



Certificate / Certificat Zertifikat / 合格証

DEL 1804039 C006

exida hereby confirms that the:

Scotch Yoke Actuator

**DeVal Flow Controls Private Ltd
Pune - India**

The manufacturer
may use the mark:



Has 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**

Revision 1.1 Aug 09, 2019
Surveillance Audit Due
August 1, 2022

Safety Function:

The Actuator will move the attached 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

DEL 1804039 C006

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 :

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_H.

Versions:

<u>Series 25-250:</u> Model – 250-06, 250-07, 250-08, 250-10 <u>Series 25-350:</u> Model – 350-10, 350-12, 350-14 <u>Series 25-500:</u> Model – 500-12, 500-14, 500-15, 500-16	Spring Return Scotch Yoke Actuators Double Acting Scotch Yoke Actuators
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IEC 61508 Failure Rates in FIT*

Static Application	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Spring Return, No PVST	0	180	0	446
Spring Return, with PVST	168	12	301	145
Double Acting, No PVST	0	0	0	561
Double Acting, with PVST	0	0	401	160

* FIT = 1 failure / 10⁹ hours

† 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: DEL Q18/04-039 R011 V1R2 (or later)

Safety Manual: DEL-SM Q18/04-039 R006 (or later)



Series 25
Scotch Yoke
Actuator