



ENGINEERING SAFETY CONSULTANTS

The Global Provider of Functional Safety Expertise and Technical Consultancy

Certificate of Conformity to IEC 61508 Safety Integrity Level (SIL) 1

Functional Safety of Safety-Related Programmable Electronic Systems

The **SPX Flow Copes-Vulcan, NPS 10 Class 150 Globe Valve with CV1000 Actuator** has been assessed and is considered capable for use in a low demand Safety Function up to SIL 1, with regard to random failure rate and architectural constraint, for failsafe closing on loss of electrical supply (SF-1).

The assessment was carried out to determine compliance with IEC 61508 with regards to:

- Random Hardware Failure (Predicted failure rate per year);
- Architectural Constraint (Type A, SFF <60%).

The assessment was based on the assumptions, data provided, and recommendations given in:

- **ESC Ltd Report: J013_SV003 rev.3;**
- **ESC Ltd Report: J013_SM001 rev.1.**

The product was assessed against the following failure modes:

- Failure to close on electrical de-energisation.

The system assessed comprises the following modules/sub-elements:

- Loss of Electrical Supply (SF-1).

The assessment results are as follows:

Module	Failure mode	Random Hardware Failure (/hr)	Architectural Constraint	SIL Capability
Loss of Electrical Supply (SF-1) (Case 1 – 12 month PTI)	Failure to close	4.43E-03	55%	1
Loss of Electrical Supply (SF-1) (Case 1 – 36 month PTI)	Failure to close	1.33E-02	55%	1

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Member of the IEC 61508 committee
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Certificate: J013_CT003 rev. 3

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