

# 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: **Globe Valves 0.25" ≤ DN ≤ 24" (Class 150 to 2500), -196 Deg C to 649 Deg C, Oil and Gas**

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

Registration No 21 22370 01  
Test Report No PS-22370-21-L-01  
File reference 22370-01



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 2022-01-18  
until 2025-01-18

Cerro Maggiore, 2022-01-18  
[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. 21 22370 01

<b>Type</b>	A
<b>HFT</b>	0
<b>Safety functions</b>	1. Close upon the demand of the actuation system 2. Open upon the demand of the actuation system
<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]
Bellow Seal – G1	1	1,15E-06	4,10E-07	0,00E+00
Bolted Bonnet_Forged – G2	1	2,65E-09	9,48E-10	0,00E+00
Bolted Bonnet_Cast – G3	1	7,63E-09	2,73E-09	0,00E+00
Bolted Bonnet Y-Globe Valve Extension – G4	1	1,57E-08	5,64E-09	0,00E+00
Caged Type – G5	1	4,29E-06	1,53E-06	0,00E+00
Cryogenic Extension Bonnet – G6	1	9,48E-08	3,39E-08	0,00E+00
Pressure Seal – G7	1	4,33E-08	1,55E-08	0,00E+00
Screwed Bonnet T_Forged – G8	1	7,34E-09	2,63E-09	0,00E+00
Bellow Seal – G1	2	1,17E-06	3,87E-07	0,00E+00
Bolted Bonnet_Forged – G2	2	2,70E-09	8,94E-10	0,00E+00
Bolted Bonnet_Cast – G3	2	7,78E-09	2,57E-09	0,00E+00
Bolted Bonnet Y-Globe Valve Extension – G4	2	1,61E-08	5,31E-09	0,00E+00
Caged Type – G5	2	4,38E-06	1,45E-06	0,00E+00
Cryogenic Extension Bonnet – G6	2	9,67E-08	3,20E-08	0,00E+00
Pressure Seal – G7	2	4,41E-08	1,46E-08	0,00E+00
Screwed Bonnet T_Forged – G8	2	7,49E-09	2,48E-09	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>	Applied	<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>			

