

Certificate



SIL/PL
Capability

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Nr./No.: 968/V 1199.03/20

**Prüfgegenstand
Product tested**

Sicherheitsabsperrramatur
Safety Shut-Off Valve

**Zertifikats-
inhaber
Certificate
holder**

Albrecht Automatik GmbH
Industriestraße
50259 Pulheim
Germany

**Typbezeichnung
Type designation**

KVAZ, KVAZ/S, KVAZ/O

**Prüfgrundlagen
Codes and standards**

IEC 61508 Parts 1-2 and 4-7:2010

**Bestimmungsgemäße
Verwendung
Intended application**

Sicherheitsfunktion: Einnehmen der sicheren Stellung bei Ausfall der Hilfsenergie und dichtes Absperren des Stoffstromes.
Die Armaturen sind zur Verwendung in einem sicherheitsgerichteten System bis SIL 2 geeignet. Unter Berücksichtigung der mindestens erforderlichen Hardware-Fehlertoleranz von HFT=1 können die Armaturen in redundanter Ausführung auch bis SIL 3 eingesetzt werden.
Safety Function: Move into safe position on loss of auxiliary energy and safe shut off of medium flow.
The 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.

**Besondere Bedingungen
Specific requirements**

Die Hinweise in der zugehörigen Installations- und Betriebsanleitung sowie des Sicherheitshandbuchs sind zu beachten.
The instructions of the associated Installation, Operating and Safety Manual shall be considered.

Zusammenfassung der Testergebnisse siehe Seite 2.
Summary of test results see back side of this certificate.

Gültig bis / Valid until 2025-11-25


Der Ausstellung dieses Zertifikates liegt eine Evaluierung entsprechend dem Zertifizierungsprogramm CERT FSP1 V1.0:2017 in der aktuellen Version zugrunde, deren Ergebnisse im Bericht Nr. 968/V 1199.00/20 vom 25.11.2020 dokumentiert sind. Dieses Zertifikat ist nur gültig für Erzeugnisse, die mit dem Prüfgegenstand übereinstimmen.

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 1199.00/20 dated 2020-11-25. This certificate is valid only for products, which are identical with the product tested.

TÜV Rheinland Industrie Service GmbH
Bereich Automation
Funktionale Sicherheit

Köln, 2020-11-25

Certification Body Safety & Security for Automation & Grid


Dipl.-Ing. (FH) Wolf Rückwart

Holder: Albrecht Automatik GmbH
Industriestraße 12
D-50259 Pulheim
Germany

Product tested: Safety Shut-Off Valves for for liquid / gaseous media:

**KVAZ, KVAZ/S (liquid media)
KVAZ/O (gaseous media)**

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

Move into safe position on loss of auxiliary energy and safe shut off of medium flow

Dangerous Failure Rate	λ_D	1.99 E-07 / h	199 FIT
Average Probability of Failure on Demand 1001	$PFD_{avg}(T_1)$	8.86 E-04	
Average Probability of Failure on Demand 1002	$PFD_{avg}(T_1)$	8.94 E-05	

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 qualification tests and field-feedback data.

Failure rates include failures that failures 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.