

# Certificate



**No.: 968/V 1265.00/21**

<b>Product tested</b>	Butterfly Valves	<b>Certificate holder</b>	AMPO POYAM Valves Division Valvulas Poyam Barrio Katea Auzoa S/N 20213 Idiazabal (Guipuzcoa) Spain
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<b>Type designation</b>	BW (Cryogenic Side Entry Triple Eccentric Butterfly Valve) RF (Cryogenic Double Flange Triple Eccentric Butterfly Valve) 2" - 56" (150 & 300 lbs); 2" - 36" (600 lbs)
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<b>Codes and standards</b>	IEC 61508 Parts 1-2 and 4-7:2010
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<b>Intended application</b>	Safety Function: Move into safe position by a safety related actuator. The safe position of the valve is defined as either safely closed or safely open.  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 the valves may be used in a redundant architecture up to SIL 3.
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<b>Specific requirements</b>	The instructions of the associated Installation, Operating and Safety Manual shall be considered.
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Summary of test results see back side of this certificate.


Valid until 2026-12-15

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 1265.00/21 dated 2021-12-08. This certificate is valid only for products, which are identical with the product tested.

**TÜV Rheinland Industrie Service GmbH**  
Bereich Automation  
Funktionale Sicherheit

Köln, 2021-12-15

Certification Body Safety & Security for Automation & Grid

  
Dipl.-Ing. (FH) Wolf Rückwart

Holder: **AMPO POYAM Valves**  
 Division Valvulas Poyam  
 Barrio Katea Auzoa S/N  
 20213 Idiazabal (Guipuzcoa)  
 Spain

Product tested: **Butterfly Valves**  
**BW (Cryogenic Side entry Triple Eccentric Butterfly Valve)**  
**RF (Cryogenic Double Flange Triple Eccentric Butterfly Valve)**

### 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		<b>SC 3</b>

### Closing on Demand and External Tightness

Dangerous Failure Rate	$\lambda_D$	1.92 E-07 / h	<b>192 FIT</b>
Average Probability of Failure on Demand 1oo1	$PFD_{avg}(T_1)$	8.55 E-04	
Average Probability of Failure on Demand 1oo2	$PFD_{avg}(T_1)$	8.63 E-05	

### Open on Demand and External Tightness

Dangerous Failure Rate	$\lambda_D$	1.70 E-07 / h	<b>170 FIT</b>
Average Probability of Failure on Demand 1oo1	$PFD_{avg}(T_1)$	7.57 E-04	
Average Probability of Failure on Demand 1oo2	$PFD_{avg}(T_1)$	7.63 E-05	

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.

The stated failure rates for high demand are the result of tests over the whole temperature range. If the conditions vary widely from the test conditions the failure rates might be adjusted.

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.