



COMPLIANCE

with IEC EN 61508:2010

Certificate No.: C-IS-722134012-01 Rev.1

CERTIFICATE OWNER: KOSO PARCOL S.r.l. a socio unico
Via Isonzo, 2
20010, Canegrate (MI) - Italy

WE HEREWITH CONFIRM THAT
THE ANALYSIS AND THE CALCULATION PROCEDURE DEVELOPED BY
KOSO PARCOL, REPORTED IN THE REPORTS
“MR-3001 REV.6” AND “NTG 76/570E REV.1”
MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLE

Examination result: The above described reports were found to meet the standard defined requirements of the safety levels detailed in the following table (T – IS – 722134012 – 01) according to IEC EN 61508:2010, under fulfillment of the conditions listed in the Report R-IS-722134012-01 Rev.1 dated April, 05th 2017 in its currently valid version, on which this Certificate is based

Examination parameters: Compliance of calculation procedure and approach adopted and followed in the aforementioned Koso Parcol reports

Official Report No.: R-IS-722134012-01 Rev.1

Expiry Date April, 04th 2020

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-240645-01

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

Sesto San Giovanni, March, 27st 2019

TÜV ITALIA Srl



TÜV ITALIA Srl
Industry Service Division
Technical Manager

Paolo Marcone



Italia

SUMMARY TABLE

T – IS – 722134012 – 01

<i>E/EE/EP safety-related system (final element)</i>	Valves and Actuators produced by KOSO PARCOL S.r.l. a socio unico	
<i>System type</i>	1-4*, 1-5*, 1-6*, 1-7*, 1-8*, 1-9* ANSI 150 to ANSI 4500 (TYPE A)	1-X-210 / 1-X-250 / 1-X-290 (TYPE A)
<i>Size (port)</i>	DN 1/2"- DN 28"	Na
<i>Systematic Capability</i>	SC3	
<i>Safety Function Definition</i>	“Open and/or Close when required. In case of to Close Safety Function, valve leakage must be within limit values agreed with the Customer”	“Proper valve acting when required”
<i>Max SIL⁽¹⁾</i>	SIL3	SIL3
λ_{TOT}	2,94E-06	6,20E-07
λ_{SD}	2,78E-06	6,00E-07
λ_{SU}	4,00E-08	0,00E+00
λ_{DD}	1,10E-07	2,00E-8
λ_{DU}	1,00E-08	0,00E+00
<i>β and β_D factor</i>	10%	10%
<i>MTTR</i>	8 h	8 h
<i>Hardware Safety Integrity</i>	Route 2 _H	Route 2 _H
<i>Systematic Safety Integrity</i>	Route 2 _S	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 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.</i>		

SIL classification according to Standards IEC EN 61508:2010 (Chapters: 1, 2, 4, 6, 7) for valves and actuators produced by KOSO PARCOL S.r.l. a socio unico