



Certificate / Certificat Zertifikat / 合格証

MOR 1204064 C001

exida hereby confirms that the:

Series A, B, C, S, and HP Scotch Yoke Actuators

Emerson Automation Solutions Pelham, AL - USA

The manufacturer
may use the mark:



Revision 2.1 August 18, 2017
Surveillance Audit Due
November 1, 2018

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 Actuator will move to the designed safe position per the actuator design within the specified safety time.

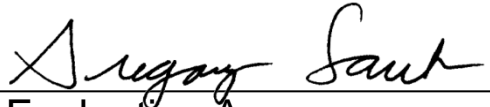
Application Restrictions:

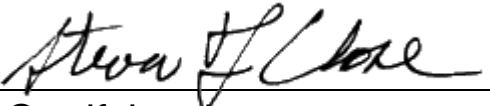
The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.



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




Evaluating Assessor


Certifying Assessor

MOR 1204064 C001

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 product 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.

IEC 61508 Failure Rates in FIT¹

Series A, B, C and S Pneumatic Actuators

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Single Piston, Spring-Return	0	138	0	342
Single Piston, Double Acting	0	0	0	469
Single Piston, Spring-Return with PVST ²	137	1	230	112
Single Piston, Double Acting with PVST	0	0	326	143
Double Piston, Spring-Return	0	216	0	478
Double Piston, Double Acting	0	0	0	665
Double Piston, Spring-Return with PVST	214	2	313	165
Double Piston, Double Acting with PVST	0	0	450	215

Series HP Hydraulic Actuators

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Single Piston, Spring-Return	0	226	0	470
Single Piston, Spring-Return with PVST	224	2	308	162
Single Piston, Double Acting	0	0	0	639
Single Piston, Double Acting with PVST	0	0	444	195
Double Piston, Double Acting	0	0	0	817
Double Piston, Double Acting with PVST	0	0	556	261

¹ FIT = 1 failure / 10⁹ hours

² PVST = 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: MOR 12/04-064 R002 V2R2 (or later)

Safety Manuals: OMI0415 & HPOMI0812

Series A, B, C, S, & HP
Scotch Yoke Actuators



80 N Main St
Sellersville, PA 18960

T-061, V3R1