



# C E R T I F I C A T E

**Certificate no.** 17-SIL-0010008-18-TIC

WE HEREBY CERTIFY THAT

**Product description**

**FINAL ELEMENT SUBSYSTEMS WITH ACTUATOR  
SERIES GPO**

**GPO\_LR (typical scheme with local-remote control group)  
GPO\_ESD\_P (typical scheme with pneumatic ESD control  
group)**

**Models**

**GPO\_ESD\_E (typical scheme with electric ESD control  
group)  
GPO\_LB\_P (typical scheme with pneumatic line-break  
control group)**

**Manufacturer**

**BIFFI ITALIA S.r.l.  
Strada Biffi 165 – 29017 Fiorenzuola d'Arda PC**

IS IN COMPLIANCE WITH THE REQUIREMENTS OF THE STANDARDS

**IEC 61508 Parts 1–7:2010**

AS RESULT OF THE ASSESSMENT ACCORDING TO THE PROVISION  
SET OUT IN THE ABOVE-MENTIONED STANDARDS

**Evaluation Report no.** RC-0718-54-SIL-TIC-PC-0010008-17-24

**Expiry date** 02.08.2021

**Note**

This certificate is issued upon the request of the manufacturer as voluntary certification; it does not include the production surveillance.

This certificate does not allow the manufacturer to use the safety mark of TÜV INTERCERT.



Reggio Emilia, 03.08.2018

  
Dipl. Ing. Ferdinando Sergizzarea  
TÜV INTERCERT Certification Body



# C E R T I F I C A T E

## ANNEX to Certificate no. 17-SIL-0010008-18-TIC

Type	A			
HFT	0			
Safety functions	1. Delivery of a full stroke driven by the piston of cylinder, powered by the specified medium working pressure			
Mode of operation	Low Demand Mode			
<b>Random failure rates</b>				
Configuration	Safety function	$\lambda_D$ [1/h]	$\lambda_{DD(PS)}$ [1/h]	PFD <sub>AVG</sub> (TI=12 m, MRT=24 h)
GPO_LR	1	5,84E-08	5,51E-08	2,57E-04
GPO_ESD_P	1	4,64E-08	--	2,05E-04
GPO_ESD_E	1	7,66E-08	7,32E-08	3,37E-04
GPO_LB_P	1	4,51E-08	--	1,99E-04
Systematic capability	3 (Route 1 <sub>S</sub> applied)			
Architectural constraints	Route 1 <sub>H</sub> :	Applied	Route 2 <sub>H</sub> :	Applied
	The maximum SIL according to architectural constraints is: <ul style="list-style-type: none"> <li>GPO_LR: SIL 2 without external diagnostic tests, SIL 3 considering external diagnostic tests 3</li> <li>GPO_ESD_P: SIL 2</li> <li>GPO_ESD_E: SIL 2 without external diagnostic tests, SIL 3 considering external diagnostic tests</li> <li>GPO_LB_P: SIL 2</li> </ul>			

**Remarks:**

- Schemes are representatives of all the possible variants performing the related function: modifications of the schemes, which do not involve the safety function, do not impair the validity of the present certificate.
- The Partial Stroke Test is not effective for all the elements in configurations GPO\_ESD\_P, GPO\_LB\_P: for this reason, its effect is not considered.
- 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.

END OF CERTIFICATE

Reggio Emilia, 03.08.2018

  
 Dipl. Ing. Fendooon Sergizzarea  
 TÜV INTERCERT Certification Body