



Certificate / Certificat Zertifikat / 合格証

MP 1710058 C001

exida hereby confirms that the:

Two way Floating Ball Valve Micro Pneumatics Pvt. Ltd. Mumbai - India

The manufacturer
may use the mark:



Revision 1.0 March 29, 2018
Surveillance Audit Due
April 1, 2019

Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-7

and meets requirements providing a level of integrity to:

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

**PFD_{avg} and Architecture Constraints
must be verified for each application**

Safety Function:

The 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.



ANSI Accredited Program
ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004



Evaluating Assessor

Certifying Assessor

MP 1710058 C001

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

PFD_{avg} 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_H.

IEC 61508 Failure Rates in FIT* for Two way Floating Ball Valve

Application	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	#	E
Full Stroke, Clean Service	0	0	0	418	772	431
Tight Shut-Off, Clean Service	0	0	0	1155	35	431
Open on Trip, Clean Service	0	121	0	297	772	431
Full Stroke with PVST, Clean Service	0	0	141	277	772	431
Tight Shut-Off with PVST, Clean Service	0	0	141	1014	35	431
Open on Trip with PVST, Clean Service	120	1	141	156	772	431

* FIT = 1 failure / 10⁹ hours

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD_{avg} 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: MP 17-10-058 R003 V1R1 (or later)

Safety Manual: Two way Floating Ball Valve Safety Manual



80 N Main St
Sellersville, PA 18960

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