

COMPLIANCE

with IEC EN 61508

Certificate No.: C – IS – 722198212

CERTIFICATE OWNER: **AMMTECH S.r.l.**
 Via Giacomo Puccini, 1940/N,
 55016 – Porcari (LU)
 Italy

WE HEREWITH CONFIRM THAT
BUTTERFLY VALVES SERIES AMM740
MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLES
FOR THE SAFETY FUNCTIONS:

SIF1: “correct switching on demand (open to closed) and tight for closing phase, in low demand mode of operation”

SIF2: “correct switching on demand (closed to open), in low demand mode of operation”

Examination result: The above reported Butterfly Valves series AMM740 were found to meet the standard defined requirements of the safety levels detailed in the following table (T-IS-722198212) according to IEC EN 61508, under fulfillment of the conditions listed in the Report R-IS-722198212 Rev.1 dated July, 04th 2019 in its currently valid version, on which this Certificate is based

Examination parameters: Construction/Functional characteristics and reliability and availability parameters of the above Butterfly Valves series AMM740

Official Report No.: R-IS-722198212 Rev.1

Expiry Date July, 03rd 2022

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-268295

Reference Standard IEC EN 61508:2010 Part 2, 4, 6, 7

Sesto San Giovanni, July, 04th 2019



TÜV ITALIA Srl
 Industry Service Division
 Technical Manager

 Paolo Marcone

SUMMARY TABLE

T – IS – 722198212

<i>E/EE/EP safety-related system (final element)</i>	Butterfly Valves series AMM740 produced by AMMTECH S.r.l.	
System type	Type A	
Size (Class)	DN 200 ≤ Size ≤ DN 1500 -30°C ≤ T ≤ + 180°C Service Gaseous Fluids	
Systematic Capability	SC3	
Safety Function Definition	<i>SIF1: “Correct switching on demand (open to closed) and tight for closing phase, in low demand mode of operation”</i>	<i>SIF2: “Correct switching on demand (closed to open), in low demand mode of operation”</i>
Max SIL⁽¹⁾	SIL3	SIL3
λ_{TOT}	2,929E-07	2,929E-07
λ_{NE}	7,009E-08	1,002E-07
λ_s	0,000E+00	0,000E+00
$\lambda_{DD,PST}^{(2)}$	1,337E-07	1,418E-07
$\lambda_{DU,FPT}$	8,913E-08	5,088E-08
β and β_D factor	10%	10%
MRT	8 h	8 h
Hardware Safety Integrity	Route 2H	Route 2H
Systematic Safety Integrity	Route 2s	Route 2s
Remarks		
<p>(1) The Safety Integrity Level (SIL) of the entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD_{AVG} considering the redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each subsystem must be checked to assure compliance with the minimum hardware fault tolerance (HFT) requirements.</p> <p>(2) Considering an automatic Partial Stroke Test</p>		

SIL classification according to Standard IEC EN 61508:2010 (Chapters: 2, 4, 6, 7) for Butterfly Valves series AMM740 produced by AMMTECH S.r.l.