



Certificate no. TAI-FS-C-23-0020

WE HEREBY CERTIFY THAT

Product description

**PNEUMATIC 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-23-0042

Expiry date 16.04.2026

Issue date 17.04.2023

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

Ing. Crescenzo Di Fratta

Page 1 of 2

Annex to certificate no. TAI-FS-C-23-0020

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	3,64E-08	0,00E+00	0,00E+00
Bettis™ series G Wuqing Marking spring return - With PST	1	3,28E-09	3,32E-08	0,00E+00
Bettis™ series G Wuqing Marking spring return "tandem" - No PST	1	3,65E-08	0,00E+00	0,00E+00
Bettis™ series G Wuqing Marking spring return "tandem" - With PST	1	3,28E-09	3,32E-08	0,00E+00
Bettis™ series G Wuqing Marking double acting - No PST	1	4,17E-08	0,00E+00	0,00E+00
Bettis™ series G Wuqing Marking double acting - With PST	1	3,75E-09	3,79E-08	0,00E+00
Bettis™ series G Wuqing Marking double acting "tandem" - No PST	1	4,19E-08	0,00E+00	0,00E+00
Bettis™ series G Wuqing Marking double acting "tandem" - With PST	1	3,77E-09	3,81E-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



Ing. Crescenzo Di Fratta

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