

# LICENCE CERTIFICATE

## for TÜV Rheinland Conformity Mark

**No. 968/V 1217.01/21**

<b>Licence Holder:</b> Vastas Valf Armatur Sanayi Ticaret A.S. Organize Sanayi Bolgesi, 2. Caddesi No: 22 Cerkezkoy 59500 Tekirdag Turkey	<b>Manufacturer / Manufacturing Plant:</b> same as licence holder
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<b>Date of Application:</b> 2021-04-21	<b>File Ref.:</b> 968/V 1217.01/21	<b>Date of Issue:</b> 2021-06-10
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**Conformity Mark:**



SIL/PL  
Capability

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Link for download:  
<http://fs-products.tuvasi.com/tm/3705>

The holder of this Licence Certificate is authorized to affix the TÜV Rheinland Conformity Mark shown on this page on products that correspond to the certified product described below and to use it in print and electronic media for information and advertising purposes for the certified product. All provisions of the currently valid Regulation for Certification and Conformity Mark Regulation must be observed.  
The validity for use of the Conformity Mark is dependent on the existence of a valid certificate for the certified product.

<b>Annual Fee Units for Use of the Conformity Mark:</b>	<b>Units of Fee:</b> 10
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**Certified Product, Identification of the Device:**

**Kind of Product:** Gate Valves

**Type Designation:** E500 (2" – 72") Bolted Bonnet Wedge Gate Valve  
 E50B (4" – 72") Through Conduit Slab Gate Valve  
 E50D (4" – 72") Through Conduit Expanding Gate Valve  
 E50W (2" – 24") Pressure Seal Bonnet Welded End Wedge Gate Valve  
 E50F (2" – 24") Pressure Seal Bonnet Flanged End Wedge Gate Valve

**Technical Doc.:**

Safety Manual "VA-SM-E5-21R0"	0	2021-04-27
Drawing of Gate E500 "BOM-E500"	00	2018-12-14
Drawing of Gate E53B "BOM-E53B"	00	2013-12-25
Drawing of Gate E56D "BOM-E56D"	02	2015-10-05
Drawing of Gate E56W "E56WG.5Ax"	00	2017-10-06
Drawing of Gate E55F "BOM-E55F"	02	2018-10-03

**Special Remarks:** Report-No. 968/V 1217.01/21 dated 2021-06-08 and Certificate No.: 968/V 1217.01/21 dated 2021-06-10

**TÜV Rheinland Industrie Service GmbH**  
 Bereich Automation  
 Funktionale Sicherheit  
 Am Grauen Stein, 51105 Köln

2021-06-10  
Date

Certification Body  
 Safety & Security for Automation & Grid



Dipl.-Ing. (FH) Wolf Rückwart

# Certificate



**No.: 968/V 1217.01/21**

**Product tested** Gate Valves **Certificate holder** Vastas Valf Armatür Sanayi Ticaret A.S.  
Organize Sanayi Bolgesi, 2. Caddesi No: 22  
Cerkezkoy 59500 Tekirdag Turkey

**Type designation** E500 (2" - 72") Bolted Bonnet Wedge Gate Valve  
E50B (4" - 72") Through Conduit Slab Gate Valve  
E50D (4" - 72") Through Conduit Expanding Gate Valve  
E50W (2" - 24") Pressure Seal Bonnet Welded End Wedge Gate Valve  
E50F (2" - 24") Pressure Seal Bonnet Flanged End Wedge Gate Valve

**Codes and standards** IEC 61508 Parts 1-2 and 4-7:2010

**Intended application** Safety Functions:  
- Closing on demand and keeping up the external tightness  
- Opening on demand and keeping up the external tightness  
  
The gate valves are suitable for use in a safety instrumented system up to SIL 2. Under consideration of the minimum required hardware fault tolerance HFT = 1 the valves may be used in a redundant structure up to SIL 3.

**Specific requirements** The instructions of the associated Installation, Operating and Safety Manual shall be considered.


Summary of test results see back side of this certificate.

The issue of this certificate is based upon an evaluation in accordance with the Certification Program CERT FSP1 V1.0:2017 in its actual version, whose results are documented in Report No. 968/V 1217.01/21 dated 2021-06-08. This certificate is valid only for products, which are identical with the product tested.

**TÜVRheinland Industrie Service GmbH**  
Bereich Automation  
Funktionale Sicherheit  
Am Grauen Stein, 51105 Köln

Köln, 2021-06-10

Certification Body Safety & Security for Automation & Grid

  
Dipl.-Ing. (FH) Wolf Rückwart

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 **TÜVRheinland®**  
Precisely Right.

**Holder:** Vastas Valf Armatur Sanayi Ticaret A.S.  
 Organize Sanayi Bölgesi Sabanci Caddesi No. 22  
 Cerkezköy / Tekirdag  
 Turkey

**Product tested:** Gate-Valves of type  
**E500 (2" – 72") - Bolted Bonnet Wedge Gate Valve**  
**E50B (4" – 72") - Through Conduit Slab Gate Valve**  
**E50D (4" – 72") - Through Conduit Expanding Gate Valve**  
**E50W (2" – 24") - Pressure Seal Bonnet Welded End Wedge Gate Valve**  
**E50F (2" – 24") - Pressure Seal Bonnet Flanged End Wedge Gate Valve**

**Results of Assessment**

Route of Assessment		2 <sub>H</sub> / 1 <sub>s</sub>
Type of Sub-system		Type A
Mode of Operation		Low Demand Mode
Hardware Fault Tolerance	HFT	0
Systematic Capability		<b>SC 3</b>

**Closing on demand and keeping up the external tightness**

Dangerous Failure Rate	$\lambda_D$	2.09 E-07 / h	<b>209 FIT</b>
Average Probability of Failure on Demand 1oo1	$PFD_{avg}(T_1)$	9.30 E-04	
Average Probability of Failure on Demand 1oo2	$PFD_{avg}(T_1)$	9.40 E-05	

**Opening on demand and keeping up the external tightness**

Dangerous Failure Rate	$\lambda_D$	2.02 E-07 / h	<b>202 FIT</b>
Average Probability of Failure on Demand 1oo1	$PFD_{avg}(T_1)$	8.99 E-04	
Average Probability of Failure on Demand 1oo2	$PFD_{avg}(T_1)$	9.08 E-05	

Assumptions for the calculations above: DC = 0 %, T<sub>1</sub> = 1 year, MRT = 72 h, β<sub>1oo2</sub> = 10 %

**Origin of failure rates**

The stated failure rates for low demand are the result of an FMEDA with tailored failure rates for the design and manufacturing process.

Furthermore the results have been verified by field-feedback data.

Failure rates include failures that occur at a random point in time and are due to degradation mechanisms such as ageing.

The stated failure rates do not release the end-user from collecting and evaluating application-specific reliability data.

**Periodic Tests and Maintenance**

The given values require periodic tests and maintenance as described in the Safety Manual.

The operator is responsible for the consideration of specific external conditions (e.g. ensuring of required quality of media, max. temperature, time of impact), and adequate test cycles.