



The manufacturer may use the mark:



Revision 1.0 February 17, 2022
Surveillance Audit Due
March 1, 2025



Certificate / Certificat Zertifikat / 合格証

VAL 2103067 C001

exida hereby confirms that the:

NexTech and TrunTech Trunnion Mounted Ball Valves

ValvTechnologies Houston, TX - USA

Have 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_H Device

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

Safety Function:

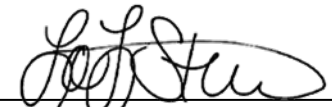
The Ball Valve will move to the designed safe position per the actuator design within the specified safety time.

Application Restrictions:

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




Evaluating Assessor


Certifying Assessor

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

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

Systematic Capability :

These products have 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_H.

Versions:

Valve Type/Configuration	Flange Sizes	Pressure Class
NexTech R Series (Stock Valves) Metal Seated Trunnion Ball Valves Carbon or Stainless Steel Body & End Caps, w/St.Stl. Internals	2" to 6"	ANSI 600
	2" to 8"	ANSI 300
NexTech E Series (Engineer to Order Valves) Metal Seated Trunnion Ball Valves Full or Partial Cladding Exotic alloy trim material (Duplex, Inconel, Monel) High cycle trim (upgraded bearings and stem seals) Double-piston effect seat configuration Sealant injection ports Purge ports Low emissions packing	2" to 24"	ANSI 300 to 1500
TrunTech Series - Metal Seated Trunnion Ball Valves	2" to 20"	ASME 300 to 2500

IEC 61508 Failure Rates in FIT¹, Static Applications

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Full Stroke, Clean Service	0	0	0	536
Tight Shut-Off, Clean Service	0	0	0	1095
Open on Trip, Clean Service	0	110	0	426
Full Stroke, Severe Service	0	0	0	928
Tight Shut-Off, Severe Service	0	0	0	1989
Open on Trip, Severe Service	0	206	0	722

¹ 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 PFH/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: VAL 21-03-067 R001 V1R1 (or later)

Safety Manual: VALV01-ENG-SIL-001 R1 (or later)

NexTech & TrunTech
Trunnion Mounted Ball
Valves



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