

# CERTIFICATE

This certifies, that the company

## L&T Valves

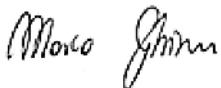
**L&T Campus, TC1 – 2nd Floor, Mount – Poonamallee Road  
Manapakkam, Chennai – 600 089  
India**

Is authorized to provide the product mentioned below

Description of product: **Floating Ball Valves 0.5" ≤ DN ≤ 8" (Class 150 to 2500), Service Temp. - 196 Deg C to 300 Deg C, Fluid Oil and Gas**

In accordance with: **EN 61508:2010 Parts 2, 4**

Registration No 22 22770 01  
Test Report No PS-22770-22-L-01  
File reference 22770-01



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



[www.tuev-nord.it](http://www.tuev-nord.it)

Validity  
from 2022-07-06  
until 2025-07-05

Cerro Maggiore, 2022-07-06  
[prodotto@tuev-nord.it](mailto:prodotto@tuev-nord.it)

Please also pay attention to the information stated overleaf

# ANNEX

Annex 1, Page 2 of 2

To Certificate-Nr. 22 22770 01

<b>Type</b>	A
<b>HFT</b>	0
<b>Safety functions</b>	1. Correct switching on demand (open to closed) 2. Correct switching on demand (closed to open)
<b>Mode of operation</b>	Low Demand Mode

Random failure rates				
Configuration	Safety function	$\lambda_{DU}$ [1/h]	$\lambda_{DD}$ [1/h]	$\lambda_S$ [1/h]
Floating Ball Valves 0.5" $\leq$ DN $\leq$ 8" (Class 150 to 2500), Service Temp. - 196 Deg C to 300 Deg C, Fluid Oil and Gas	1	6,20E-08	1,11E-07	0,00E+00
Floating Ball Valves 0.5" $\leq$ DN $\leq$ 8" (Class 150 to 2500), Service Temp. - 196 Deg C to 300 Deg C, Fluid Oil and Gas	2	6,81E-08	1,05E-07	0,00E+00

<b>Systematic capability</b>	3 (Route 2 <sub>S</sub> applied)			
<b>Architectural constraints</b>	<b>Route 1<sub>H</sub>:</b>	N / A	<b>Route 2<sub>H</sub>:</b>	Applied
	<ul style="list-style-type: none"> <li>See the relevant assessment report for the max SIL achievable.</li> </ul>			
<b>Remarks:</b>	<ul style="list-style-type: none"> <li>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. <math>\lambda_{dd}</math> is only accountable if partial valve stroke is implemented as external diagnostics.</li> </ul>			

