

CERTIFICAT

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СЕРТИФИКАТ

認證證書

CERTIFICATE

ZERTIFIKAT



Italia

COMPLIANCE

with IEC EN 61508

Certificate No.: TUV IT 22 SIL 0116

CERTIFICATE OWNER: Sirca International S.p.A.
Via Trieste, 8
20060 - Trezzano Rosa (MI)
Italy

WE HEREWITH CONFIRM THAT
PNEUMATIC ROTARY ACTUATORS AP - APM SERIES
MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLES
FOR THE SAFETY FUNCTIONS:

*“correct switching on demand (open to closed & closed to open) with correct torque
as for technical data sheets in low demand mode of operation”*

Examination result: The above reported Pneumatic Rotary Actuators AP - APM Series 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 22 SIL 0107 Rev.1 dated September, 09th 2022 in its currently valid version, on which this Certificate is based

Examination parameters: Construction/Functional characteristics and reliability and availability parameters of the above Pneumatic Rotary Actuators AP - APM Series

Official Report No.: R TUV IT 22 SIL 0107 Rev.1

Expiry Date September, 11th 2025

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

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

Sesto San Giovanni, September, 12th 2022

TÜV ITALIA Srl
Industrie Service Division
Managing Director

Alberto Carelli



SUMMARY TABLE



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<i>E/EE/EP safety-related system (final element)</i>	Pneumatic Rotary Actuators AP - APM Series produced by produced by Sirca International S.p.A.
<i>System type</i>	Type A
<i>Systematic Capability</i>	SC3
<i>Safety Function Definition</i>	<i>“correct switching on demand (open to closed & closed to open) with correct torque as for technical data sheets in low demand mode of operation”</i>
<i>Max SIL⁽¹⁾</i>	SIL3
λ_{TOT}	9,903E-10
λ_{SD}	0,000E+00
λ_{SU}	0,000E+00
$\lambda_{DD,PST}^{(2)}$	6,388E-10
$\lambda_{DU,FPT}$	2,173E-10
<i>β and β_D factor</i>	10%
<i>MRT</i>	8 h
<i>Hardware Safety Integrity</i>	Route 2 _H
<i>Systematic Safety Integrity</i>	Route 2 _S
Remarks	
<i>(1) The Safety Integrity Level (SIL) of the entire Safety Instrumented Function (SIF) must be verified via a calculation of $PFDAVG$ 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) and safe failure fraction (SFF) requirements.</i>	
<i>(2) Considering an automatic Partial Stroke Test.</i>	

SIL classification according to Standard IEC EN 61508:2010 (Chapters: 2, 4, 6, 7) for Pneumatic Rotary Actuators AP - APM Series produced by produced by Sirca International S.p.A.

NOTE: The present table is integral part of the Document: R TUV IT 22 SIL 0116
Date: September, 12th 2022