Certificate – Сертификат – 證明書 – Certificat – 증명서 – شهادة

SIL

Functional Safety Certificate

No. 6G240618.VVTC27

Certificate's Holder: VINCER VALVE Co.,Ltd.
Room 203, Building 1, No. 110 Dayuan Road, Zhangcun, Dongcheng Street, Dongguan City, Guangdong Province

Manufacturer: VINCER VALVE Co.,Ltd.
Room 203, Building 1, No. 110 Dayuan Road, Zhangcun, Dongcheng Street, Dongguan City, Guangdong Province

Product: Electric valve, Electric actuator, Pneumatic valve, Pneumatic actuator, Pneumatic control valve, Electric control valve, Self operated regulating valve, Solenoid valve, Ball valve, Butterfly valve, Gate valve, Globe valve, Check valve, Knife gate valve

Model(s): VE10, VE20, VP11, VP12, ZJHP, ZJHM, ZDLP, HTS, ZZYP, ZZVP, ZDLM, ZZYVP, ZZYN, ZZW, ZMAS, ZMAQ, ZMAP, 2W, VS08, Q41F, Z41H, H42W, J41H, VS07, VS02, VSSC, D341X, D71X

Standard: 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 B Element
SIL 2 @ HFT= 0; SIL 3@ HFT=1; Route 2_H
PFD_{AVG} and Architecture Constraints must be verified each application

* Safety Function:
The main purpose of a valve is to control components in pipeline fluid transportation systems, which are used to change the cross-sectional area and flow direction of the medium, and to control the flow of the transported medium. It is a device that has functions such as diversion, shut-off, throttling, check, diversion or overflow pressure relief.The actuator is an essential and important component in automatic control systems. Its function is to receive control signals from the controller, change the size of the controlled medium, and maintain the controlled variable at the required value or within a certain range.
* 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 18 June 2024

Expiry date 17 June 2029

For online check:

Approver
Ente Certificazione Macchine
Legal Representative
Luca Bedonni

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Annex I

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1. 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.

2. The product version of hardware components used for validation and type tests are the following:

Product:	Electric valve, Electric actuator, Pneumatic valve, Pneumatic actuator, Pneumatic control valve, Electric control valve, Self operated regulating valve, Solenoid valve, Ball valve, Butterfly valve, Gate valve, Globe valve, Check valve, Knife gate valve
Model(s):	VE10, VE20, VP11, VP12, ZJHP, ZJHM, ZDLP, HTS, ZZYP, ZZVP, ZDLM, ZZYVP, ZZYN, ZZW, ZMAS, ZMAQ, ZMAP, 2W, VS08, Q41F, Z41H, H42W, J41H, VS07, VS02, VSSC, D341X, D71X

3. Acceptable environmental constraints for the system are recalled in the safety Manual. These elements must be checked for each integration operation of the product.

4. Hypothesis used for calculations are presented here under:
   - The mode of operation is Low demand, which means less than 1 trip demand each year;

Component architecture	SIL Capability	Demand frequency	PFD
1oo1 configuration	SIL2	Low	6.84E-04
1oo2 configuration	SIL3	Low	2.28E-05

5. IEC 61508 Failure Rates in FIT*

Failure Category	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF
Average	11	194	25.45	9.14	96.2%
Tests intervals=12months, MTTR=24h					

**FIT=1 failure/10^9 hours*

6. The Safety Integrated Level of the safety function using the product shall be calculated taking into account the characteristics of the whole system.

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