



# Certificate / Certificat Zertifikat / 合格証

DIE 1510104 C003

exida hereby confirms that the:

## 3-Way Floating Ball Valves

**DIE ERSTE INDUSTRY CO., LTD.  
Taichung, Taiwan - R.O.C.**

The manufacturer  
may use the mark:



Has been assessed per the relevant requirements of:

**IEC 61508 : 2010 Parts 1-3**

and meets requirements providing a level of integrity to:

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

**Random Capability: Type A Element**

**SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2<sub>H</sub>**

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

### Safety Function:

The 3-Way Floating Ball Valves will close, close with tight shut-off or open to trip depending on the Safety Instrumented Function design.

### Application Restrictions:

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

Revision 3.0 September 27, 2023  
Surveillance Audit Due  
October 1, 2026



*Jack Gao*

Evaluating Assessor

*Diamond Lee*

Certifying Assessor

DIE 1510104 C003

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

**Random Capability: Type A Element**

**SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2<sub>H</sub>**

**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 element 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	427
Tight Shut-Off, Clean Service	0	0	0	1176
Open on Trip, Clean Service	0	127	0	300
Full Stroke, Severe Service	0	0	0	799
Tight Shut-Off, Severe Service	0	0	0	2284
Open on Trip, Severe Service	0	248	0	551

\* 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:** DIE 15/10-104 R005 V3R1 (or later)

**Safety Manual:** DIE ERSTE 2 & 3-Way Ball Valves Safety Manual\_v1.5 (or later)

3-Way Floating Ball Valves



80 N Main St  
Sellersville, PA 18960