Certificate of Conformity No.: 28714086

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™ Double Acting Hydraulic Actuator

Type: Series G

***RESULT*:**

As per the TÜV Rheinland Italia Report No. FS 28714086 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	5,73E-08	5,22E-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: **2014-03-12**

Giovanni De Felipis
Operational Manager

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

Attachment 1 to
Certificate of Conformity No.: 28714086

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		Test Interval Frequency (months)				
		6	12	24	36	48
Partial Stroke frequency (months)	1	3,17E-05	4,30E-05	6,56E-05	8,82E-05	1,11E-04
	2	5,08E-05	6,21E-05	8,47E-05	1,07E-04	1,30E-04
	3	6,98E-05	8,11E-05	1,04E-04	1,26E-04	1,49E-04
	6		1,38E-04	1,61E-04	1,83E-04	2,06E-04
	9				2,41E-04	
	12			2,75E-04	2,98E-04	3,20E-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
1,27E-04	2,52E-04	5,04E-04	7,55E-04	1,01E-03

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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TÜV Rheinland Italia
TÜV Rheinland Group
Industrie Service