



COMPLIANCE

with IEC EN 61508 and IEC EN 61511

Certificate No.: C- IS 270141

CERTIFICATE OWNER: DELLA FOGLIA S.r.l.
Viale Kennedy 149
21050 MARNATE (VA)

WE HEREWITH CONFIRM THAT
THE ANALYSIS DEVELOPED BY DELLA FOGLIA AND REPORTED IN THE
REPORT :

"PL59 - SIL CALCULATION REPORT DELLA FOGLIA FLOATING BALL VALVES –
Rev.1 dated 28/01/2016"

MEETS THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLE
FOR THE SAFETY FUNCTIONS :

"correct switching on demand (open to closed and closed to open) and
tight for closing phase, in low demand mode of operation"

Examination result: The above described report was found to meet the standard defined requirements of the safety levels detailed in the following table (T – IS – 270141) according to IEC EN 61508 and IEC EN 61511, under fulfillment of the conditions listed in the Report R-IS-270141 Rev.1 dated February, 29th 2016 in its currently valid version, on which this Certificate is based

Examination parameters: Compliance of the operational approach adopted and followed in the aforementioned report by DELLA FOGLIA: ***"PL59 - SIL CALCULATION REPORT DELLA FOGLIA FLOATING BALL VALVES – Rev.1 dated 28/01/2016"***.

Official Report No.: R-IS-270141 Rev. 1

Expiry Date February, 28th 2019

IT IS TO BE INTENDED THAT THE ABOVE OFFICIAL REPORT AND ITS ANNEXES ARE AN
INTEGRAL PART OF THIS DOCUMENT

THE PRESENT DOCUMENT SUBSTITUTES AND REPEALS THE DOCUMENT C-IS 254682 REV.01

Reference Standard IEC EN 61508:2010 Part 1, 2, 4, 6, 7 - IEC EN 61511 Part 1, 2, 3

Sesto San Giovanni, February, 29th 2016



TÜV ITALIA Srl

TÜV ITALIA Srl
Industry Service Division
Director

Paolo Marcone
Paolo Marcone

SUMMARY TABLE T – IS – 270141

E/EE/EP safety-related system (final element)	Floating Ball Valves (side entry or top entry, bolted or threaded split body) with size from ¼" to 10" produced by DELLA FOGLIA S.r.l		
System type	Type A		
Environment / Application ⁽¹⁾	Standard Temperature Service Class (STD)	High Temperature Service Class (HT)	Low Temperature or Cryogenic Service Class (LT)
Safety Function Definition	"correct switching on demand (open to closed and closed to open) and tight for closing phase, in low demand mode of operation"		
Max SIL	SIL3	SIL3	SIL3
Additional requirements for the max SIL classification	Execution of Partial Stroke Test with time interval not higher than 12 months and Full Proof Test with time interval not higher than 36 months	Execution of Partial Stroke Test with time interval not higher than 12 months and Full Proof Test with time interval not higher than 36 months	Execution of Partial Stroke Test with time interval not higher than 12 months and Full Proof Test with time interval not higher than 36 months
λ_{TOT}	4,3102E-08	4,1962E-08	6,8493E-08
λ_{SD}	2,1551E-08	2,0981E-08	3,4246E-08
λ_{DD}	0,000E+00	0,000E+00	0,000E+00
λ_{DU}	2,1551E-08	2,0981E-08	3,4246E-08
$\lambda_{DU,PST}^{(2)}$	1,7672E-08	1,7204E-08	2,8082E-08
$\lambda_{DU,FPT}^{(3)}$	3,8792E-09	3,7766E-09	6,1643E-09
PFD ⁽⁴⁾	7,273E-05	7,080E-05	1,156E-04
β and β_D factor	10%	10%	10%
MTTR	2	2	2
Hardware Safety Integrity	Route 2H	Route 2H	Route 2H
Systematic Safety Integrity	Route 2S	Route 2S	Route 2S
Remarks (1) Category identified according to specific environment and application, in particular for temperature range. Refer to product safety manual for detailed information on the categories (2) Portion of the overall failure rate related to dangerous failure modes that can be detected by means of Partial Stroke Testing (DU,PST). (3) Portion of the overall failure rate related to dangerous failure modes that can be detected by means of Full Proof Test (DU,FPT). (4) PFD of reference calculated on the basis of a Full Proof Test with time interval equal to 24 months and Partial Stroke Test with time interval equal to 6 months. This time intervals are considered by TÜV as reasonably consistent with the implementation of the equipment for safety related-applications, with reference to the overall range of results shown in the report, where other possible combination of time intervals adequate for a classification up to SIL 3.			

SIL classification according to Standards IEC EN 61508:2010 (Chapters: 1,2, 4, 6, 7) and IEC EN 61511 (Chapters: 1, 2, 3) for BALL VALVES produced by DELLA FOGLIA S.r.l.



T – IS – 270141

NOTE : The present table is integral part of the Document: C – IS – 270141
Date : February, 29th 2016