CERTIFICADO ◆ 인증서 ◆ CERTIFICATO ◆ CERTIFICATE ◆ 認証 ◆ 认证证书 ◆ ZERTIFIKAT

COMPLIANCE

with IEC EN 61508 AND IEC EN 61511

Certificate No.: TUV IT 23 SIL 0217 Rev.1

CERTIFICATE OWNER: **OMB Valves S.p.A.**
Via Europa, 7
24069 – Cenate Sotto (BG)
Italy

WE HEREWITH CONFIRM THAT

BSE BALL VALVES

MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLES

FOR THE SAFETY FUNCTION:

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 BSE Ball Valves were found to meet the standard defined requirements of the safety levels detailed in the following table) according to IEC EN 61508, under fulfillment of the conditions listed in the Report R TUV IT 26 SIL 0689 in its currently valid version, on which this Certificate is based**
Examination parameters:	**Construction/Functional characteristics and reliability and availability parameters of the above BSE Ball Valves**
Official Report No.:	**R TUV IT 26 SIL 0689**
Expiry Date	**May, 16th 2029**

IT IS TO BE INTENDED THAT THE ABOVE OFFICIAL REPORT AND ITS ANNEXES ARE AN INTEGRAL PART OFTHIS DOCUMENT

Reference Standard	**IEC EN 61508:2010 Part 2, 4, 6, 7** **IEC EN 61511:2016 Part 1, 2, 3**

Milan, May, 14th 2026

TÜV ITALIA Srl

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TÜV ITALIA Srl

Alberto Carelli
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SUMMARY TABLE

E/EE/EP safety-related system (final element)	**BSE Ball Valves produced by OMB Valves S.p.A.**	
System type	Type A	
Size / Class	Class 1 – NPS ≤ 6”	
Systematic Capability	SC3	
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(1)	**SIL3**	**SIL3**
λ_{TOT}	1,432E-07	1,432E-07
λ_{NE}	6,851E-09	1,243E-07
λ_{S}	0,000E+00	0,000E+00
$\lambda_{DD,PST}$(2)	5,810E-09	1,386E-08
$\lambda_{DU,FPT}$	1,305E-07	4,974E-09
β and β_D factor	10%	10%
MRT	8 h	8 h
Hardware Safety Integrity	Route 2_H	Route 2_H
Systematic Safety Integrity	Route 2_S	Route 2_S

Remarks

(1) The Safety Integrity Level (SIL) of the entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD_{AVG} 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 Test.

SIL classification according to Standard IEC EN 61508 (Chapters: 2, 4, 6, 7) and IEC EN 61511 (Chapters 1, 2, 3) for BSE Ball Valves produced by OMB Valves S.p.A. – Class1

NOTE: The present table is integral part of the Document: TUV IT 23 SIL 0217 Rev.1
Date: May, 14th 2026

SUMMARY TABLE

E/EE/EP safety-related system (final element)	**BSE Ball Valves produced by OMB Valves S.p.A.**	
System type	Type A	
Size / Class	Class 2 – NPS > 6”	
Systematic Capability	SC3	
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(1)	**SIL3**	**SIL3**
λ_{TOT}	3,034E-07	3,034E-07
λ_{NE}	1,529E-08	2,627E-07
λ_{S}	0,000E+00	0,000E+00
$\lambda_{DD,PST}$(2)	1,293E-08	3,000E-08
$\lambda_{DU,FPT}$	2,752E-07	1,069E-08
β and β_D factor	10%	10%
MRT	8 h	8 h
Hardware Safety Integrity	Route 2_H	Route 2_H
Systematic Safety Integrity	Route 2_S	Route 2_S

Remarks

(1) The Safety Integrity Level (SIL) of the entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD_{AVG} 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 Test.

SIL classification according to Standard IEC EN 61508 (Chapters: 2, 4, 6, 7) and IEC EN 61511 (Chapters 1, 2, 3) for BSE Ball Valves produced by OMB Valves S.p.A. – Class2

NOTE: The present table is integral part of the Document: TUV IT 23 SIL 0217 Rev.1
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