



Industry & Facilities Division
Third Party Inspection Report

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INSPECTION REPORT No. INS/SR/SHOP-26/074		Revision No.04
☐ Initial ☐ Interim ☒ Final ☐ Resident ☐ Remote		
Inspection requested by: INS/SR/SHOP-26/074		
Inspection performed as Recognised Authority:		☐ Yes, :(Recognition) ☒ No
BV Job Nr: INS/SR/SHOP-26/074		

Project: Interchangeability between FITOK and Swagelok tube fittings	IPO Ref (If applicable): / (BV internal P/o)
BV Client: FITOK Incorporated	P/o nr:FK-2607024 (client to BV)
Manufacturer/Vendor: FITOK (Wuhan) Incorporated & FITOK Incorporated	P/o nr:/ (client to Manufacturer)
Sub-Vendor (If applicable): /	
Inspection Location (Address): No. 16, Jinyang Avenue, Yangluo Economic Development Zone, Xinzhou District, Wuhan City, Hubei Province No. 164, Xinqu Village Section, Tiantou Community, Shijing Sub-district, Pingshan District, Shenzhen City, Guangdong Province	Previous Inspection (If applicable): / (Date)
Inspection Location (GPS Coordinates): /	Next Inspection (If applicable): / (Date)
Inspection performed on: Sep. 7 &8 &9 &10 &11, 2026	Total No. of Inspection Days: 5 Days

MATERIAL / SUBJECT OF INSPECTION	ITEM / TAG Nr	QTY As per P/O	QTY Offered for inspection
☐ Refer to attachment section J instead (Indicate if separate material list is provided in attachment)			
Swagelok & FITOK Double Ferrule Tube Fittings	ML6 (Φ 6 × 1 mm)	10PCS	10PCS
Swagelok & FITOK Double Ferrule Tube Fittings	ML10 (Φ 10 × 1.5 mm)	10PCS	10PCS
Swagelok & FITOK Double Ferrule Tube Fittings	ML12 (Φ 12 × 1.5mm)	10PCS	10PCS
Swagelok & FITOK Double Ferrule Tube Fittings	ML16 (Φ 16 × 2mm)	10PCS	10PCS
Swagelok & FITOK Double Ferrule Tube Fittings	ML18 (Φ 18 × 2 mm)	10PCS	10PCS
Swagelok & FITOK Double Ferrule Tube Fittings	FL4 (Φ 1/4" × 0.49")	12PCS	12PCS
Swagelok & FITOK Double Ferrule Tube Fittings	FL6 (Φ 3/8" × 0.65")	10PCS	10PCS
Swagelok & FITOK Double Ferrule Tube Fittings	FL8 (Φ 1/2" × 0.65")	12PCS	12PCS
Swagelok & FITOK Double Ferrule Tube Fittings	FL12 (Φ 3/4" × 0.83")	12PCS	12PCS

A – INSPECTION RESULT		
☒ Satisfactory (Without comments)	☐ Satisfactory with comments (Any of trailing Punch or Non Conformity items is still open)	☐ Not Satisfactory (NCR raised during the inspection)





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Inspection Summary: (for details refer to section E)

As per NOI (Technical and Commercial Agreement of Shop Inspection Service - INS/SR/SHOP-26/074) document, BV inspectors participated in the on-site work of the inspection of FITOK and Swagelok double ferrule tube fittings interchangeability test, and witnessed the following details and results:

1. Tightness Test
2. Helium Leak Test
3. Burst Test
4. Re-assembly Test
5. Vibration Test

The validity of this inspection result is strictly limited to the specific samples inspected by BV, and solely reflects the condition of said samples at the time of inspection. Factors outside the inspection process, such as samples alteration before/after inspection, alteration caused by transportation/storage conditions, or third-party substitution, are not within the scope of our liability.

Open Non Conformities:	☐ Yes, details in section G	☒ No
Open Punch List Items:	☐ Yes, details in section H	☒ No
Release Note Issued:	☐ Yes, number(s): (Release Note number)	☒ No
BV Traceability Stamping:	☐ Yes, 	☒ No

BV Inspector: Zhu Pingjian & Zhang Haihong (Name and Signature) 	BV Coordinator: Chunjie Xu (Name and Signature) 
BV Office: BVQS	Inspection Report Date: Sep 12 2026
Distribution: ☒ CLIENT ☒ BV ☐ MANUFACTURER ☐ OTHER:	Attachments Report: ☒ Yes, details in section J ☐ No

B - REFERENCE DOCUMENTATION:

☐ Refer to attachment section J instead

(Indicate if separate document list is provided in attachment)

Title	Reference n°	Rev.	Approval status	Approved by	Date
Standard Specification for Performance of Piping and Tubing Mechanically Attached Fittings	ASTM F1387	/	Effective	ASTM	July 1, 2023
FITOK& Swagelok double ferrule tube fittings interchangeability test Report briefing note	/	00	Approved	Client	/

C – ATTENDEES

Name	Position	Representing
Zhu Pingjian	Inspector	BV
Zhang Haihong	Inspector	BV
Wang Shenghua	Product Engineer	FITOK
Mr. Li Gong	Product Engineer	FITOK





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D - MEASURING & TESTING EQUIPMENT USED

☐ Refer to attachment section J instead

(Indicate if separate equipment list is provided in attachment)

Equipment Type	Equipment Identity n°	Last Calibration Date	Expiry Date
Precision pressure gauge	E250311157	2026/03/22	2027/03/21
Precision pressure gauge	ST26071269	2026/08/17	2027/08/16
Precision pressure gauge	ST26010242	2026/02/07	2027/02/06
Electric vibration test system	230611060/2311384/233911104	2026/06/01	2027/05/31
Timepiece	FK-T-1228	2026-01-15	2027-01-14
Timepiece	FK-T-1227	2026-01-15	2027-01-14
Pressure gauge with back connection	FK-T-1385	2026-04-22	2026-10-21
Standard leak holes of helium mass spectrometry leak detector	WFK-T-745	2025-12-22	2026-12-21
Digital Pressure Gauge	FK-T-955	2026-04-21	2027-04-20
Timepiece	FK-T-1225	2026-01-15	2027-01-14
Pressure gauge	FK-T-603	2026-06-24	2027-06-23
Pressure gauge with back connection	FK-T-1353	2026-07-24	2027-07-23

E - INSPECTION DETAILS

E – General

As per NOI (Technical and Commercial Agreement of Shop Inspection Service - INS/SR/SHOP-26/074) document, BV inspectors participated in the on-site work of the inspection of FITOK and Swagelok double ferrule tube fittings interchangeability test, and witnessed the following details and results:

1. Tightness Test
2. Helium Leak Test
3. Burst Test
4. Re-assembly Test
5. Vibration Test

E1 – Details of Witness (W) & Hold (H) Inspection Points

1.Tightness Test(W)

Test method: Under normal temperature conditions, install the sample and connect it to the pressure source (pressure test bench), place it in the test bench box, submerge it in water, and then cover it with a protective cover. Increase the pressure to 1WP for the air tightness test and maintain the pressure for 1 minute. Test indicators: No phenomena such as bubble overflow or rupture were found on the surface of the sample. Test result was as follows: Test Item List

Reference: ASTM F1387;

Test result: Pass.





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2. Helium Leak Test(W)

Test method: Under normal temperature conditions, helium detection of the product is conducted using the vacuum hood mode. Blow clean the outer wall of the inner cavity of the sample, then connect the vacuum cover test fixture connect the vacuum cover to the helium leak detection testing instrument, start the helium leak detection testing instrument to evacuate the air, and fill the product with 1WP of helium gas and air mix the pressure and conduct helium detection using a helium leak testing instrument: the detection time should be ≥ 15 seconds, and the maximum leakage rate should be read. The leakage rate should be $\leq 1.0 \times 10^{-9}$ mbar.l/s. Test result was as follows: Test Item List

Reference basis: /;

Test result: Pass.

3. Burst Test(W)

Test method: Under normal temperature conditions, connect the sample piece to the water pressure test bench, empty the gas in the sample chamber, and increase the pressure at a constant speed to 4WP for water pressure explosion sample. No leakage or rupture was found. Continue to increase the pressure until the explosion occurs, and record the explosion pressure. A burst pressure of ≥ 4 WP is considered qualified.

Test result was as follows: Test Item List

Test index: Burst pressure ≥ 4 WP;

Reference: ASTM F1387;

Test result: Pass.

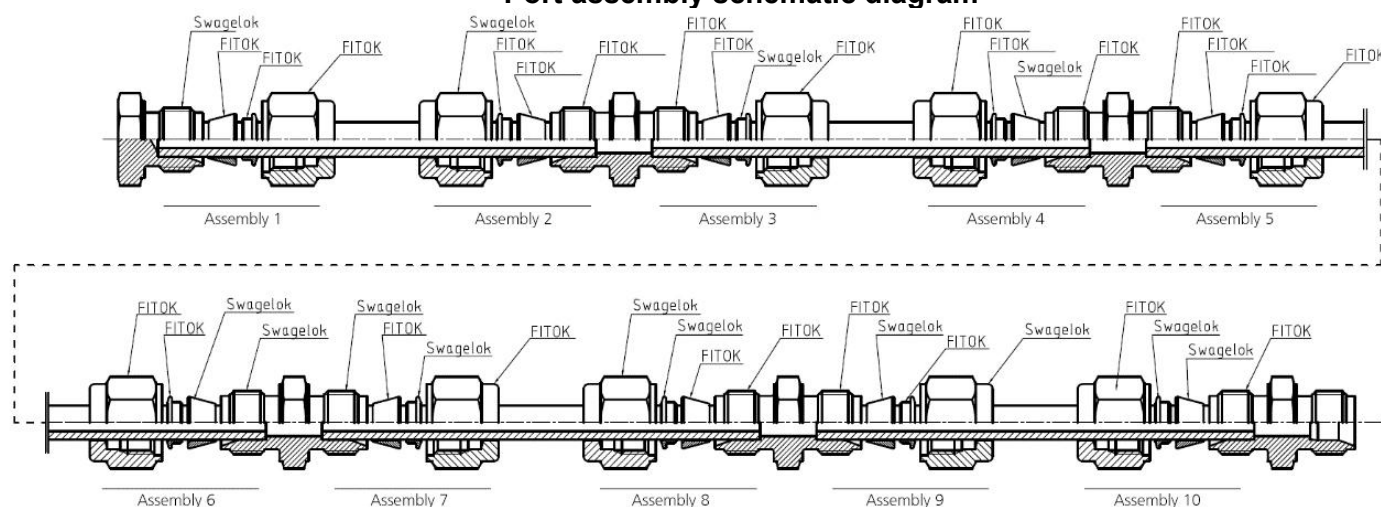
4. Re-assembly Test(W)

Test method: Under normal temperature conditions, the sample is refilled 25 times to conduct an air tightness test. Connect the product to the pressure source and place it inside the water pressure test bench. Submerge into water, cover the protective cap, increase the pressure to 1WP, and maintain the pressure for 1 minute. No phenomena such as bubble overflow or rupture were found on the surface of the sample upon observation. Test result was as follows: Test Item List

Reference basis: /;

Test result: Pass.

Port assembly schematic diagram





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Test Item List

Inspection of Swagelok & FITOK double ferrule tube fittings interchangeability test									
Port specification	ML6 (Φ6 mm)	ML10 (Φ10 mm)	ML12 (Φ12mm)	ML16 (Φ16 mm)	ML18 (Φ18 mm)	FL4 (Φ1/4")	FL6 (Φ3/8")	FL8 (Φ1/2")	FL12 (Φ3/4")
Tightness Test	Pass (42MPa)	Pass (40MPa)	Pass (33MPa)	Pass (33MPa)	Pass (29MPa)	Pass (51.7MPa)	Pass (44.8MPa)	Pass (36MPa)	Pass (30MPa)
Helium Leak Test Test time (≥15 s)	≤1.0x10 ⁻¹² mbar.l/s	≤1.0x10 ⁻¹² mbar.l/s	≤1.0x10 ⁻¹² mbar.l/s	≤1.0x10 ⁻¹² mbar.l/s	≤1.0x10 ⁻¹² mbar.l/s	≤1.0x10 ⁻¹² mbar.l/s	≤1.0x10 ⁻¹² mbar.l/s	≤1.0x10 ⁻¹² mbar.l/s	≤1.0x10 ⁻¹² mbar.l/s
Burst Test	Pass (216MPa)	Pass (173MPa)	Pass (138MPa)	Pass (159MPa)	Pass (121MPa)	Pass (280MPa)	Pass (215MPa)	Pass (153MPa)	Pass (131MPa)
Re-Assembly Test	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

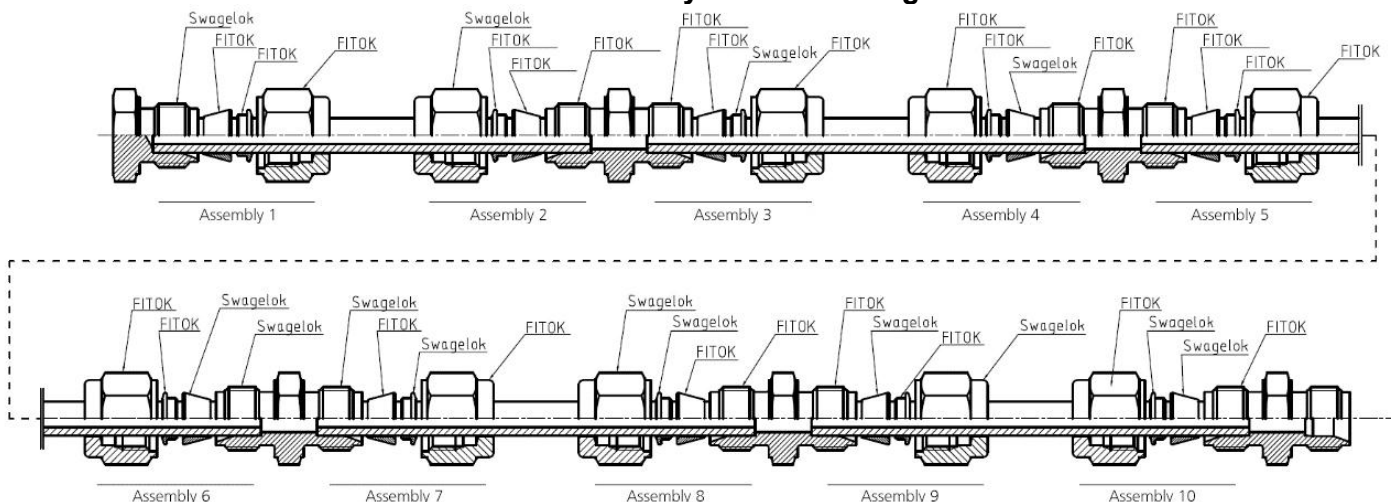
5.Vibration Test(W)

Test method: Under normal temperature conditions, connect the sample to the pressure source (water pressure test bench), empty the gas in the cavity and place it inside the water pressure test bench, then immerse it in water cover the protective cover, increase the pressure to 1WP at a constant speed, and conduct a 2-hour endurance test in three directions (X-axis, Y-axis and Z-axis) respectively at the applicable frequency, the applicable frequency should not exceed 60Hz. No phenomena such as bubble overflow or rupture were found on the surface of the sample upon observation. Only the FL4, FL8 and FL12 models will be tested vibration test. Test result was as follows:

Reference: ASTM F1387;

Test result: Pass.

Port assembly schematic diagram





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Serial Number	Axial position test	Hydraulic Test		Pressure gauge number	Time	Vibration frequency	Conclusion
		Start	Conclusion				
FL4 (Φ1/4"× 0.49")	Y-axis	7500psi	7550psi	WFK-T-1769	2h	≤60HZ	ACC
	X-axis	7600psi	7800psi				ACC
	Z-axis	7725psi	7900psi				ACC
FL8 (Φ1/2"× 0.65")	Y-axis	5275psi	5400psi	WFK-T-1986	2h	≤60HZ	ACC
	X-axis	5500psi	5750psi				ACC
	Z-axis	5650psi	5750psi				ACC
FL12 (Φ3/4"× 0.83")	Y-axis	4270psi	4400psi	WFK-T-1546	2h	≤60HZ	ACC
	X-axis	4400psi	4500psi				ACC
	Z-axis	4600psi	4740psi				ACC

E2 – Details of Monitoring and Surveillance Patrols

☐ Tick if conducted during the visit

None

E3 – Details of Certificates Review

☐ Tick if conducted during the visit

None

F – HEALTH, SAFETY & ENVIRONMENT COMMENTS

(Comment on Observations and Actions Taken During the Inspection)

Before or during the inspection activities, no health and safety issues or violations were found, and PPE was worn as required by regulations.

G- NON CONFORMITIES

☐ Refer to attachment section J instead

(Indicate if separate punch list is provided in attachment)

Item	Description	Status	Raised on	Report Nr.	Closed on	Report Nr.	Comments
NA	NA	NA	NA	NA	NA	NA	NA

H – PUNCH LIST ITEMS

☐ Refer to attachment section J instead

(Indicate if separate punch list is provided in attachment)

Item	Description	Status	Raised on	Report Nr.	Closed on	Report Nr.	Comments
NA	NA	NA	NA	NA	NA	NA	NA





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I - DIGITAL PICTURES



Sample inspection



Sample inspection



Tightness Test



Tightness Test





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Tightness Test



Tightness Test



Helium Leak Test



Helium Leak Test



Helium Leak Test

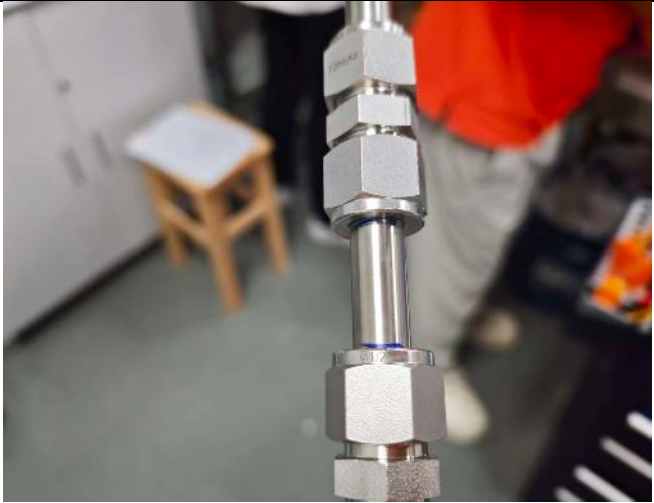


Helium Leak Test





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Helium Leak Test	Helium Leak Test
	
Burst Test	Burst Test
	
Burst Test	Burst Test





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Burst Test	Burst Test
	
Re-assembly Test	Re-assembly Test
	
Re-assembly Test	Re-assembly Test





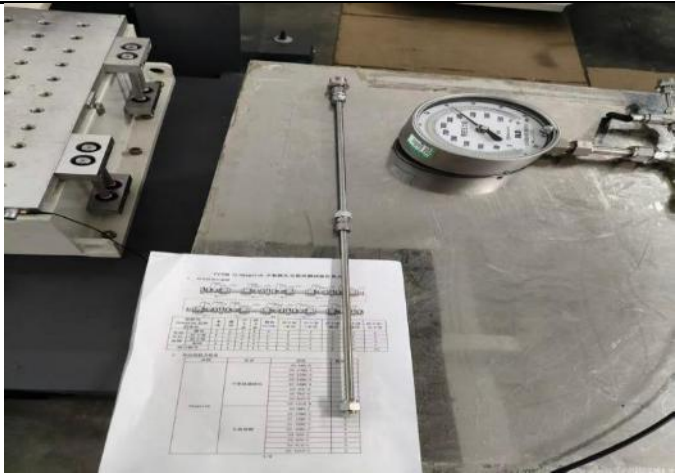
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Re-assembly Test	Re-assembly Test
	
Vibration test photo	Vibration test photo
	
FL12 Tube Fittings Photo	FL12 Tube Fittings Photo





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FL4 Tube Fittings Photo	FL4 Tube Fittings Photo
	
FL8 Tube Fittings Photo	FL8 Tube Fittings Photo
	
X-axis vibration test	Y-axis vibration test





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Z-axis vibration test



Z-axis vibration test



FL12-Z axis pressure gauge has started



FL12-Z axis pressure gauge is completed



FL12-Y axis pressure gauge has started

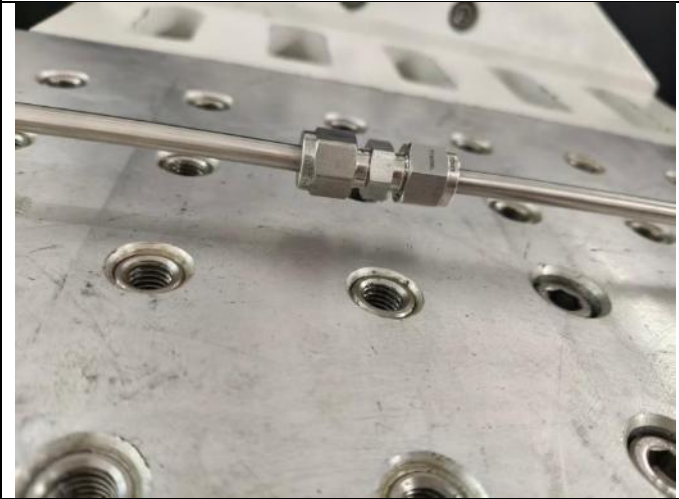


FL12-Y axis pressure gauge is completed



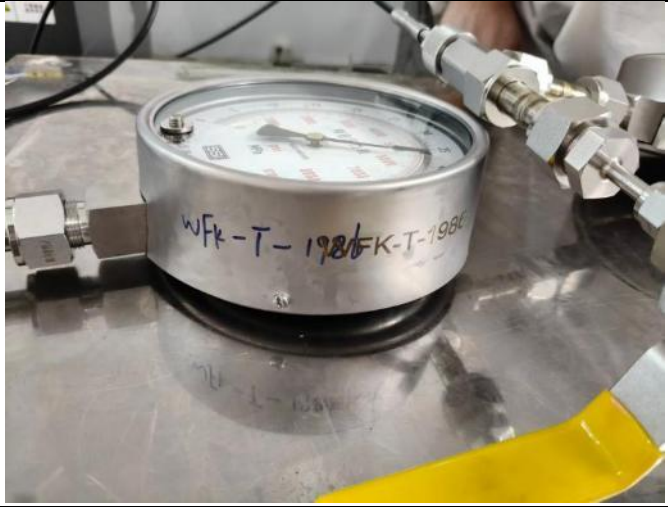
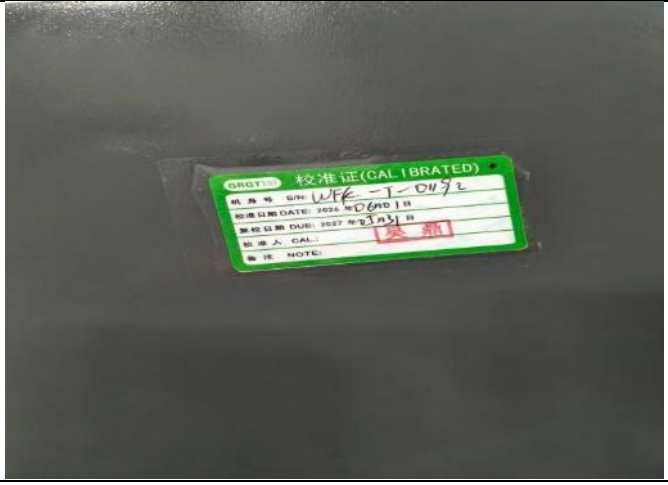


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Fluid examination	Fluid examination
	
Fluid examination	Fluid examination
	
Pressure gauge	Verification tag





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Pressure gauge	Verification tag	
		
Pressure gauge	Verification tag	
		
Vibration equipment platform	Verification label	





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J – ATTACHMENTS			
Item	Attachment Name	Total Pages	Description
/	/	/	/
END OF REPORT			

