



# Certificate / Certificat Zertifikat / 合格証

NAF 070721 C003

exida hereby confirms that the:

**NAF – Turnex Pneumatic Actuators**  
On/Off Service, Spring Return/Double Acting  
NAF 791292/94, NAF 791392/94, NAF 791290, NAF 791390

**Flowserve – NAF AB**  
SE-581 87 Linköping, Sweden

Has been assessed per the relevant requirements of:

**IEC 61508 : 2010 Parts 1-2**

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**

### Safety Function:

The Actuator will move the Valve to the fail-safe state (open or closed) within the specified safety time when the hold position air is released.

### Application Restrictions:

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

The manufacturer  
may use the mark:



Revision 3.2 February 9, 2022  
Surveillance Audit Due  
April 1, 2024



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>.

**Versions:**

Single Acting (Spring Return): NAF 791292/94 and NAF 791392/94

Double Acting: NAF 791290 and NAF 791390

S Floating Ball Valve Series: S

**IEC 61508 Failure Rates in FIT<sup>1</sup> Static Applications**

Application/Device/Configuration	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
Single Acting (Spring Return)	0	199	0	473
Double Acting	0	0	0	635

<sup>1</sup>FIT – 1 failure/10<sup>9</sup> hours

**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:** NAF 07/07-21 R005 V5R1 (or later)

**Safety Manual:** NFENDS7459



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