



Industrie Service

Certificate for Product Conformity

Certificate No.: IS-SHA-322237 Rev.0

TÜV SÜD Industrie Service GmbH hereby certifies

Manufacturer: Jiangsu Xin Zhong Xin Co., Ltd.

Address: No. 18 Danyang Road, Yanling Town,
Danyang City, Jiangsu Province, China.

That the performance of

Tradename: **VFK**

Type: Union

Component: As per attachment to this certificate

Has been successfully tested according to Standard

ASTM F 1387-23

Performed tests: As per attachment to this certificate
Corresp. report: Zhongliao testing (Liaoning) Co., Ltd. test
report No. ZLA2504148 (E), Dated May 19,
2025

Shanghai P.R.C.

May 27, 2025

TÜV SÜD Certification and Testing
(China) Co., Ltd. Shanghai Branch
Department IS: PLS-M



Zhang Xueli

Attachment to certificate No. IS-SHA-322237 Rev.0

Component:

Zhongliao testing ® identifier and description:

Sample serial number	Product Type	Specimen name
ZLA2504148-1 to ZLA2504148-13	6L21-FX6 (OD3/8")	Union

Diameter of tubes to be used as approved by the manufacturer:

Product	Diameter	Thickness
Tube (13 Pcs)	9.53 mm	0.89 mm

Test process:

All the pipes except ZLA2504148-13 conduct the A3 and A4 steps shown in the table below.

Performed tests: Test Procedure according to ASTM F 1387-23

Section	Test pipe serial No	Test Process	Description
A2	ZLA2504148-1 to ZLA2504148-13	Examination of Specimen	Maximum diameter and wall thickness checked, no structural damage on specimen surfaces.
A3	ZLA2504148-1 to ZLA2504148-12	Pneumatic Proof Test	Test Medium: Dry air, Test Pressure: 0.69MPa, Hold Time: 5min, No leakage, Test Pressure: 3.45MPa, Hold Time: 5min, No leakage.
A4	ZLA2504148-1 to ZLA2504148-12	Hydraulic Proof Test	(Performed the A3 No leakage.) Test Medium: Deionized water, Test Pressure: 4.14 MPa, Hold Time: 5min, No leakage, Pressure Ramp Rate: 60MPa/min, Test Pressure: 62.1MPa, Hold Time: 5min, No leakage.
A5	ZLA2504148-6	Impulse Test	(Performed the A3, A4 No leakage.) test Medium: Hydraulic oil, test peak pressure: 55.1MPa, test frequency: 75cycles/min, total cycles: 1×10 ⁶ cycles, No leakage. Repeat the test of A4, no leakage.
A6	ZLA2504148-3	Flexure Fatigue Test	(Performed the A3, A4 No leakage.) test medium: water, pressure 41.4 MPa, test frequency 3Hz, cycles 30000 times, no leakage. Repeat the test of A4, no leakage.
A7	ZLA2504148-5	Tensile test	(Performed the A3, A4 No leakage.) Tensile speed: 1.3mm/min,



			When applied load up to 5400N, no separation occurred at the pipe joint. Repeat the test of A4, no leakage.
A8	ZLA2504148-1	Hydrostatic Burst Test	(Performed the A3, A4 No leakage.) Under test pressure 165.6 MPa and after hold time 1Min. No leakage.
A9	ZLA2504148-3 ZLA2504148-6	Repeated Assembly Test	Before starting the Impulse Test and Flexure Fatigue Test, and at 25%, 50%, 75%, and 100% of the test cycles, totaling 10 assembly repetitions.
A10	ZLA2504148-4	Rotary Flexure Test	(Performed the A3, A4 No leakage.) Test Medium: deionized water, bending strain: 897 $\mu\epsilon$, test pressure: 3.45MPa, rotational speed: 1800rpm, cycles: 1 $\times$ 10 ⁶ cycles, no leakage. Repeat the test of A4, no leakage.
S2	ZLA2504148-7	Thermal Cycling Test	(Performed the A3, A4 No leakage.) High-Temperature Thermal Cycling: Test Medium: Deionized water, Test Pressure: 41.4MPa, High Temperature: 537°C, Ambient Temperature: 20°C, Cycles: 3 cycles, No leakage. Repeat the test of A4, no leakage.
S3	ZLA2504148-8	Elevated Temperature Soak Test	(Performed the A3, A4 No leakage.) Test Medium: Deionized water, Test Pressure: 41.4MPa, High Temperature: 537°C, Maintain: 100h, No leakage. Repeat the test of A4, no leakage.
S4	ZLA2504148-9	Stress Corrosion Test	(Performed the A3, A4 No leakage.) Test Medium: Deionized water, Test Pressure: 41.4MPa, Bending strain: 281 $\mu\epsilon$, Subject the specimen to the standard salt spray test in accordance with Practice B117 for 50h. There is no leakage. Repeat the test of A4, no leakage. Cleaned the test specimen, and inspected the ferrule and tubing under 10 $\times$ magnification without crack. There were no indications of inter- or trans-granular stress corrosion paths of longitudinal and transverse sections of the ferrule and tube.
S5	ZLA2504148-10	Torsion Test	(Performed the A3, A4 No leakage.) The tube is rotated at a minimum 30°, The maximum torque applied is 542N·m, Repeat the test of A4, no leakage.
S6	ZLA2504148-11	High Impact Shock Test	(Performed the A3, A4 No leakage.) Test Medium: Deionized water, Test Pressure:

			41.4MPa, Applied impacts along three mutually perpendicular axes (X, Y, Z), with 3 impacts per axis (total 9 impacts), ensuring each height/angle corresponds to one impact per direction. Vertical drop hammer: Heights: 0.3m, 0.9m, 1.5m (sequential), Backswing pendulum: Angles: 37°, 66°, 90° (sequential), Lateral pendulum: Angles: 37°, 66°, 90° (sequential), No damage during testing. Repeat the test of A4, no leakage.
S7	ZLA2504148-12	Fire Test	(Performed the A3, A4 No leakage.) Heat flux is 120kW/m2. Test Medium: Dry air, Test Pressure: 41.4MPa, Total exposure time: 30min, No leakage. Repeat the test of A4, no leakage.
S8	ZLA2504148-2	Vibration Test	(Performed the A3, A4 No leakage.) Test medium deionized water, pressure 41.4 MPa, the tests were carried out in three directions X, Y, Z. during and after performed the required process of CODE, No leakage. Repeat the test of A4, no leakage.
	ZLA2504148-13	Helium Leak Test	Test Medium: helium, Test result: Leakage rate < 9.8×10⁻¹³atm·cm3/s.

The inspection was done to the best of our knowledge and ability and with due care. The findings are valid as for time and place of inspection.

All the test results found during the testing and after were eligible.

Shanghai P.R.C.

May 26, 2025

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(China) Co., Ltd. Shanghai Branch
Department IS: PLS-M

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Service *