

Certificate



SIL/PL
Capability

www.tuv.com
ID 060000000

No.: 968/V 1295.01/24

Product tested	Butterfly Valves	Certificate holder	Ohl Gutermuth Industrial Valves GmbH Helmershäuser Str. 9 63674 Altenstadt Germany
-----------------------	------------------	---------------------------	---

Type designation	SAFEFLEX KX (triple excentric) KK (double excentric) GG (centric) for details see Revision List
-------------------------	---

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

Intended application	Safety Functions: Safe Closing on Demand Safe Closing up to Class VI acc. IEC 60534-4 Safe Opening on Demand
-----------------------------	---

The valves 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 of the complete final element the valves may be used in a redundant architecture 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 V3.0:2020 in its actual version, whose results are documented in Report No. 968/V 1295.01/24 dated 2024-10-07. This certificate is valid only for products, which are identical with the product tested. Issued by the certification body accredited by DAkkS according to DIN EN ISO/IEC 17065. The accreditation is only valid for the scope listed in the annex to the accreditation certificate D-ZE-11052-02-00.

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

Köln, 2024-11-06

Certification Body Safety & Security for Automation & Grid

Dipl.-Ing. (FH) Wolf Rückwart

Holder: OHL Guterath Industrie Service GmbH
 Helmershäuser Str. 9
 63674 Altenstadt
 Germany

Product tested: Butterfly Valve of type SAFEFLEX
KX (triple excentric)
KK (double excentric)
GG (centric)

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

Closing on Demand		KX & KK		GG	
Dangerous Failure Rate	λ_D	2.88 E-07 / h	288 FIT	2.89 E-07 / h	289 FIT
Average Probability of Failure on Demand 1oo1	$PFD_{avg}(T_1)$	1.28 E-03		1.29 E-03	
Average Probability of Failure on Demand 1oo2	$PFD_{avg}(T_1)$	1.30 E-04		1.30 E-04	
Closing on Demand up to Class VI acc. IEC 605354-4					
Dangerous Failure Rate	λ_D	3.63 E-07 / h	363 FIT	-	-
Average Probability of Failure on Demand 1oo1	$PFD_{avg}(T_1)$	1.62 E-03		-	-
Average Probability of Failure on Demand 1oo2	$PFD_{avg}(T_1)$	1.64 E-04		-	-
Open on Demand					
Dangerous Failure Rate	λ_D	2.50 E-07 / h	250 FIT	2.58 E-07 / h	258 FIT
Average Probability of Failure on Demand 1oo1	$PFD_{avg}(T_1)$	1.11 E-03		1.15 E-03	
Average Probability of Failure on Demand 1oo2	$PFD_{avg}(T_1)$	1.13 E-04		1.16 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.

Furthermore the results have been verified by qualification tests and 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.