



## Certificate

Project #: 23-065- WEYVLV2019111

*SIL 3 Capable  
Type A, Route 2H*

### WEY VALVE, SIL Re-certification A3, Wx, VS, VL, VM, and DB Series Knife Gate Valves

**Application:** Process service duty up to and including severe unclean duty class NU-Naval Unsheltered; this includes the lighter clean process service duty class NU. Naval Unsheltered (non-protected surface ship borne equipment exposed to vibrations and environmental naval weather conditions).

**Function:** Open-to-Close duty. Low Demand Mode. Architectural constraint, Route 2H: HFT= 0 for SIL-2; HFT= 1 for SIL-3; and HFT= 2 for SIL-4.

**Verified:** Meets the applicable requirements of IEC 61508:2010 Parts 1-7 per the analysis report.

**Systematic:** Assessed the manufacturer's product development, design, and quality control processes. For SIL-2 and above safety-related services, manufacturer's certification is required after dis-assembly, assembly, repair and/ or modification of the valve.

**Random:** Quantitative analysis supported by failure modes effects and criticality analysis.

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**Valid Until: July 19, 2027**

**Failure Analysis:** The referenced Analysis Report includes a quantification of the product performance as manufactured. For the SIL Certificate to be valid it is mandatory that transport, construction, operation, inspection and maintenance are in full compliance with manufacturer's requirements. The user needs to carefully review the use constraints documented in the Analysis Report and within the product Safety Manual to identify the differences between the use constraints and the intended application. The actual product performance can be significantly different if the use constraints in the analysis report or safety manual are violated, or the product is misapplied or abused, whether intentional or unintentional.

**Summary Data Table:**

Wey Valve Inc.				SIF - FIELD PERFORMANCE								
A3, W0, W1, W2 And W3 Series Knife Gate Valves (bare stem), VS, VL, VM, and DB Series Knife Gate Valves (bare stem)				SIF: 1 Full Stroke Failure (see ITSC)								
ERGOCIC PERIOD	2019 - 2022	Operational Time		MTBF - D			FAILURE RATE - D					
AGE INSTRUMENTATION:	2005 - 2022	ERGOCIC:		MIN	AVERAGE	MAX	MIN	AVERAGE	MAX			
SIZES 2" - 90"	SERVICE: CLEAN, UNCLEAN	[hour] [Million hour]		95% value	50% value	5% value	5% value	50% value	95% value			
ERGOCIC PERIOD	TYPE	[hour]	[Million hour]	[year]	[year]	[year]	[1/hour]	[1/hour]	[1/hour]			
2019 (JAN 1) - 01 DEC 2019	Knife Gate - CLEAN & UNCLEAN	1735	15	463	573	1735	4877	2.54E-08	6.39E-08	1.97E-07		
01 DEC 2019-2022	Knife Gate - SEVERE UNCLEAN	719	6	245	258	713	2006	5.69E-08	1.60E-07	4.83E-07		
DIACUSA-WEYVLV-2019-111-R2A_UCLN-DRFMEDCA_VLV.stm				Confidence: 90%			Confidence: 90%					
Wey Valve Inc.				SIF - FIELD PERFORMANCE								
A3, W0, W1, W2 And W3 Series Knife Gate Valves (bare stem), VS, VL, VM, and DB Series Knife Gate Valves (bare stem)				SIF: 2 TSO - Tight Shut Off Failure								
ERGOCIC PERIOD	2019 - 2022	Operational Time		MTBF - D			FAILURE RATE - D					
AGE INSTRUMENTATION:	2005 - 2022	ERGOCIC:		MIN	AVERAGE	MAX	MIN	AVERAGE	MAX			
SIZES 2" - 90"	SERVICE: CLEAN, UNCLEAN	[hour] [Million hour]		95% value	50% value	5% value	5% value	50% value	95% value			
ERGOCIC PERIOD	TYPE	[hour]	[Million hour]	[year]	[year]	[year]	[1/hour]	[1/hour]	[1/hour]			
2019 (JAN 1) - 01 DEC 2019	Knife Gate - CLEAN & UNCLEAN	1735	15	493	146	248	435	2.67E-07	4.61E-07	7.89E-07		
01 DEC 2019-2022	Knife Gate - SEVERE UNCLEAN	719	6	245	150	357	872	1.31E-07	3.20E-07	7.69E-07		
DIACUSA-WEYVLV-2019-111-R2A_UCLN-DRFMEDCA_VLV.stm				Confidence: 90%			Confidence: 90%					

**References:**

Analysis Report: DIACUSA- WEYVLV-2019-111-R2A-SIL\_KNFGATE\_2022 -CTFD.pdf, July 18, 2023.

Safety Manual(s): DIACUSA- WEYVLV-2019-112-R2-SFMNL\_GATEVLV-CTFD.pdf, July 17, 2023.