



Certificate / Certificat Zertifikat / 合格証

CLA 2005077 C001

exida hereby confirms that the:

Shutter Valve™

Clarke Valve™

North Kingstown, RI - USA

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 1_H Device

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

Safety Function:

The Shutter Valve will move 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.

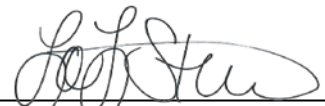
Revision 1.0 September 29, 2020
Surveillance Audit Due
October 1, 2023



ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004




Evaluating Assessor


Certifying Assessor

CLA 2005077 C001

Systematic Capability: SC 3 (SIL 3 Capable)**Random Capability: Type A, Route 1_H Device****PFD_{avg} and Architecture Constraints
must be verified for each application****Shutter Valve****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.

IEC 61508 Failure Rates in FIT*

Application	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Full Stroke, Clean Service	0	0	0	626
Tight Shut-Off, Clean Service	0	0	0	1931
Open on Trip, Clean Service	0	118	0	508

* 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 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: CLA 20/05-077 R002 V1 R1 (or later)

Safety Manual: Clarke Valve SIL Safety Manual, Rev 1



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