Certificate / Certificat
Zertifikat / 合格証

AEA 1902082 C002

exida hereby confirms that the:

Double Eccentric Butterfly Valve

Aira Euro Automation Pvt Ltd
Ahmedabad - India

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

Safety Function:
The Butterfly 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.

The manufacturer may use the mark:

Revision 1.0 Dec 24, 2019
Surveillance Audit Due
Jan 01, 2023

Evaluating Assessor

Certifying Assessor

ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004

Certificate / Certificat / Zertifikat / 合格証

AEA 1902082 C002

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

Butterfly Valve – BOD 65 mm to 1200 mm, SDV 40 mm to 900 mm

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*

Static Application – Clean Service	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Full Stroke	0	0	0	528
Tight Shut-Off	0	0	0	1136
Open on Trip	0	122	0	406
Full Stroke with PVST†	0	0	184	344
Tight Shut-Off with PVST	0	0	184	952
Open on Trip with PVST	121	1	184	222
Static Application – Severe Service	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Full Stroke	0	0	0	915
Tight Shut-Off	0	0	0	2088
Open on Trip	0	231	0	684
Full Stroke with PVST	0	0	293	622
Tight Shut-Off with PVST	0	0	293	1795
Open on Trip with PVST	229	2	293	391

* FIT = 1 failure / 10^9 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: AEA 19-02-082 R004 V1R1 (or later)

Safety Manual: R-P-15-05 Rev0 (or later)

80 N Main St
Sellersville, PA 18960