



# SIL

## Functional Safety Certificate

**No. 2X251224.HCSWD15**

Test Report / Technical Construction File no. SIL-HZKCS-2025-A2

<b>Certificate's Holder:</b>	Hanzhongkun (Shanghai) Control System Co., Ltd Zone C, Floor No. 1, Building No. 5, No. 98 Songhai Road, Qingpu District, Shanghai, China
<b>Product:</b>	Electric Actuator
<b>Model(s):</b>	HKM.1, HKM.2, HKM.3, HKP.1, HKP.2, HKP.3, HKL.1, HKL.2, HKL.3, HKM.1E, HKP.1E, HKP.3DE, HKM.3E, HKP.3E
<b>Standard:</b>	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 <sub>H</sub> device PFD <sub>AVG</sub> and Architecture Constraints must be verified each application * Safety function: The electrical actuators will move to the designed safe position within the specified safety time. * Application Restrictions: The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements. * 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](http://www.entecerma.it)

**Date of issue 24 December 2025**

**Expiry date 23 December 2030**

**For online check:**



**Approver**  
Ente Certificazione Macchine  
Legal Representative  
Luca Bedonni





# Annex I

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- The use of the product [Actuator] must obey the required rules to conservation of SIL 3 properties. These rules are recalled in the §6 of the Assessment Report reference: [SIL Capability assessment report].
- The product version of hardware components used for validation and type tests are the following:

<b>Product:</b>	Electric Actuator
<b>Model(s):</b>	HKM.1, HKM.2, HKM.3, HKP.1, HKP.2, HKP.3, HKL.1, HKL.2, HKL.3, HKM.1E, HKP.1E, HKP.3DE, HKM.3E, HKP.3E

- Assessed documents for the present certification are defined in the Assessment Report [SIL Capability assessment report].
- Acceptable environmental constraints for the system are recalled in the safety Manual (Ref: [SIL-HZKCS-03]). These elements must be checked for each integration operation of the product.
- The SIL 3 capable certified safety instrumented function of the product [Actuator] is the following:
  - Safety Function:** move to the designed safe position within the specified safety time.
- The fail rates in FIT (FIT=1 failure/10<sup>9</sup> hours) is the following:

Safety Function	Fail safe detected $\lambda_{SD}$	Fail safe undetected $\lambda_{SU}$	Fail dangerous detected $\lambda_{DD}$	Fail dangerous undetected $\lambda_{DU}$
Stay put	0	125	83	15
ESD open	156	124	75	26
ESD close	206	113	95	37

- The safety integrity level (SIL) of the entire Safety Instrument 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.