

CERTIFICAT

CERTIFICADO

СЕРТИФИКАТ

認證證書

CERTIFICATE

ZERTIFIKAT



CERTIFICATE

according to IEC EN 61508

Certificate No.: TUV IT 23 SIL 0216

CERTIFICATE OWNER: Shanghai VATTEN Valve Co., Ltd.
No. 205 Jianding Road,
Fengjing Town,
Jinshan District,
Shanghai,
P.R. China

**WE HEREWITH CONFIRM THAT
V274YC SERIES LIMIT SWITCHES
MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLE
FOR THE SAFETY FUNCTION:
"Correct switching on demand"**

Examination result: The above reported V274YC Series Limit Switches 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 23 SIL 0175 in its currently valid version, on which this Certificate is based

Examination parameters: Construction/Functional characteristics and reliability and availability parameters of the above mentioned V274YC Series Limit Switches

Official Report No.: R TUV IT 23 SIL 0175

Expiry Date March, 07th 2026

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

Milan, May, 17th 2023

TÜV ITALIA Srl



TÜV ITALIA Srl
Industrie Service Division
Managing Director

Alberto Carelli

SUMMARY TABLE



Italia

<i>E/EE/EP safety-related system (final element)</i>	V274YC Series Limit Switches produced by Shanghai VATTEN Valve Co., Ltd.
<i>System type</i>	Type A
<i>Systematic Capability</i>	SC3
<i>Safety Function Definition</i>	"Correct switching on demand"
<i>Max SIL⁽¹⁾</i>	SIL3
λ_{TOT}	9,131E-09
λ_{NE}	0,000E+00
λ_{SD}	0,000E+00
λ_{SU}	0,000E+00
$\lambda_{DD,PST}^{(2)}$	0,000E+00
$\lambda_{DU,FPT}$	9,131E-09
<i>β and β_D factor</i>	10%
<i>MRT</i>	24 h
<i>Hardware Safety Integrity</i>	Route 2 _H
<i>Systematic Safety Integrity</i>	Route 2 _S
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 61508:2010 (Part 2, 4, 6, 7) for V274YC Series Limit Switches produced by Shanghai VATTEN Valve Co., Ltd.

NOTE: The present table is integral part of the Document TUV IT 23 SIL 0216
Date: May, 17th 2023

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Italia

CERTIFICATE

according to IEC EN 61508

Certificate No.: TUV IT 23 SIL 0215

CERTIFICATE OWNER: Shanghai VATTEN Valve Co., Ltd.
No. 205 Jianding Road,
Fengjing Town,
Jinshan District,
Shanghai,
P.R. China

WE HEREWITH CONFIRM THAT
V25JACE SERIES SOLENOID VALVES
MEET THE SIL REQUIREMENTS DETAILED IN THE ANNEXED TABLE
FOR THE SAFETY FUNCTION:

*"Move to designed safe position within the demand safety time when
de-energized or energized"*

Examination result: The above reported V25JACE Series Solenoid Valves 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 23 SIL 0174 in its currently valid version, on which this Certificate is based

Examination parameters: Construction/Functional characteristics and reliability and availability parameters of the above mentioned V25JACE Series Solenoid Valves

Official Report No.: R TUV IT 23 SIL 0174

Expiry Date March, 07th 2026

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

Milan, May, 17th 2023

TÜV ITALIA Srl



TÜV ITALIA Srl
Industrie Service Division
Managing Director

Alberto Carelli

SUMMARY TABLE



Italia

<i>E/EE/EP safety-related system (final element)</i>	V25JACE Series Solenoid Valves produced by Shanghai VATTEN Valve Co., Ltd.
<i>System type</i>	Type A
<i>Systematic Capability</i>	SC3
<i>Safety Function Definition</i>	"Move to designed safe position within the demand safety time when de-energized or energized"
<i>Max SIL⁽¹⁾</i>	SIL3
λ_{TOT}	6,111E-09
λ_{NE}	0,000E+00
λ_{SD}	0,000E+00
λ_{SU}	6,789E-10
$\lambda_{DD,PST}^{(2)}$	0,000E+00
$\lambda_{DU,EPT}$	4,583E-09
<i>β and β_D factor</i>	10%
<i>MRT</i>	24 h
<i>Hardware Safety Integrity</i>	Route 2H
<i>Systematic Safety Integrity</i>	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 61508:2010 (Part 2, 4, 6, 7) for V25JACE Series Solenoid Valves produced by Shanghai VATTEN Valve Co., Ltd.

NOTE: The present table is integral part of the Document TUV IT 23 SIL 0215
Date: May, 17th 2023