

SIL



Functional Safety Certificate

No. 4Z221012.HMVC010

Certificate's Holder: Hunt & Mitton Valve Company
The Pump & Valve Industrial Park of Dafeng District Economic Development Zone, Yancheng City, Jiangsu Province, China.

Product: Globe Valve and Control Valve

Model(s): 8800/01 Hand wheel bellows seal globe valve,
6800/01 Hand wheel packed gland globe valve,
8850/01 Air actuator bellows seal globe valve,
5800/01 Air actuator bellows seal control valve.

Standard: Has been assessed per the relevant requirements of:
IEC 61508:2010 Parts 1, 2, 3 and 4
And meets requirements providing a level of integrity to:
Systematic Capability: SC 3(SIL 3 Capable)
Random Capability: Type A Element
HFT= 0, Route 1H
PFD_{AVG} and Architecture Constraints must be verified each application
*Safety function:
Those products have been designed with the safety features associated with the latest Euro Chlor GEST 17/492 in mind whilst maintaining the functionality of control valves such as longer stroke to provide a better flow modulation, smoother flow paths and a better pressure recovery factor compared to that of an ON/OFF globe valve.
* Is suitable to be safety function according to the description and the configuration defined in Annex I

Verification Mark:



The Verification Mark can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way

Remark: This SIL Verification of Compliance has been issued on a voluntary basis. ECM confirms that a Test Report is existent for the above listed product(s) and found to meet the requirements of above standards for application in safety related system up to Safety Level of **SIL 3**. The unit must be properly designed into a Safety Instrument Function as per the requirements in the Safety Manual. The Verification Mark shown above can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way. In addition the Verification's Holder is NOT allowed to transfer the Verification to third parties. This certificate can be checked for validity at www.entecerma.it

Date of issue 13 October 2022

Expiry date 11 October 2027

For online check:



Approver
Ente Certificazione Macchine
Legal Representative
Luca Bedonni



Ente Certificazione Macchine

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Annex I



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1. Application Restrictions:
The unit must be properly designed into a Safety Instrumented Function per the User/Safety Manual requirements.
2. SIL 3 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.
3. IEC61508 Failure Rates:

Type	Texture & Sealing	Class	λ_{SD}/FIT	λ_{SU}/FIT	λ_{DD}/FIT	λ_{DU}/FIT	λ/FIT
Globe Valve	Hand wheel bellows seal globe valve	8800/01	0	1207	0	576	1783
Globe Valve	Hand wheel packed gland globe valve	6800/01	0	2153	0	726	2879
Globe Valve	Air actuator bellows seal globe valve	8850/01	0	1987	0	679	2666
Control Valve	Air actuator bellows seal control valve	5800/01	0	2097	0	743	2840

Failure rate unit: FIT, 1 FIT=10⁻⁹/h

4. 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 subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.