



Italia

# COMPLIANCE

with IEC EN 61508

Certificate No.: TUV IT 24 SIL 0470

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

**WE HEREWITH CONFIRM THAT  
HYDRAULIC OPERATED POPPET VALVES  
DLPX(S)-3\* AND XXXXXXXX DLPX(S)-3\*  
MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLES  
FOR THE SAFETY FUNCTIONS:**

***SIF1: "Poppet energization (pressure piloting against spring)"***

***SIF2: "Poppet de-energization (pressure piloting against spring)"***

**Examination result:** The above reported Hydraulic Operated Poppet Valves DLPX(S)-3\* and XXXXXXXX DLPX(S)-3\* were found to meet the standard defined requirements of the safety levels detailed in the following table according to IEC EN 61508, under fulfillment of the conditions listed in the Report R TUV IT 24 SIL 0401 in its currently valid version, on which this Certificate is based

**Examination parameters:** Construction/Functional characteristics and reliability and availability parameters of the above Hydraulic Operated Poppet Valves DLPX(S)-3\* and XXXXXXXX DLPX(S)-3\*

**Official Report No.:** R TUV IT 24 SIL 0401

**Expiry Date** October, 11<sup>th</sup> 2027

**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-722220682-02**

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

Milan, October, 10<sup>th</sup> 2024

TÜV ITALIA Srl



TÜV ITALIA Srl  
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Managing Director

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## SUMMARY TABLE

<i>E/EE/EP safety-related system (final element)</i>	<b>Hydraulic Operated Poppet Valves DLPX(S)-3* and XXXXXXXX DLPX(S)-3* produced by Atos S.p.A.</b>			
<i>System type</i>	Type A			
<i>Systematic Capability</i>	SC3			
<i>Safety Function Definition</i>	<i>SIF1: "Poppet energization (pressure piloting against spring)"</i>		<i>SIF2: "Poppet de-energization (pressure piloting against spring)"</i>	
<i>Max SIL<sup>(1)</sup></i>	<b>SIL2 with HFT=0</b>	<b>SIL3 with HFT=1</b>	<b>SIL2 with HFT=0</b>	<b>SIL3 with HFT=1</b>
$\lambda_{TOT}$	2,144E-07		2,144E-07	
$\lambda_{NE}$	0,000E+00		0,000E+00	
$\lambda_{SD}$	0,000E+00		0,000E+00	
$\lambda_{SU}$	2,037E-07		2,080E-07	
$\lambda_{DD,PST}^{(2)}$	0,000E+00		0,000E+00	
$\lambda_{DU,FPT}$	1,072E-08		6,433E-09	
<i><math>\beta</math> and <math>\beta_D</math> factor</i>	10%		10%	
<i>MRT</i>	0,25 h		0,25 h	
<i>Hardware Safety Integrity</i>	Route 2 <sub>H</sub>		Route 2 <sub>H</sub>	
<i>Systematic Safety Integrity</i>	Route 2 <sub>S</sub>		Route 2 <sub>S</sub>	
<b>Remarks</b>				
(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 Hydraulic Operated Poppet Valves DLPX(S)-3\* and XXXXXXXX DLPX(S)-3\* produced by Atos S.p.A.

NOTE: The present table is integral part of the Document: TUV IT 24 SIL 0470  
Date: October, 11<sup>th</sup> 2024