

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

Functional Safety of Safety-Related Programmable Electronic Systems

The **Pneumatrol Ltd, VTP Poppet Valve with SXH / SXD Actuator Assembly** has been assessed and is considered capable for use in a Low Demand Safety Function up to SIL 3 with regards to random failure rate, architectural constraints and systematic capability.

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

- **Engineering Safety Consultants Ltd Report: E058_SV001 rev. 4.**

The system was assessed against the following failure modes:

- De-energised to close within 500ms – minimal or no leakage to output (port 2) or exhaust chamber (port 3) required to achieve the response time;
- Energise to open within 500ms – sufficient air supply to valve output (port 2) required to achieve response time.

The assessment was carried out to determine compliance with IEC 61508 (2010 Edition) with regards to:

- Random Hardware Failure (Predicted Probability of Failure on Demand (PFD) based on a 1-year proof test, average repair time of 168 hrs, Proof Test Coverage (PTC) of 100% or 95% and an Overhaul Interval of 10 years;
- Architectural Constraints;
- Systematic capability.

Type	Proof Test Coverage	Configuration	Achieved PFD	Achieved SIL (PFD)	Achieved SIL (Architecture)	Systematic Capability	Overall Achieved SIL
VTP Poppet Valve with actuator SXH/ SXD ETT	100%	1001	5.1E-03	2	1	3	1
	95%	1001	7.3E-03	2	1	3	1
	100%	1002	5.4E-04	3	2	3	2
	95%	1002	7.9E-04	3	2	3	2
VTP Poppet Valve with actuator SXH/ SXD DETT	100%	1001	1.6E-03	2	2	3	2
	95%	1001	2.3E-03	2	2	3	2
	100%	1002	1.6E-04	3	3	3	3
	95%	1002	2.4E-04	3	3	3	3



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IMPORTANT: It should be noted that this assessment does not include confirmation of the response time of the device. For response times (along with any relevant assumptions) reference should be made to the Safety Manual of each device and the total SIF response time **MUST** be compared against the process safety time for the specific application.

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Renewal Date: November 2021, valid to November 2023
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