

## CERTIFICATE

according to IEC EN 61508

Certificate No.: C-IS-722239637-01

**CERTIFICATE OWNER:** DBV Valve Co., Ltd.

Tangtou Village, Oubei Street,

Yongjia County, Wenzhou City.

PC: 325105, Zhejiang Province,

P.R. China

WE HEREWITH CONFIRM THAT **DBV-Z SERIES GATE VALVES** 

MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLE FOR THE SAFETY FUNCTIONS:

SIF1: "correct switching on demand (open to closed) and tight for closing phase, in low demand mode of operation"

SIF2: "correct switching on demand (closed to open), in low demand mode of operation"

**Examination result:** The above reported DBV-Z Series Gate Valves were

found to meet the standard defined requirements of the safety levels detailed in the following table (T-IS-722236023-01) according to IEC EN 61508, under fulfillment of the conditions listed in the Report R-IS-722239637-01 Rev.1 dated November, 02nd 2020 in its currently valid version, on which this Certificate is

based

**Examination parameters:** Construction/Functional characteristics

reliability and availability parameters of the above

mentioned DBV-Z Series Gate Valves

Official Report No.: R-IS-722239637-01 Rev.1

November, 01st 2023 **Expiry Date** 

Reference Standard IEC EN 61508:2010 Part 1, 2, 3, 4, 5, 6, 7

Sesto San Giovanni, November, 02nd 2020

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TÜV ITALIA SrI

**TÜV ITALIA Srl Industry Service Division** Technical Manager

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## **SUMMARY TABLE** T-IS-722239637-01

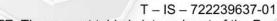


E/EE/EP safety-related system (final element)	DBV-Z Series Gate Valves produced by DBV Valve Co., Ltd.  Type A  SC3	
System type		
Systematic Capability		
Safety Function Definition	SIF1: "Correct switching on demand (open to closed) and tight for closing phase, in low demand mode of operation"	SIF2: "Correct switching on demand (closed to open), in low demand mode of operation"
Max SIL <sup>(1)</sup>	SIL3	SIL3
λтот	2,646E-08	2,646E-08
λ <sub>NE</sub>	4,096E-09	8,820E-09
λsp	0,000E+00	0,000E+00
λsu	2,235E-09	2,311E-10
$\lambda_{\mathrm{DD,PST}^{(2)}}$	1,208E-08	1,281E-08
λdu,fpt	8,050E-09	4,596E-09
β and β <sub>D</sub> factor	10%	10%
MRT /	8 h	8 h
Hardware Safety Integrity	Route 2 <sub>H</sub>	Route 2 <sub>H</sub>
Systematic Safety Integrity	Route 2s	Route 2s

## Remarks

- (1) The Safety Integrity Level (SIL) of the entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD<sub>AVG</sub> considering the redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each subsystem must be checked to assure compliance with the minimum hardware fault tolerance (HFT) requirements.
- (2) Considering an automatic Partial Stroke Testing.

SIL classification according to Standard IEC EN 61508:2010 for DBV-Z Series Gate Valves produced by DBV Valve Co., Ltd.



NOTE: The present table is integral part of the Document C-IS-722239637-01 Date: November, 02nd 2020