



The manufacturer may use the mark:



Revision 1.0 August 22, 2017  
Surveillance Audit Due  
September 1, 2020



ANSI Accredited Program  
ISO/IEC 17065  
PRODUCT CERTIFICATION BODY  
#1004

# Certificate / Certificat Zertifikat / 合格証

TVT 1703044 C001

*exida* hereby confirms that the:

## J-A Series Emergency Shutdown Valve Taylor Valve Technology, Inc. Oklahoma - USA

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 Element**

**SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2<sub>H</sub>  
PFH/PFD<sub>avg</sub> and Architecture Constraints  
must be verified for each application**

### Safety Function:


The Valve will close within the specified safety time when the trip pressure is exceeded.

### Application Restrictions:

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



  
Evaluating Assessor

  
Certifying Assessor

# Certificate / Certificat / Zertifikat / 合格証

TVT 1703044 C001

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**Random Capability: Type A Element**

**SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2<sub>H</sub>**

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

J-A Series Emergency  
Shutdown 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. This device meets *exida* criteria for Route 2<sub>H</sub>.

**Note:** Per paragraph 11.4.5 of IEC 61511-1:2016, a user of the J-A Series Emergency Shutdown Valve may claim that it meets the hardware architectural constraints for up to SIL 2 @ HFT=0 (or SIL 3 @ HFT=1).

## IEC 61508 Failure Rates in FIT\*

Device	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
Full Stroke, Clean Service	0	28	0	340
Tight Shut-Off, Clean Service	0	28	0	800

\* 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:** TVT 17/03-044 R001 V1R1 (or later)

**Safety Manual:** SM-001, Rev B



80 N Main St  
Sellersville, PA 18960

T-002, V5R1