



Certificate / Certificat Zertifikat / 合格証

ASC 1301001 C003

exida hereby confirms that the:

Series 8320 Solenoid Valves

ASCO, L.P.

Florham Park, NJ - USA

The manufacturer
may use the mark:



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**

Revision 2.1 August 1, 2018
Surveillance Audit Due
May 1, 2019

Safety Function:

The Valve will move to the designed safe position when de-energized / energized within the specified safety time.

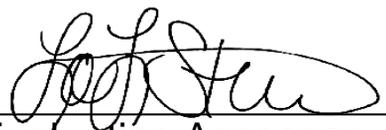
Application Restrictions:

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

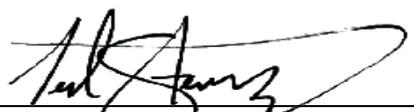


ANSI Accredited Program
ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004





Evaluating Assessor



Certifying Assessor

ASC 1301001 C003

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 :

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 these products 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.

Versions:

Valve Types	Description and Application
8320, FT/HT Coil, NC, DTT	8320, FT/HT Coil (6.1-16 Watts), NC (Normally Closed), De-Energize To Trip (DTT)
8320, FT/HT Coil, NC, ETT	8320, FT/HT Coil (6.1-16 Watts), NC (Normally Closed), Energize To Trip (ETT)
8320 Other Coil Options, DTT	Adder for 16-30 Watts Class H Coils, DTT Application
8320 Other Coil Options, ETT	Adder for 16-30 Watts Coils, ETT Application
8316 Manual Operator Option, DTT	Adder for Manual Operator Option, DTT Application
8316 Manual Operator Option, ETT	Adder for Manual Operator Option, ETT Application

IEC 61508 Failure Rates in FIT¹

Device / Configuration	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
8320, FT/HT Coil (<16 Watts), NC, DTT	0	411	0	88
8320, FT/HT Coil (<16 Watts), NC, ETT	0	33	0	213
Adder for HB Coils ² 16–30 Watts, DTT	0	430	0	0
Adder for FB/HB Coils 16–30 Watts, ETT	0	0	0	93
Adder for MO or MS Option, DTT	0	42	0	3
Adder for MO or MS Option, ETT	0	3	0	42

¹ FIT = 1 failure / 10⁹ hours

² Failure Rate Adders for other Coil Options available from ASCO

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 R001 V2 R2 (or later)

Safety Manual: V9629R8 (or later)

Series 8320 Solenoid Valves



80 N Main St
Sellersville, PA 18960

T-061, V3R1