

Certificate of Conformity No.: 28715145

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

Specifications: IEC 61508-1÷7:2010

Product: Double Acting Linear Hydraulic Actuator

Type: Series HD

RESULT:

As per the TÜV Rheinland Italia Report No. FS 28715145 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	6,22E-08	5,66E-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: 2018-06-30

Location **Milan**
Date **2015-06-30**

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Carlo Filippi
Business Stream Manager



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Via E. Mattei, 3
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**Attachment 1 to
Certificate of Conformity No.: 28715145**

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

Specifications: IEC 61508-1÷7:2010

Product: Double Acting Linear Hydraulic Actuator

Type: Series HD

		Test Interval Frequency (months)				
		6	12	24	36	48
Partial Stroke frequency (months)	1	3,55E-05	4,91E-05	7,64E-05	1,04E-04	1,31E-04
	2	5,59E-05	6,96E-05	9,68E-05	1,24E-04	1,51E-04
	3	7,64E-05	9,00E-05	1,17E-04	1,44E-04	1,72E-04
	6		1,51E-04	1,78E-04	2,06E-04	2,33E-04
	9				2,67E-04	
	12			3,01E-04	3,28E-04	3,55E-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
1,38E-04	2,74E-04	5,46E-04	8,18E-04	1,09E-03

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 report

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