



The manufacturer may use the mark:



Valid until November 1, 2018  
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ANSI Accredited Program  
PRODUCT CERTIFICATION  
#1004

# Certificate / Certificat Zertifikat / 合格証

BIF 1212028 C001

*exida* hereby confirms that the:

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

**BIFFI Italia S.r.l.**  
**Fiorenzuola D'Arda (PC) - Italy**

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<sub>H</sub> Device**

**PFD<sub>AVG</sub> and Architecture Constraints  
must be verified for each application**

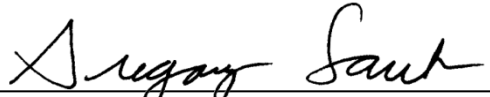
Safety Function:


The Actuator will move a Valve 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.



  
Evaluating Assessor

  
Certifying Assessor

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**Systematic Capability: SC 3 (SIL 3 Capable)****Random Capability: Type A, Route 2<sub>H</sub> Device****PFD<sub>AVG</sub> and Architecture Constraints  
must be verified for each application**

Systematic 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.

Random Capability:

The SIL limit imposed by the Architectural Constraints must be met for each element. This device meets *exida* criteria for Route 2<sub>H</sub>.

**IEC 61508 Failure Rates in FIT<sup>1</sup>****Series A, B, C and S Pneumatic Actuators**

Device	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
Single Piston, Spring-Return	0	138	0	342
Single Piston, Double Acting	0	0	0	469
Single Piston, Spring-Return with PVST <sup>2</sup>	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	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
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

<sup>1</sup> FIT = 1 failure / 10<sup>9</sup> hours<sup>2</sup> 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 PFD<sub>avg</sub> 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: BIF 12/12-028 R002 V2R1 (or later)

Safety Manuals: VCIOM-03244-EN 15/06 &amp; VCIOM-03245-EN 15/03

Series A, B, C, S, & HP  
Scotch Yoke Actuators64 N Main St  
Sellersville, PA 18960

T-061, V1R7