



Certificate no. TAI-FS-C-23-0021

WE HEREBY CERTIFY THAT

Product description HYDRAULIC SCOTCH-YOKE SPRING RETURN AND
DOUBLE ACTING ACTUATOR

Models BETTIS™ SERIES G WUQING MARKING

Manufacturer Emerson Process Management (Tianjin) Valves Co.
Ltd.
No. 15, Xingwang Road
Wuqing Development Area
Tianjin, 301700
People's Republic of China

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

Summary Report no. TAI-FS-R-23-0044

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TÜV AUSTRIA ITALIA - Blu Solutions s.r.l.
17.04.2023, Monte Roberto (AN)

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Annex to certificate no. TAI-FS-C-23-0021

Type	A
HFT	0
Safety functions	<u>Spring return actuators:</u> 1. Delivery of a full stroke ($90^\circ \pm$ tolerance) driven by the spring, with power fluid exhausted from the cylinder through the control system <u>Double acting actuators:</u> 1. Delivery of a full stroke ($90^\circ \pm$ tolerance) driven by the piston of cylinder, powered by the specified medium working pressure
Mode of operation	Low Demand Mode

Random failure rates				
Configuration	Safety function	λ_{DU} [1/h]	λ_{DD} [1/h]	λ_S [1/h]
Bettis™ series G Wuqing Marking spring return - No PST	1	3,56E-08	0,00E+00	0,00E+00
Bettis™ series G Wuqing Marking spring return - With PST	1	3,20E-09	3,24E-08	0,00E+00
Bettis™ series G Wuqing Marking double acting - No PST	1	3,90E-08	0,00E+00	0,00E+00
Bettis™ series G Wuqing Marking double acting - With PST	1	3,51E-09	3,55E-08	0,00E+00

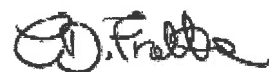
Systematic capability	3 (Route 1s applied)			
Architectural constraints	Route 1_H:	Applied	Route 2_H:	Applied
	The product can be used in: <ul style="list-style-type: none"> • single channel configuration: <ul style="list-style-type: none"> ○ up to SIL 2 without external diagnostic tests ○ up to SIL 3 considering external diagnostic tests • double channel configuration: up to SIL 3 			

Remarks:

- For further details, including environmental conditions, limitations of use, lifetime, failure rates traceability, mean repair times, common cause factors and systematic capability constraints, make reference to Safety Manual ES 47_G

END OF CERTIFICATE

TÜV AUSTRIA ITALIA - Blu Solutions s.r.l.
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