C E R T I F I C A T E

This certifies, that the company

Starline S.p.A.
Via dei Livelli di Sopra, 11
24060 Costa di Mezzate (BG)
Italy

Is authorized to provide the product mentioned below

Description of product: **2-ways bolted side entry trunnion mounted ball valve series 100, 200**

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

Inspection & Certification Services TÜV NORD Italia S.r.l.

Registration No 21 21753 01
Test Report No PS-26127-24-M-01
File reference 26127-01

Validity
from 2024-12-12
until 2027-12-11

TÜV Nord Italia S.r.l (TÜV NORD Group)
Via Turati, 70 – 20023 Cerro Maggiore (MI) – Italy
www.tuev-nord.it

Cerro Maggiore, 2024-12-12
prodotto@tuev-nord.it

Please also pay attention to the information stated overleaf

ANNEX

To Certificate-Nr. 21 21753 01

Type	A
HFT	0
Safety functions	1. Close / Open upon the demand of the actuation system 2. Close upon the demand of the actuation system, with inline tightness when in closed position
Mode of operation	Low Demand Mode

Random failure rates				
Configuration	**Safety function**	**λ_{DU} [1/h]**	**λ_{DD} [1/h]**	**λ_{S} [1/h]**
Self-relieving / Double piston effect - No PST	1	4,79E-08	0,00E+00	0,00E+00
Self-relieving / Double piston effect - With PST	1	4,31E-09	4,36E-08	0,00E+00
Self-relieving - No PST	2	6,38E-08	0,00E+00	0,00E+00
Self-relieving - With PST	2	2,01E-08	4,36E-08	0,00E+00
Double piston effect - No PST	2	5,56E-08	0,00E+00	0,00E+00
Double piston effect - With PST	2	1,20E-08	4,36E-08	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:
	• single channel configuration:
	  ○ up to SIL 2 without external diagnostic tests
	  ○ up to SIL 3 considering external diagnostic tests (only for Safety Function 1)
	• double channel configuration: up to SIL 3			

Remarks:	• Self-relieving configuration: both upstream and downstream seats shall be of self-relieving type (i.e. single barrier in the flow direction) • Double piston effect configuration: at least downstream seat shall be of double piston effect type (i.e. double barrier in the flow direction) • 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 ST-SM-SIL-T			

C E R T I F I C A T E

This certifies, that the company

Starline S.p.A.
Via dei Livelli di Sopra, 11
24060 Costa di Mezzate (BG)
Italy

Is authorized to provide the product mentioned below

Description of product: **2-ways bolted top entry trunnion mounted ball valve series TE-100, TE-200**

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

Registration No 22 21818 01
Test Report No PS-21818-22-L
File reference 21818-01

Validity
from 2022-03-22
until 2025-03-22

TÜV NORD Italia S.r.l. (TÜV NORD Group)
Via Turati, 70 20023 Cerro Maggiore (MI www.tuev-nord.it

Cerro Maggiore, 2022-03-22
prodotto@tuev-nord.it

Please also pay attention to the information stated overleaf

ANNEX

Annex 1, Page 2 of 2

To Certificate-Nr. 22 21818 01

Type	A
HFT	0
Safety functions	1. Close / Open upon the demand of the actuation system 2. Close upon the demand of the actuation system, with inline tightness when in closed position
Mode of operation	Low Demand Mode

Random failure rates				
Configuration	**Safety function**	**λ_{DU} [1/h]**	**λ_{DD} [1/h]**	**λ_{S} [1/h]**
Self-relieving / Double piston effect - No PST	1	7,29E-08	0,00E+00	0,00E+00
Self-relieving / Double piston effect - With PST	1	6,56E-09	6,64E-08	0,00E+00
Self-relieving - No PST	2	1,05E-07	0,00E+00	0,00E+00
Self-relieving - With PST	2	3,91E-08	6,64E-08	0,00E+00
Double piston effect - No PST	2	8,77E-08	0,00E+00	0,00E+00
Double piston effect - With PST	2	2,13E-08	6,64E-08	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:
	• single channel configuration:
	  ○ up to SIL 2 without external diagnostic tests
	  ○ up to SIL 3 considering external diagnostic tests
	• double channel configuration: up to SIL 3			

Remarks:	• Self-relieving configuration: both upstream and downstream seats shall be of self-relieving type (i.e. single barrier in the flow direction) • Double piston effect configuration: at least downstream seat shall be of double piston effect type (i.e. double barrier in the flow direction) • 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 ST-SM-SIL-TR-TE.			

Inspection & Certification Services TÜV TÜV NORD Italia S.r.l.