

SIL



Functional Safety Verification

No. 0B170313.SKV0S25

**Certificate's
Holder:**

J Flow Controls™
4665 Interstate Drive
Cincinnati, Ohio 45246, USA

Product:

Ball Valve

Model(s):

9500 Series, 9600 Series, 9700 Series and 9800 Series.

Standard:

Has been assessed per the relevant requirements of:
IEC 61508-1, IEC 61508-2 and IEC 61508-4

And meets requirements providing a level of integrity to:
Systematic Integrity: SC 3 (SIL 3 Capable)

Random Integrity: Type A Devices

PFD_{AVG} and Architecture Constraints must be verified
each application

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 March 2017

Expiry date 12 March 2022

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Annex I



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1.The use of the product [Series Petrochemical Valves] 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]

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

Component	Model
Ball valve	Floating ball valve, Trunnion ball valve
gate valve	Flexible wedge gate valve, Solid wedge gate valve, Slab gate valve
globe valve	Straight globe valve, Y-type globe valve, Angle globe valve
check valve	Swing check valve, Dual plate check valve, Lift check valve
butterfly valve	Center line butterfly valve, Bi-offset butterfly valve, tri-offset butterfly valve

3.Acceptable environmental constraints for the system are recalled in the safety Manual(Ref:[SIL-SM-02]). These elements must be checked for each integration operation of the product.

4.The SIL 3 capable certified Safty Instrumented Function of [Series Petrochemical Valves] Is the following:
 1.SF1:To Close on demand.
 2.SF2:To Open on demand.

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

Component architecture	SIL Capability	Demand frequency	PFD
Loo1 configuration	SIL2	Low	9.94E-04
Loo2 configuration	SIL3	Low	2.03E-04

Safety function	Fuilure rate	Undetected dangerous fuilure rate	Tests intervals	MTTR
SF1	4.77E-06	4.41E-07	11months	48h
SF2	4.77E-06	4.41E-07	11months	48h

6. The Safty Integrated Level of the safety function using the Series Petrochemical valves shall be calculated taking into account the characteristics of the whole system