

**Certificate of Conformity No.: 28714272**

**Manufacturer:** Servovalve S.p.A.  
Via Quasimodo, 25/27  
I-20010 S. Stefano Ticino (MI)

**Specifications:** IEC 61508-1+7:2010

**Product:** Single Acting Rack-Pinion Pneumatic Actuator

**Type:** Series RAM

**RESULT:**

As per the TÜV Rheinland Italia Report No. FS 28714272 Rev. 0 we declare that the product meets the below requirements:

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**IEC 61508: 2010, part 1 to 7**

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

Series	$\lambda_D$ [1/h]	$\lambda_{DD(PS)}$ [1/h]	Systematic Capability
RAM	3,83E-08	3,48E-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.

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Expiry date: **2017-12-31**

Location: **Milan**

Date: **2014-12-01**

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



Carlo Filippi  
Business Stream Manager  
Industrial Service



**Attachment 1 to  
Certificate of Conformity No.: 28714272**



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**Type:** Series RAM

		Test Interval Frequency (months)				
		6	12	24	36	48
Partial Stroke frequency (months)	1	2,12E-05	2,87E-05	4,38E-05	5,89E-05	7,39E-05
	2	3,39E-05	4,14E-05	5,65E-05	7,16E-05	8,66E-05
	3	4,66E-05	5,41E-05	6,92E-05	8,43E-05	9,93E-05
	6		9,22E-05	1,07E-04	1,22E-04	1,37E-04
	9				1,61E-04	
	12			1,84E-04	1,99E-04	2,14E-04

PFD<sub>AVG</sub> values according to IEC 61508 for different values of TI and TI<sub>PS</sub>

Test Interval Frequency (months)				
6	12	24	36	48
8,47E-05	1,68E-04	3,36E-04	5,04E-04	6,71E-04

PFD<sub>AVG</sub> values according to IEC 61508 for different values of TI (no Partial Stroke Test)

**NOTES:**

- The above values of PFD<sub>AVG</sub> are calculated for MRT=24 h and Proof Test Coverage=100%. For other values of MRT, TI, TI<sub>PS</sub> and/or non-perfect Proof Test, the PFD<sub>AVG</sub> values must be re-calculated.
- The PFD<sub>AVG</sub> 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.

Location: **Milan**

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