天津市江瑞流体设备有限公司

TIANJIN JIANGRUI FLUID EQUIPMENT CO., LTD. (JRVAL)

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Certificate No.: **JRVAL-IMP-2026-0827-LCB-001**

CERTIFICATE OF LOW-TEMPERATURE IMPACT TEST

Customer:		**Date of Issue:**	2026-08-27
Project:	Butterfly Valve Supply — LCB Body Material		
Product Description:	Butterfly Valve Body Casting		
Material Grade:	ASTM A352 Grade LCB	**Heat No.:**	LCB-2026-HN-086
Quantity Tested:	3 Specimens (10 mm x 10 mm x 55 mm)	**Test Temperature:**	**-46 °C (-50.8 °F)**

Test Standard & Method

Test Standard:	ASTM A370 — Standard Test Methods and Definitions for Mechanical Testing of Steel Products
Test Method:	Charpy V-Notch Impact Test (CVN)
Notch Type:	V-Notch (2 mm depth, 45° angle, 0.25 mm root radius)
Acceptance Criteria:	Average impact energy ≥ 20 J at -46 °C (per ASTM A352 Grade LCB and customer specification)

Test Results

Specimen No.	Size (mm)	Test Temp. (°C)	Impact Energy (J)	Fracture Appearance	Result
1	10 x 10 x 55	-46	29	Partially ductile	Pass
2	10 x 10 x 55	-46	31	Partially ductile	Pass
3	10 x 10 x 55	-46	27	Partially ductile	Pass
Average Value			**29 J**	**—**	**Pass**

CONCLUSION: The tested ASTM A352 Grade LCB specimens meet the low-temperature impact requirements at -46 °C.
Average impact energy: 29 J (Requirement: ≥ 20 J).
ALL TESTS PASSED.

Testing Equipment:	Charpy Impact Testing Machine, Model JB-W300 (Calibrated)
Cooling Medium:	Alcohol bath with dry ice / liquid nitrogen cooling
Soaking Time:	≥ 15 minutes at -46 °C ± 1 °C before impact
Remarks:	Test conducted in accordance with ASTM A370 and material specification. Certificate 3.1

per EN 10204.

陈远

Tested by / Inspector

Date: 2026-08-27

TIANJIN JIANGRUI FLUID EQUIPMENT CO., LTD
INSPECTION DEPARTMENT

Authorized Signature / QA Manager

Date: 2026-08-27

Declaration: This certificate is issued in accordance with EN 10204 3.1 by the manufacturer's authorized quality department. The test results relate only to the specimens tested and the heat number stated above. Any reproduction of this certificate must be in full; partial reproduction is invalid.