



The manufacturer  
may use the mark:



Revision 5.0 May 5, 2023  
Surveillance Audit Due  
May 1, 2026



# Certificate / Certificat Zertifikat / 合格証

LUP 1006055 C002

*exida* hereby confirms that the:

## Series 920 Trunnion Ball Valves

**Lupatech Valmicro  
Veranopolis, RS - Brazil**

Has been assessed per the relevant requirements of:

**IEC 61508 : 2010 Parts 1-2**

and meets requirements providing a level of integrity to:

**Systematic Capability: SC 3 (SIL 3 Capable)**

**Random Capability: Type A, Route 2<sub>H</sub> Device**

**PFH/PFD<sub>avg</sub> and Architecture Constraints  
must be verified for each application**

### Safety Function:

The Ball Valve will move to the designed safe position per the actuator design within the specified safety time.

### Application Restrictions:

The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.



Evaluating Assessor

Certifying Assessor

LUP 1006055 C002

**Systematic Capability: SC 3 (SIL 3 Capable)****Random Capability: Type A, Route 2<sub>H</sub> Device****PFH/PFD<sub>avg</sub> and Architecture Constraints  
must be verified for each application****Systematic Capability :**

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 3. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.

**Random Capability:**

The SIL limit imposed by the Architectural Constraints must be met for each element. This device meets *exida* criteria for Route 2<sub>H</sub>.

**IEC 61508 Failure Rates in FIT\***

Application	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
Full Stroke, Clean Service	0	0	0	549
Tight Shut-Off, Clean Service	0	0	0	1176
Open on Trip, Clean Service	0	118	0	431
Full Stroke, Severe Service	0	0	0	941
Tight Shut-Off, Severe Service	0	0	0	2070
Open on Trip, Severe Service	0	214	0	727

\* 1 FIT = 1 failure / 10<sup>9</sup> hours

**SIL Verification:**

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/PFD<sub>avg</sub> considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

**Assessment Report:** LUP 10/06-055 R004 V5 R1 (or later)

**Safety Manual:** RE282003 Rev 01



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