

The manufacturer
may use the mark:



Reports:

ASC 10/02-08 R003 V1 R2
Assessment Report

ASC 10-02-08 R001 V1 R3
FMEDA Report

Validity:

This assessment is valid for
The Manual Reset Solenoid
Valves – see page 2 for
models included.

This assessment is valid until
July 1, 2014.

Revision 2.0 July 5, 2011



Certificate / Certificat Zertifikat / 合格証

ASC 1002008 C001

exida hereby confirms that the:

Manual Reset Solenoid Valves

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

Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-7

and meets requirements providing a level of integrity to:

Systematic Integrity: SIL 3 Capable

Random Integrity: Type A Element

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

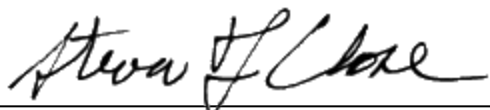
Safety Function:

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

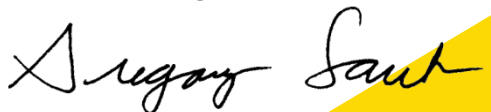
Application Restrictions:

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





Evaluating Assessor



Certifying Assessor

Systematic Integrity: SIL 3 Capable

Random Integrity: Type A Element

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

Manual Reset Solenoid
Valves

ASCO Numatics
Florham Park, NJ - USA

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.

Failure rates for per IEC 61508, 2010 FIT*.

Failure Category	λ_{sd}	λ_{su}	λ_{dd}	λ_{du}	SFF
3/2 Tamperproof MRVs, NVR, FT Coil	0	1019	0	302	77%
3/2 Tamperproof MRVs, NVR, LP Coil	0	969	0	302	76%
3/2 High Shock MRVs, NVR, FT Coil	0	914	0	432	68%
3/2 High Shock MRVs, NVR, LP Coil	0	864	0	432	67%
3/2 High Shock MRVs, TSO, FT Coil	0	800	0	487	62%
3/2 High Shock MRVs, TSO, LP Coil	0	800	0	457	64%
Other 3/2 MRVs, NVR, FT Coil	0	1019	0	302	77%
Other 3/2 MRVs, NVR, LP Coil	0	969	0	302	76%
Other 3/2 MRVs, NVR, WBIS Coil	0	1014	0	302	77%

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



Form	Version	Date
C61508	2.7-3	Mar 2011