



Certificate no. TAI-FS-C-23-0019

WE HEREBY CERTIFY THAT

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

Models BETTIS™ SERIES CBB, CBA300 Wuqing Marking
BIFFI™ SERIES FCB (models FCBB, FCBA300) 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-23-0040

Expiry date 16.04.2026

Issue date 17.04.2023

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-23-0019

Type	A
HFT	0
Safety functions	<u>Spring return actuators:</u> 1. Delivery of a full stroke (90° ± 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° ± 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™ CBB Wuqing Marking spring return, Biffi™ FCBB Wuqing Marking spring return - No PST	1	1,49E-08	0,00E+00	0,00E+00
Bettis™ CBB Wuqing Marking spring return, Biffi™ FCBB Wuqing Marking spring return - With PST	1	1,34E-09	1,36E-08	0,00E+00
Bettis™ CBA300 Wuqing Marking spring return, Biffi™ FCBA300 Wuqing Marking spring return - No PST	1	1,57E-08	0,00E+00	0,00E+00
Bettis™ CBA300 Wuqing Marking spring return, Biffi™ FCBA300 Wuqing Marking spring return - With PST	1	1,41E-09	1,42E-08	0,00E+00
Bettis™ CBB Wuqing Marking double acting, Biffi™ FCBB Wuqing Marking double acting - No PST	1	1,92E-08	0,00E+00	0,00E+00
Bettis™ CBB Wuqing Marking double acting, Biffi™ FCBB Wuqing Marking double acting - With PST	1	1,73E-09	1,75E-08	0,00E+00
Bettis™ CBA300 Wuqing Marking double acting, Biffi™ FCBA300 Wuqing Marking double acting - No PST	1	2,10E-08	0,00E+00	0,00E+00
Bettis™ CBA300 Wuqing Marking double acting, Biffi™ FCBA300 Wuqing Marking double acting - With PST	1	1,89E-09	1,91E-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 Manuals ES 47_CBB, ES 47_CBAX30, SM 033

END OF CERTIFICATE



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