

CERTIFICATE

This certifies that the company

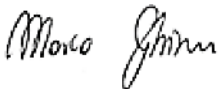
Pneumax S.p.A.
Via Archimede 57
20129 Milano (MI)
Italy

Is authorized to provide the product mentioned below

Description of product: **Volume booster / Filter booster series SA17, SS17**

In accordance with: **EN 61508:2010 Parts 1, 2, 4, 5, 6, 7**

Registration No 20 20059 01
Test Report No PS-20059-20-L-01 Rev. 1
File reference 20059-01 Rev. 1

A handwritten signature in black ink, appearing to read "Marco Janni".

TÜV NORD Italia S.r.l. (TÜV NORD Group)
Via Turati, 70 20023 Cerro Maggiore (MI)



www.tuev-nord.it

Validity
from 2022-10-24
until 2023-09-29

Cerro Maggiore, 2022-10-21
prodotto@tuev-nord.it

Please also pay attention to the information stated overleaf

ANNEX

Annex 1, Page 2 of 2

To Certificate-Nr. 20 20059 01

Type	A
HFT	0
Safety functions	<ol style="list-style-type: none"> De-energize-to-trip operation: to discharge a chamber of a single acting or double acting pneumatic actuator Energize-to-trip operation: to charge a chamber of a double acting pneumatic actuator
Mode of operation	Low Demand Mode

Random failure rates				
Configuration	Safety function	λ_{DU} [1/h]	λ_{DD} [1/h]	λ_S [1/h]
Volume booster / Filter booster - No PST	1	9,20E-08	0,00E+00	1,65E-07
Volume booster / Filter booster - With PST	1	9,20E-10	9,11E-08	1,65E-07
Volume booster / Filter booster - No PST	2	1,84E-07	0,00E+00	$\cong 0,00E+00$
Volume booster / Filter booster - With PST	2	1,84E-09	1,82E-07	$\cong 0,00E+00$

Systematic capability	3 (Route 1 _S 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 P-001-MA.

