



Certificate / Certificat Zertifikat / 合格証

ROT 1803043 C002

exida hereby confirms that the:

EHF – Electric Fail-Safe Actuators

**Rotex Manufacturers & Engineers
Private Limited
Maharashtra - INDIA**

The manufacturer
may use the mark:



Revision 1.2 February 26, 2019
Surveillance Audit Due
December 1, 2019

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 EHF Actuator will move the attached Valve to the designed safe position per the Actuator design within the specified safety time when the ESD Solenoid is De-Energized.

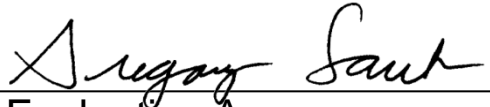
Application Restrictions:

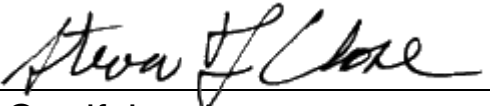
The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.



ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004




Evaluating Assessor


Certifying Assessor

ROT 1803043 C002

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 products 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

| Device | λ_{SD} | λ_{SU} | λ_{DD} | λ_{DU} |
|--|----------------|----------------|----------------|----------------|
| EHF ESD Function, Stay Put on Loss of Power configuration | 0 | 1082 | 0 | 528 |

¹ FIT = 1 failure / 10⁹ hours

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: ROT 18/03-043 R002 V1 R1 (or later)

Safety Manual: RTX-EHF-18-01 Rev 01 (or later)



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