

Certificate of Conformity No.: 28716203

Manufacturer: Rotork Controls, Inc.
675 Mile Crossing Blvd.
Rochester, NY 14624
United States of America

Specifications: IEC 61508-1÷7:2010

Product: Hydraulic rack & pinion double acting actuator

Type: Series RH/D

RESULT:

As per the TÜV Rheinland Italia Report No. FS 28716203 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	4,40E-08	4,00E-08	3

The above values are compatible with SIL 3.

The requirements of minimum hardware fault tolerance (HFT) according to par. 11.4.3 of IEC 61511-1 have to be observed.

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

For further details, see what written in the Safety Manual.

Expiry date: 2019-04-30

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Location **Milan**
Date **2016-07-08**

Diego Sirtori
Business Stream Manager



TÜVRheinland Italia
Industrial Services
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Attachment 1 to
 Certificate of Conformity No.: 28716203



Manufacturer: Rotork Controls, Inc.
 675 Mile Crossing Blvd.
 Rochester, NY 14624
 United States of America

Specifications: IEC 61508-1÷7:2010

Product: Hydraulic rack & pinion double acting actuator

Type: Series RH/D

		Test Interval Frequency (months)				
		6	12	24	36	48
Partial Stroke frequency (months)	1	2,52E-05	3,48E-05	5,41E-05	7,33E-05	9,26E-05
	2	3,96E-05	4,92E-05	6,85E-05	8,78E-05	1,07E-04
	3	5,41E-05	6,37E-05	8,30E-05	1,02E-04	1,22E-04
	6		1,07E-04	1,26E-04	1,46E-04	1,65E-04
	9				1,89E-04	
	12			2,13E-04	2,32E-04	2,52E-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
9,74E-05	1,94E-04	3,87E-04	5,79E-04	7,72E-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

