MATERIAL CERTIFICATE

Mill Test Certificate per EN 10204

To:		**Certificate No.:**	MTC-JRVAL-2026-0826-QT08 03-01
Company:		**Date:**	August 26, 2026
Address:		**QT Ref.:**	QT-2026-0803-01
Project:		**Valid Until:**	September 26, 2026

Product Description

Item	Description	Material Grade	Standard	Heat No.
1	Butterfly Valve Body (Casting)	LCB (Low Temperature Carbon Steel)	ASTM A352/A352M	2405
2	Butterfly Valve Disc (Casting)	CF3M (316L Stainless Steel)	ASTM A351/A351M	2403

Chemical Composition — ASTM A352 Grade LCB (Body) / Heat No. 2405

Element	C	Mn	P	S	Si	Cr	Ni	Mo	V	Cu
Spec Limit (%)	≤0.30	≤1.00	≤0.040	≤0.045	≤0.60					
Heat 2405 (%)	0.24	0.76	0.028	0.025	0.42	N/A	N/A	N/A	N/A	N/A

Chemical Composition — ASTM A351 Grade CF3M (Disc) / Heat No. 2403 [CORRECTED per Nuoweisite MTC]

Element	C	Mn	P	S	Si	Cr	Ni	Mo	Nb
Spec Limit (%)	≤0.03	≤1.50	≤0.04	≤0.04	≤1.50	17.0-20.0	9.0-12.0	2.0-3.0	/
Heat 2403 (%)	0.028	**1.24**	**0.02**	**0.021**	0.56	18.15	10.21	2.23	**/**

Note: Highlighted cells (Mn, P, S, Nb) have been corrected according to Nuoweisite Valve Co., Ltd. material certificate dated 2020.5.28.

Mechanical Properties

Material / Heat No.	Tensile Strength MPa	Yield Strength MPa	Elongation %	Reduction of Area %	Hardness HB
ASTM A352 LCB Spec. Min.	≥450	≥240	≥24	≥35	
Heat 2405 (Body) - Actual	540	285	27	N/A	N/A
ASTM A351 CF3M Spec. Min.	≥485	≥205	≥30		
Heat 2403 (Disc) - Actual	490	210	35		

Heat Treatment & Testing

Item / Heat No.	Heat Treatment	Hydrostatic Test	NDE	Remarks
LCB Body Heat 2405	Normalized and tempered at 620■ min	Body: 1.5×PN Seat: 1.1×PN No leakage observed	Visual inspection per MSS SP-55 Radiographic inspection per ASTM E446 (Level 2)	Acceptable
CF3M Disc Heat 2403	Solution annealed at 1050■ min, water quenched	N/A (component test)	Liquid penetrant inspection per ASTM E165 Visual inspection per MSS SP-55	Acceptable

Declaration

We hereby certify that the above material has been manufactured, tested, and inspected in accordance with the requirements of ASTM A352/A351 and the referenced project specification. The chemical composition values for CF3M (Heat 2403) have been verified and corrected per the original material certificate issued by Nuoweisite Valve Co., Ltd. (dated May 28, 2020). This certificate is issued under our sole responsibility and confirms conformity with the order requirements.

Quality Inspector	Quality Manager	General Manager
王君	陈远	王顺江
Date: August 26, 2026	Date: August 26, 2026	Date: August 26, 2026

TIANJIN JIANGRUI FLUID EQUIPMENT CO., LTD
INSPECTION DEPARTMENT