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

COMPLIANCE

with IEC EN 61508

Certificate No.: TUV IT 26 SIL 0709

CERTIFICATE OWNER:	**Elettromeccanica Delta S.p.A. Via Trieste 132 31030 Arcade (TV) Italy**

WE HEREWITH CONFIRM THAT

SAFETY SOLENOID VALVES FOR GAS

TYPE VMR – VMR OTN – VML – VMM – VMR-60 – VML-60

MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLES

FOR THE SAFETY FUNCTION:

"Gas flow shut off further to coil de-energization* and absence of internal and external leakages**"

** Power voltage below 15% of the minimum nominal voltage of the coil power (ref. EN 161:2025 chapter 7.101)*

*** As defined in the EN 161:2025 which recalls the EN 13611:2021 chapters 3.5-3.6 and 7.2*

Examination result:	**The above reported Safety Solenoid 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 0664 in its currently valid version, on which this Certificate is based**
Examination parameters:	**Construction/Functional characteristics and reliability and availability parameters of the above Safety Solenoid Valves**
Official Report No.:	**R TUV IT 26 SIL 0664**
Expiry Date	**March, 17th 2029**

IT IS TO BE INTENDED THAT THE ABOVE OFFICIAL REPORT AND ITS ANNEXES ARE AN INTEGRAL PART OFTHIS DOCUMENT
THE PRESENT DOCUMENT SUBSITUTES AND REPEALS THE DOCUMENTS TUV IT 22 SIL 0118

Reference Standard	**IEC EN 61508:2010 Part 2, 4, 6, 7**

Milan, March, 18th 2026

TÜV ITALIA Srl

TÜV Italia Srl Industrie Service TÜV SÜD Italia

TÜV ITALIA Srl

Alberto Carelli
Industry Service – Real Estate & Infrastructure Division
Managing Director

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SUMMARY TABLE

E/EE/EP safety-related system (final element)	**Safety Solenoid Valves produced by Elettromeccanica Delta S.p.A.**	
System type	Type A	
Systematic Capability	*SC3*	
Size (Class)	**10 ≤ DN ≤ 150 VMR**	**8 ≤ DN ≤ 15 VMR OTN**
Safety Function Definition	*Gas flow shut off further to coil de-energization* and absence of internal and external leakages*** ** Power voltage below 15% of the minimum nominal voltage of the coil power (ref. EN 161:2025 chapter 7.101)* *** As defined in the EN 161:2025 which recalls the EN 13611:2021 chapters 3.5-3.6 and 7.2*	
Max SIL(1)	**SIL2 with HFT = 0 SIL3 with HFT = 1**	**SIL2 with HFT = 0 SIL3 with HFT = 1**
B_{10d}(2)	15.829.089	12.097.665
λ_{TOT}	7,182E-09	3,317E-09
λ_S	5,076E-09	2,344E-09
$\lambda_{DU,FPT}$	2,106E-09	9,725E-10
β and β_D factor	10%	10%
MRT	0,43 h	0,43 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 to assure compliance with the minimum hardware fault tolerance (HFT) and probabilistic (PFH_d) requirements.*

(2) *The B_{10d} value has been calculated assuming average values coming from most of current applications. Please use the following formula for calculation in a specific condition:*

$$PFH_d = \lambda_d = \frac{0,1}{B_{10d}} \times n_{op}$$

(3) *Portion of failure rate related to dangerous failure modes that can be detected only by means of periodical Full Proof Testing (FPT).*

SIL classification according to Standard IEC EN 61508 (Chapters: 2, 4, 6, 7) for Safety Solenoid Valves produced by Elettromeccanica Delta S.p.A.

NOTE: The present table is integral part of the Document: TUV IT 26 SIL 0709
Date: March, 18th 2026

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SUMMARY TABLE

E/EE/EP safety-related system (final element)	**Safety Solenoid Valves produced by Elettromeccanica Delta S.p.A.**	
System type	Type A	
Systematic Capability	*SC3*	
Size (Class)	**10 ≤ DN ≤ 80 VML**	**20 ≤ DN ≤ 80 VMM**
Safety Function Definition	*Gas flow shut off further to coil de-energization* and absence of internal and external leakages*** ** Power voltage below 15% of the minimum nominal voltage of the coil power (ref. EN 161:2025 chapter 7.101)* *** As defined in the EN 161:2025 which recalls the EN 13611:2021 chapters 3.5-3.6 and 7.2*	
Max SIL(1)	**SIL2 with HFT = 0 SIL3 with HFT = 1**	**SIL3 with HFT = 1**
B_{10d}(2)	14.045.564	14.912.995
λ_{TOT}	3,238E-09	1,247E-08
λ_S	2,288E-09	8,817E-09
$\lambda_{DU,FPT}$	9,493E-10	3,658E-09
β and β_D factor	10%	10%
MRT	0,56 h	0,60 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 to assure compliance with the minimum hardware fault tolerance (HFT) and probabilistic (PFH_d) requirements.*

(2) *The B_{10d} value has been calculated assuming average values coming from most of current applications. Please use the following formula for calculation in a specific condition:*

$$PFH_d = \lambda_d = \frac{0{,}1}{B_{10d}} \times n_{op}$$

(3) *Portion of failure rate related to dangerous failure modes that can be detected only by means of periodical Full Proof Testing (FPT).*

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SUMMARY TABLE

E/EE/EP safety-related system (final element)	**Safety Solenoid Valves produced by Elettromeccanica Delta S.p.A.**	
System type	Type A	
Systematic Capability	*SC3*	
Size (Class)	**10 ≤ DN ≤ 100** **VMR-60**	**10 ≤ DN ≤ 80** **VML-60**
Safety Function Definition	*Gas flow shut off further to coil de-energization* and absence of internal and external leakages*** ** Power voltage below 15% of the minimum nominal voltage of the coil power (ref. EN 161:2025 chapter 7.101)* *** As defined in the EN 161:2025 which recalls the EN 13611:2021 chapters 3.5-3.6 and 7.2*	
Max SIL(1)	**SIL2 with HFT = 0** **SIL3 with HFT = 1**	**SIL2 with HFT = 0** **SIL3 with HFT = 1**
B_{10d}(2)	3.571.231	2.273.575
λ_{TOT}	4,775E-08	1,000E-07
λ_S	3,375E-08	7,068E-08
$\lambda_{DU,FPT}$	1,400E-08	2,932E-08
β and β_D factor	10%	10%
MRT	0,43 h	0,56 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 to assure compliance with the minimum hardware fault tolerance (HFT) and probabilistic (PFH_d) requirements.*

(2) *The B_{10d} value has been calculated assuming average values coming from most of current applications. Please use the following formula for calculation in a specific condition:*

$$PFH_d = \lambda_d = \frac{0{,}1}{B_{10d}} \times n_{op}$$

(3) *Portion of failure rate related to dangerous failure modes that can be detected only by means of periodical Full Proof Testing (FPT).*

SIL classification according to Standard IEC EN 61508 (Chapters: 2, 4, 6, 7) for Safety Solenoid Valves produced by Elettromeccanica Delta S.p.A.

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