



Certificate / Certificat Zertifikat / 合格証

MIT 1211024 C003

exida hereby confirms that the:

Globe Control Valves

**Mitech Control Valve (Pty) Ltd
Kempton Park, Gauteng - RSA**

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_H Device

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

Revision 1.2 October 23, 2019
Surveillance Audit Due
November 1, 2022

Safety Function:

The Globe 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

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Systematic Capability: SC 3 (SIL 3 Capable)**Random Capability: Type A, Route 2_H Device****PFD_{avg} 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_H.

IEC 61508 Failure Rates in FIT*

| Globe Control Valve – Clean Service | λ_{SD} | λ_{SU} | λ_{DD} | λ_{DU} |
|---|----------------|----------------|----------------|----------------|
| Full Stroke | 0 | 0 | 0 | 521 |
| Tight Shut-Off | 0 | 0 | 0 | 1256 |
| Open on Trip | 0 | 168 | 0 | 353 |
| Full Stroke with PVST [†] | 0 | 0 | 168 | 353 |
| Tight Shut-Off with PVST | 0 | 0 | 168 | 1088 |
| Open on Trip with PVST | 166 | 2 | 168 | 185 |
| Globe Control Valve – Severe Service | λ_{SD} | λ_{SU} | λ_{DD} | λ_{DU} |
| Full Stroke | 0 | 0 | 0 | 943 |
| Tight Shut-Off | 0 | 0 | 0 | 2405 |
| Open on Trip | 0 | 329 | 0 | 614 |
| Full Stroke with PVST | 0 | 0 | 281 | 663 |
| Tight Shut-Off with PVST | 0 | 0 | 281 | 2124 |
| Open on Trip with PVST | 326 | 3 | 281 | 333 |

* FIT = 1 failure / 10⁹ 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 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: MIT 12-11-024 R006 V0R21 (or later)

Safety Manual: SHEQSIL-1



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