

The manufacturer
may use the mark:



Reports:

ASCO Q08/12-38 R003
FMEDA Report V2 R1
ASCO Q08/12-38 R005 IEC
61508 Assessment Report
V2 R1

Validity:

This assessment is valid for
the Series 8320 Solenoid
Valves

This assessment is valid until
May 31, 2012.

Revision 2.0 July, 2010


exida[®]
Certification S.A.

Certificate / Certificat Zertifikat / 合格証

ASCO 08/12-38 C003

exida hereby confirms that the:

Series 8320 Solenoid Valves

**ASCO Numatics, Florham Park, NJ
USA**

Have been assessed per the relevant requirements of:

IEC 61508 Parts 1, 2

and meets requirements providing a level of integrity to:

Systematic Integrity: SIL 3 Capable

Random Integrity: Type A Device

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

Safety Function:

The Series 8320 Solenoid Valves will move to the safe position within the specified safety time when the solenoid is placed in its failsafe state (de-energized or energized).

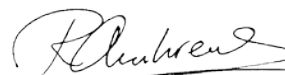
Application Restrictions:

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





Product Assessor



Auditor

ASCO 08/12-38 C003

Systematic Integrity: SIL 3 Capable

Random Integrity: Type A Device

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

SIL 3 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 without "prior use" justification by end user or diverse technology redundancy in the design.

IEC 61508 Failure Rates

For valves used in a final element assembly, SIL must be verified for the specific application using the following failure rate data.

Failure rates for the Series 8320 Solenoid Valves in FIT*

Failure Category	λ_{sd}	λ_{su}	λ_{dd}	λ_{du}	SFF
8320 De-energize on trip	0 FIT	233 FIT	0 FIT	150 FIT	60.8%
8320 Energize on trip	0 FIT	192 FIT	0 FIT	191 FIT	50.2%
8320 De-energize on trip, PVST	0 FIT	233 FIT	148 FIT	2 FIT	99.6%
8320 Energize on trip, PVST	0 FIT	192 FIT	189 FIT	2 FIT	99.6%

Applications

8320, NC	8320, Normally Closed, De-energize on trip
8320, NC	8320, Normally Closed, Energize on trip

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 subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

* FIT = 1 failure / 10⁹ hours

Series 8320 Solenoid
Valves

ASCO Numatics
Florham Park, NJ

USA



Form	Version	Date
C61508	2.03	Mar 2009