

The manufacturer
may use the mark:



Reports:

ROT 10/04-018 R002 V1 R1
Assessment Report

ROT 10/04-018 R001 V1 R2
FMEDA Report

Validity:

This assessment is valid for
the ECF, SSF, and ECV
Series Valve Actuators,
Sizes 32 to 350

This assessment is valid
until January 1, 2015.

Revision 1.0 December 9, 2011



Certificate / Certificat Zertifikat / 合格証

ROT 1004018 C002

exida hereby confirms that the:

**ECF, SSF, and ECV Series
Rack & Pinion Valve Actuators**

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

Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-7

and meets requirements providing a level of integrity to:

Systematic Integrity: SIL 3 Capable

Random Integrity: Type A Element

**PFD_{AVG} and Architecture Constraints
must be verified for each application**

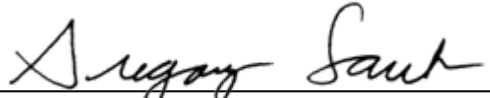
Safety Function:

The Actuator will move the 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

ROT 1004018 C002

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Random Integrity: Type A Element

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ECF, SSF, and ECV
Series Valve Actuators,
Sizes 32 to 350

Rotex Manufacturers &
Engineers Pvt. Ltd.
Dombivli, Maharashtra -
India

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 in FIT*

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
ECF/SSF Actuator, Spring Return,	0	399	0	312
ECF/SSF Actuator, Spring Return w/PVST [†]	399	0	165	147
ECF/SSF Actuator, Double Acting	0	0	0	448
ECF/SSF Actuator, Double Acting w/PVST [†]	0	0	283	165

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 / 10⁹ hours

† PVST = automated Partial Valve Stroke Test



Form	Version	Date
C61508	2.7-3	Mar 2011