

FUNCTIONAL SAFETY CERTIFICATE

CERTIFICATO – ZERTIFIKAT – CERTIFICADO – CERTIFICAT

The product:

Universal solenoid valves series Steel Line

Manufactured by:

PNEUMAX S.p.A.
Via Cascina Barbellina 10
24050 Lurano (BG) – Italy

suitable for the following safety function(s):

The valve moves to the predefined safe state when de-energized (if operating in DETT mode) or when energized (if operating in ETT mode)

has been assessed per the relevant requirements of

IEC 61508:2010 Parts 1 to 2

and meets the requirements providing the following:

Systematic Capability:

The compliance with the requirements for the avoidance of systematic faults and the requirements for the control of systematic faults have been achieved following the compliance Route 1_S.

SC 3

Hardware Safety Integrity:

The constraints on hardware safety integrity have been verified in order to achieve a sufficiently robust architecture taking into account the level of element and subsystem complexity following the compliance Routes 1_H and 2_H.

Type
A

Random Safety Integrity:

The estimated safety integrity, for each safety function, due to random hardware safe and dangerous failures rates (excluding "no part" and "no effect" contribution).

See
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The architectural constraints and the effects of random failures (PFH/PFD_{AVG}) must be verified for each specific application and safety function implemented by the E/E/PE safety-related system.

Certified by:

BYHON

BYHON Certification Director:

Rosati Francesco

CERTIFICATE No:
PNMX-UNSOV-ENS-A02

Revision: A

Issued:
June 19th, 2026

Valid until:
January 8th, 2028

The owner of a valid certificate for an assessed product is authorized to affix the following mark to all recognized devices which are identical to the product assessed.

BYHON
SIL ✓



ANSI National Accreditation Board

ACCREDITED

ISO/IEC 17065

**PRODUCT CERTIFICATION
BODY**

#8914

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The design of each Safety Instrumented Function (SIF) shall meet the requirements listed in the reference standards that shall be selected by taking into account the specific application. Specific activities necessary to investigate and reach a judgment on the adequacy of the functional safety achieved by the E/E/PE safety-related system or compliant items (elements/subsystems) has been conducted by an independent assessor.

The following failure rates data shall be used to the PFH/PFD_{AVG} estimation, taking into consideration all parameters such as redundancy, architectural constraints, diagnostic capability, also introduced by the whole system, including the considerations about the proof test and its effectiveness, mean time of restoration, up to the maintenance capability and its minimum characteristics.

Device failure rates

Models	Configuration	Operating mode	λ_s	λ_{DU}	λ_{DD}
SS##U32###01## 3/2 Universal solenoid valve spring return	3/2 N.C.	DETT	188	202	-
		ETT	-	489	-
	3/2 N.O.	DETT	26	315	-
	3/2 Diverter	DETT	26	315	-
SS##U32###P1## 3/2 Universal solenoid valve spring return with manual override push	3/2 N.C.	DETT	216	258	-
		ETT	40	524	-
	3/2 N.O.	DETT	54	371	-
	3/2 Diverter	DETT	54	371	-
SS##U32###R1## 3/2 Universal solenoid valve spring return with manual reset	3/2 N.C.	DETT	195	270	-
		ETT	34	383	-
	3/2 N.O.	DETT	34	383	-
	3/2 Diverter	DETT	34	383	-

Note:

- All failure rates are in FIT (Failure In Time 1 FIT = 1 failure / 10⁹ hours).
- The prescriptions contained in the safety manual TF241001-USV-MA shall be followed.
- The device is suitable for applications up to SIL 2 in simplex configuration (HFT=0) and up to SIL 3 in redundant configuration (HFT=1).

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The Functional Safety
Assessment report no.

25-PNX-UNSOV-FSA-02

dated:
June 19th, 2026

is an integral part of this
certificate



Mod_12_CB Rev09

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