



Certificate / Certificat Zertifikat / 合格証

CAM 1511061 C001

exida hereby confirms that the:

Floating Ball Valve

**CAMTECH Manufacturing FZCO.
Jebel Ali Free Zone, Dubai - UAE**

The manufacturer
may use the mark:



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

**PFH/PFD_{AVG} and Architecture Constraints
must be verified for each application**

Revision 2.0 February 8, 2019

Surveillance Audit Due

February 11, 2022

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.



ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004



Evaluating Assessor

Certifying Assessor

CAM 1511061 C001

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

PFH/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* with Good Maintenance Assumption SSI = 2

Floating Ball Valve – Static Application	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Full Stroke, Clean Service	0	0	0	376
Tight Shut-Off, Clean Service	0	0	0	934
Open on Trip, Clean Service	0	98	0	278
Full Stroke with PVST†, Clean Service	0	0	139	237
Tight Shut-Off with PVST, Clean Service	0	0	138	796
Open on Trip with PVST, Clean Service	97	1	139	139
Full Stroke, Severe Service	0	0	0	674
Tight Shut-Off, Severe Service	0	0	0	1777
Open on Trip, Severe Service	0	197	0	478
Full Stroke with PVST, Severe Service	0	0	232	442
Tight Shut-Off with PVST, Severe Service	0	0	232	1545
Open on Trip with PVST, Severe Service	195	2	233	245

* FIT = 1 failure / 10⁹ hours

† PVST = Partial Valve Stroke Test of a final element Device

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/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: CAM15/11-061 R003 V2 R1 (or later)

Safety Manual: CAM-TS-0045 Rev 00 December 2018

Floating Ball Valves
Models BAFBF &
BARBF



80 N Main St
Sellersville, PA 18960