



**Certificate no. TAI-FS-C-24-0072**

WE HEREBY CERTIFY THAT

**Product description**

**FINAL ELEMENT SUBSYSTEMS WITH ACTUATOR  
SERIES GPO**

**Models**

GPO\_LR (typical scheme with local-remote control group)  
GPO\_ESD\_P (typical scheme with pneumatic ESD control group)  
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**  
**I-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. TAI-FS-R-24-0141**

**Expiry date 08.08.2027**

**Issue date 09.08.2024**

TUV AUSTRIA ITALIA  
09.08.2024, Monte Roberto (AN)

Ing. Crescenzo Di Fratta

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TÜV AUSTRIA HOLDING AG Deutschstrasse 10, A-1230, Vienna, Austria  
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## Annex to certificate no. TAI-FS-C-24-0072

<b>Type</b>	A
<b>HFT</b>	0
<b>Safety functions</b>	1. Delivery of a full stroke driven by the piston of cylinder, powered by the specified medium working pressure
<b>Mode of operation</b>	Low Demand Mode

Random failure rates				
Configuration	Safety function	$\lambda_{DU}$ [1/h]	$\lambda_{DD(PS)}$ [1/h]	$PFD_{AVG}$ ( $T_I=12$ m, $MRT=24$ h)
GPO_LR	1	4,40E-08	4,20E-08	1,94E-04
GPO_ESD_P	1	3,13E-08	--	1,38E-04
GPO_ESD_E	1	6,15E-08	5,94E-08	2,71E-04
GPO_LB_P	1	3,07E-08	--	1,35E-04

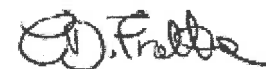
<b>Systematic capability</b>	3 (Route 1s applied)			
<b>Architectural constraints</b>	<b>Route 1H:</b>	Applied	<b>Route 2H:</b>	Applied
	The maximum SIL according to architectural constraints is: <ul style="list-style-type: none"> <li>• GPO_LR: SIL 2 without external diagnostic tests, SIL 3 considering 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  $PFD_{AVG}$  are calculated for  $MRT=24$  h and Proof Test Coverage=100%. For other values of  $MRT$ ,  $T_I$ ,  $T_{IP}$  and/or non-perfect Proof Test, the  $PFD_{AVG}$  values must be re-calculated

END OF CERTIFICATE

TUV AUSTRIA ITALIA  
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