F340

## 13 VALVE'S PRESSURE TRANSDUCERS

### E-ATR-7, see table G465

minimum ensured protection **IP67**

operating temperature  $-25 \div +85$  °C (storage  $-40 \div +100$  °C)

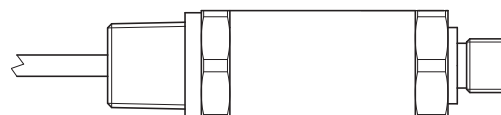
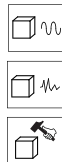


Applied to -TERS valves with integral electronics

### E-ATRA-7, see table G466

minimum ensured protection **IP67**

operating temperature  $-30 \div +100$  °C (compensated  $0 \div +80$  °C; storage  $-30 \div +105$  °C)



Applied to -TERS valves with ex-proof integral electronics

EMC: 89/336/EEC emission (class B) and immunity according to EN 61 326