



# Certificate / Certificat Zertifikat / 合格証

AEA 1902082 C001

*exida* hereby confirms that the:

## Pneumatic Rotary Actuator

**Aira Euro Automation Pvt Ltd  
Ahmedabad - 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<sub>H</sub> Device**

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

Revision 1.0 Dec 24, 2019  
Surveillance Audit Due  
Jan 01, 2023

### 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

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**Systematic Capability: SC 3 (SIL 3 Capable)**

**Random Capability: Type A, Route 2<sub>H</sub> Device**

**PFH/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>.

<b>Versions:</b>	
<u>ARA S/A 49 - 210:</u>	Single Acting Rack & Pinion Actuators
<u>ARA D/A 49 - 210:</u>	Double Acting Rack & Pinion Actuators

**IEC 61508 Failure Rates in FIT\***

Static Application	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
Spring Return, No PVST†	0	195	0	313
Spring Return, with PVST	193	2	207	106
Double Acting, No PVST	0	0	0	392
Double Acting, with PVST	0	0	302	90

\* FIT = 1 failure / 10<sup>9</sup> 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<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:** AEA 19-02-082 R003 V1R1 (or later)

**Safety Manual:** R-P-15-04 Rev0 (or later)

Pneumatic  
Rotary  
Actuator

