

Certificate of Conformity No.: 28715104 Rev. 1

Manufacturer: Emerson Process Management
 Asveldweg, 11
 NL-7556 BR Hengelo

Specifications: IEC 61508-1÷7:2010

Product: Single Acting Pneumatic Rack and Pinion Actuator

Type: EI-O-Matic Series F

RESULT:

As per the TÜV Rheinland Italia Report No. FS 28715104 Rev. 1, 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	5,53E-08	5,03E-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.

The product can be used up to SIL 2 without external diagnostics.

Expiry date: 2018-04-30

--- End page

Location **Milan**
 Date **2016-04-15**



Diego Sirtori
 Business Stream Manager

Attachment 1 to
 Certificate of Conformity No.: 28715104 Rev. 1



Manufacturer: Emerson Process Management
 Asveldweg, 11
 NL-7556 BR Hengelo

Specifications: IEC 61508-1÷7:2010

Product: Single Acting Pneumatic Rack and Pinion Actuator

Type: EI-O-Matic Series F

		Test Interval Frequency (months)				
		6	12	24	36	48
Partial Stroke frequency (months)	1	3,06E-05	4,15E-05	6,33E-05	8,51E-05	1,07E-04
	2	4,90E-05	5,99E-05	8,17E-05	1,03E-04	1,25E-04
	3	6,73E-05	7,82E-05	1,00E-04	1,22E-04	1,44E-04
	6		1,33E-04	1,55E-04	1,77E-04	1,99E-04
	9				2,32E-04	
	12			2,65E-04	2,87E-04	3,09E-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
1,22E-04	2,44E-04	4,86E-04	7,28E-04	9,70E-04

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

NOTES:

- The above values of PFD_{AVG} are calculated for MRT=24 h and Proof Test Coverage=100%. For other values of MRT, TI, TI_{PS} and/or non-perfect Proof Test, the PFD_{AVG} values must be re-calculated.
- The PFD_{AVG} values including Partial Stroke Test are calculated considering the use of a commercial automatic Partial Stroking Test System: for further details, see the Safety Manual.

-----End certificate

