

The manufacturer  
may use the mark:



**Reports:**

ASCO Q08/12-38 R001  
FMEDA Report V2 R3  
ASCO Q08/12-38 R005 IEC  
61508 Assessment Report  
V2 R1

**Validity:**

This assessment is valid for  
the Series 8314 Solenoid  
Valves

This assessment is valid until  
Feb 28, 2013.

Revision 2.0 January, 2010



# Certificate / Certificat

## Zertifikat / 合格証

ASCO 08/12-38 C001

*exida* hereby confirms that the:

### Series 8314 Solenoid Valves

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

Has 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:**

**For a standalone Valve:**

**Type A Device: SIL 3 @ HFT=1 / SIL 2 @ HFT=0**

**For a Valve used in a final element assembly:**

**SIL must be verified for the specific 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.



*Choi B.*

Product Assessor

*Steve J. Case*

Auditor

# Certificate / Certificat / Zertifikat / 合格証

ASCO 08/12-38 C001

## Systematic Integrity: SIL 3 Capable

### Random Integrity:

**For a standalone Valve:**

**Type A Device: SIL 3 @ HFT=1 / SIL 2 @ HFT=0**

**For a Valve used in a final element assembly:**

**SIL must be verified for the specific 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 8314 Solenoid Valves in FIT\*

| Failure Category | $\lambda_{sd}$ | $\lambda_{su}$ | $\lambda_{dd}$ | $\lambda_{du}$ | SFF   |
|------------------|----------------|----------------|----------------|----------------|-------|
| 8314             | 0 FIT          | 191 FIT        | 0 FIT          | 100 FIT        | 65.5% |
| 8314 with PVST   | 0 FIT          | 191 FIT        | 99 FIT         | 1 FIT          | 99.7% |

### Applications

|                      |                                      |
|----------------------|--------------------------------------|
| Series 8314 Solenoid | De-energize on trip, normally closed |
|----------------------|--------------------------------------|

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 /  $10^9$  hours



| Form   | Version | Date     |
|--------|---------|----------|
| C61508 | 2.20    | Feb 2010 |