

Certificate of Conformity No.: 28715149-1

Manufacturer: Biffi Italia S.r.l.
 Loc. Caselle S. Pietro
 I-29017 Fiorenzuola d'Arda (PC)

Specifications: IEC 61508-1÷7:2010

Product: Double Acting Direct Gas Actuator

Type: Series GIG

RESULT:

As per the TÜV Rheinland Italia Report No. FS 28715149-1 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	2,36E-08	2,14E-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: 2018-07-31

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Location **Milan**
 Date **2015-07-31**



Business Field Manager

Attachment 1 to
 Certificate of Conformity No.: 28715149-1



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		Test Interval Frequency (months)				
		6	12	24	36	48
Partial Stroke frequency (months)	1	1,30E-05	1,77E-05	2,70E-05	3,63E-05	4,56E-05
	2	2,09E-05	2,55E-05	3,48E-05	4,41E-05	5,34E-05
	3	2,87E-05	3,33E-05	4,26E-05	5,19E-05	6,12E-05
	6		5,68E-05	6,61E-05	7,54E-05	8,47E-05
	9				9,89E-05	
	12			1,13E-04	1,22E-04	1,32E-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
		5,22E-05	1,04E-04	2,07E-04	3,10E-04	4,13E-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 report

