

Certificate



SIL/PL
Capability

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ID 060000000

No.: 968/V 1285.00/22

Product tested Quarter Turn Actuators **Certificate holder** Vastas Valf Armatur Sanayi Ticaret A.S.
Organize Sanayi Bolgesi, 2. Caddesi No: 22
Cerkezkooy 59500 Tekirdag Turkey

Type designation Pneumatic: GC, GN, GU, GV (single acting); GP (double acting)
Gas: GK, GR (single acting); GI (double acting)
Hydraulic: GL, GF (single acting); GH (double acting)

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

Intended application Safety function: The safe position can be either fail-close or fail-open of the attached valve. When the actuator is triggered, it moves to its defined fail-safe position. The safety functions are:
- Take up safe position on demand by built-in spring (Single Acting)
- Take up safe position on demand by external pressure supply (Double Acting)

The actuators are suitable for use in a safety instrumented system up to SIL 2 (low demand mode). Under consideration of the minimum required hardware fault tolerance HFT = 1 for the complete final element the actuators may be used 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 1285.00/22 dated 2022-03-10. This certificate is valid only for products, which are identical with the product tested.

TÜV Rheinland Industrie Service GmbH
Bereich Automation
Funktionale Sicherheit

Köln, 2022-03-28

Certification Body Safety & Security for Automation & Grid


Dipl.-Ing. (FH) Wolf Rückwart

Holder: VASTAS Valf Armatür Sanayi Ticaret A.S.
 Organize Sanayi Bolgesi 2. Ca. No:22
 Cerkezkoy 59500 Tekirdag
 Turkey

Product tested: Quarter turn actuators of type:
 Pneumatic single acting - GC, GU, GN, GV
 Pneumatic double acting - GP
 Gas single acting - GK, GR
 Gas double acting - GI
 Hydraulic single acting - GL, GF
 Hydraulic double acting - GH

Results of Assessment

Route of Assessment		$2_H / 1_S$
Type of Sub-system		Type A
Mode of Operation		Low Demand Mode
Hardware Fault Tolerance	HFT	0
Systematic Capability		SC 3

Take up safe position on demand by built-in spring (Single Acting)

Dangerous Failure Rate	λ_D	2.21 E-07 / h	221 FIT
Average Probability of Failure on Demand 1oo1	$PFD_{avg}(T_1)$	9.84 E-04	
Average Probability of Failure on Demand 1oo2	$PFD_{avg}(T_1)$	9.94 E-05	

Take up safe position on demand by external pressure supply (Double Acting)

Dangerous Failure Rate	λ_D	2.47 E-07 / h	247 FIT
Average Probability of Failure on Demand 1oo1	$PFD_{avg}(T_1)$	1.10 E-03	
Average Probability of Failure on Demand 1oo2	$PFD_{avg}(T_1)$	1.11 E-04	

Assumptions for the calculations above: DC = 0 %, $T_1 = 1$ year, MRT = 72 h, $\beta_{1oo2} = 10$ %

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.

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.