

Certificate of Conformity No.: 28714085

Manufacturer: Emerson Process Management
Valve Automation
 No.15 Xing Wang Road
 Wuqing Development Area
 Tianjin 301700
 P.R.China

Specifications: IEC 61508-1÷7:2010

Product: Bettis™ Spring Return Hydraulic Actuator

Type: Series G

RESULT:

As per the TÜV Rheinland Italia Report No. FS 28714085 Rev. 0 we declare that the product meets the below requirements:

IEC 61508: 2010, part 1 to 7

Functional Safety of electrical/electronic/programmable electronic safety related systems; Type A, Low Demand Mode, HFT=0

Safety Action	λ_D [1/h]	$\lambda_{DD(PS)}$ [1/h]	Systematic Capability
Close / Open	5,42E-08	4,93E-08	3

The above values are compatible with SIL 3.

For SFF values with external diagnostic tests, carried out according to definition 3.8.7 of IEC 61508-4, see what written in the Safety Manual.

The requirements of minimum hardware fault tolerance (HFT) according to table 6 of IEC 61511-1 have to be observed.

Expiry date: **2017-03-31**

Location: **Milan**

Date: **2014-02-12**

TÜV Rheinland Italia S.r.l.
 Via Enrico Mattei, 3
 I - 20010 Pogliano Milanese

Giovanni De Felippis
 Operational Manager




**Attachment 1 to
Certificate of Conformity No.: 28714085**



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		Test Interval Frequency (months)				
		6	12	24	36	48
Partial Stroke frequency (months)	1	3,00E-05	4,07E-05	6,20E-05	8,34E-05	1,05E-04
	2	4,80E-05	5,87E-05	8,00E-05	1,01E-04	1,23E-04
	3	6,60E-05	7,67E-05	9,80E-05	1,19E-04	1,41E-04
	6		1,31E-04	1,52E-04	1,73E-04	1,95E-04
	9				2,27E-04	
	12			2,60E-04	2,81E-04	3,03E-04

PFD_{AVG} values according to IEC 61508 for different values of TI and TI_{PS}

Test Interval Frequency (months)				
6	12	24	36	48
1,20E-04	2,39E-04	4,76E-04	7,13E-04	9,51E-04

PFD_{AVG} values according to IEC 61508 for different values of TI (no Partial Stroke Test)

Location: Milan

Date: 2014-03-12

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