

CERTIFICAT

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Italia

COMPLIANCE

with IEC EN 61508

Certificate No.: C-IS-722220682-01 Rev.1

CERTIFICATE OWNER: Atos S.p.A.
Via alla Piana 57
21018 Sesto Calende (VA)
Italy

WE HEREWITH CONFIRM THAT

INTRINSICALLY SAFE SOLENOID VALVES

DHW-*, 06*267(8)(9) DHW-* AND XXXXXXXX DHW-*, DHWL8 AND XXXXXXXX DHWL8

MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLES

FOR THE SAFETY FUNCTIONS:

SIF1: "Solenoid energization by external signal"

SIF2: "Solenoid de-energization by external signal"

Examination result: The above reported Solenoid Valves DHW-*, 06*267(8)(9) DHW-* and XXXXXXXX DHW-*, DHWL8 and XXXXXXXX DHWL8 were found to meet the standard defined requirements of the safety levels detailed in the following table (T-IS-722220682-01 Rev.1) according to IEC EN 61508, under fulfillment of the conditions listed in the Report R-IS-722220682-01 in its currently valid version, on which this Certificate is based

Examination parameters: Construction/Functional characteristics and reliability and availability parameters of the above Solenoid Valves DHW-*, 06*267(8)(9) DHW-* and XXXXXXXX DHW-*, DHWL8 and XXXXXXXX DHWL8

Official Report No.: R-IS-722220682-01

Expiry Date April, 22nd 2024

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-722131143-01

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

Sesto San Giovanni, October, 05th 2021



TÜV ITALIA Srl

TÜV ITALIA Srl
Industry Service Division
Technical Manager

Paolo Marcone
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Italia

SUMMARY TABLE

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<i>E/EE/EP safety-related system (final element)</i>	Solenoid Valves DHW-*, 06*267(8)(9) DHW-* and XXXXXXXX DHW-*, DHWL8 and XXXXXXXX DHWL8 produced by Atos S.p.A.	
<i>System type</i>	Type A	
<i>Systematic Capability</i>	SC3	
<i>Safety Function Definition</i>	<i>SIF1: "Solenoïd energization by external signal"</i>	<i>SIF2: "Solenoïd de-energization by external signal"</i>
<i>Max SIL⁽¹⁾</i>	SIL3	SIL3
λ_{TOT}	4,003E-10	4,003E-10
λ_{NE}	0,000E+00	0,000E+00
λ_{SD}	0,000E+00	0,000E+00
λ_{SU}	3,282E-10	3,523E-10
$\lambda_{DD,PST}^{(2)}$	0,000E+00	0,000E+00
$\lambda_{DU,FPT}$	7,205E-11	4,804E-11
<i>β and β_D factor</i>	10%	10%
<i>MRT</i>	0,25 h	0,25 h
<i>Hardware Safety Integrity</i>	Route 2H	Route 2H
<i>Systematic Safety Integrity</i>	Route 2s	Route 2s
Remarks		
(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.		
(2) Considering an automatic Partial Stroke Test.		

SIL classification according to Standard IEC EN 61508 (Chapters: 2, 4, 6, 7) for Solenoid Valves DHW-*, 06*267(8)(9) DHW-* and XXXXXXXX DHW-*, DHWL8 and XXXXXXXX DHWL8 produced by Atos S.p.A.

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NOTE: The present table is integral part of the Document: C-IS-722220682-01 Rev.1

Date: October, 05th 2021