Certificate / Certificat
Zertifikat / 合格証

ASC 1301001 C004

exida hereby confirms that the:

Series 327/8327G Solenoid Valves

ASCO
Ede, The Netherlands

Have 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 Valve will move to the designed safe position when de-energized / energized 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 2.4 July 2, 2018
Surveillance Audit Due
April 1 , 2019

Evaluating Assessor

Certifying Assessor

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

Certificate / Certificat / Zertifikat / 合格証

ASC 1301001 C004

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

Series 327/8327 Solenoid Valves

Systematic Capability:

These products have 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.

Applications

Series 327/8327G	De-energize To Trip / Energize To Trip, Normally Closed or Normally Open

IEC 61508 Failure Rates in FIT[1]

Model	Failure Category	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
327B0/8327G	De-energize To Trip	0	516	0	188
	Energize To Trip	0	86	0	268
	De-energize To Trip w/PVST[2]	511	5	183	5
	Energize To Trip w/PVST	85	1	263	5
327B1, B2, LP, & LP2	De-energize To Trip	0	248	0	188
	Energize To Trip	0	86	0	238
	De-energize To Trip w/PVST	246	2	183	5
	Energize To Trip w/PVST	85	1	233	5
327B3	De-energize To Trip	0	141	0	188
	Energize To Trip	0	86	0	188
	De-energize To Trip w/PVST	145	1	183	5
	Energize To Trip w/PVST	85	1	180	5
327B3(WS)IS	De-energize To Trip	0	174	0	193
	Energize To Trip	0	86	0	234
	De-energize To Trip w/PVST	172	2	188	5
	Energize To Trip w/PVST	85	1	229	5
327A6	De-energize To Trip	0	549	0	214
	Energize To Trip	0	121	0	340
	De-energize To Trip w/PVST	544	5	209	5
	Energize To Trip w/PVST	120	1	334	6

[1] FIT = 1 failure / 10^9 hours

[2] PVST = Automated 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: ASC 13/01-001 R002 V1R3

Safety Manual: V9629R8 (or later)

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Sellersville, PA 18960