

Name: Testing Center of Tsingtu Group Co., Ltd.

Address: Longzhu, Wanwu, Fu'an, Fujian, China

Registration No. CNAS L9039

Accreditation Criteria: ISO/IEC 17025:2017 and relevant requirements of CNAS

Effective Date: 2026-08-03 Expiry Date: 2028-04-07

SCHEDULE 3 ACCREDITED TESTING SCOPE

№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
1	Steel	1	Si	Steel and iron—Determination of acid-soluble silicon and total silicon content—Reduced molybdosilicate spectrophotometric method GB/T 223.5-2008	Accredited only for acid-soluble silicon	2026-08-03
		2	P	Iron,steel and alloy-Determination of phosphorus content-Bismuth phosphomolybdate blue spectrophotometric method and antimony phosphomolybdate blue spectrophotometric method GB/T 223.59-2008	Accredited only for method one: Bismuth phosphomolybdate blue spectrophotometric method	2026-08-03
		3	Mo	Iron,steel and alloy-Determination of molybdenum content –The	Accredited	2026-08-03

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China National Accreditation Service for Conformity Assessment
LABORATORY ACCREDITATION CERTIFICATE
(Registration No. CNAS L9039)

Testing Center of Tsingtu Group Co., Ltd.

(Legal Entity: Tsingtu Group Co., Ltd.)

Longzhu, Wanwu, Fu'an, Fujian, China

is accredited in accordance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence to undertake the service described in the schedule attached to this certificate.

The scope of accreditation is detailed in the attached schedule bearing the same registration number as above. The schedule forms an integral part of this certificate.

Effective Date: 2026-08-03

Expiry Date: 2028-04-07

Signed on behalf of China National Accreditation Service for Conformity Assessment

陳建良

China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is a signatory of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Accreditation Cooperation Mutual Recognition Arrangement (APAC MRA).

The validity of the certificate can be checked on CNAS website at <https://www.cnas.org.cn/english/index.html>

№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
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				thiocyanate spectrophotometric method GB/T 223.26-2008	only for method one: The thiocyanate spectrophotometric method	
		4	Ti	Steel and iron-Determination of titanium content-Dianitropyrimethane spectrophotometric method GB/T 223.84-2009		2026-08-03
		5	Ni	Methods for chemical analysis of iron,steel and alloy--The dimethylglyoxime gravimetric method for the determination of nickel content GB/T 223.25-1994		2026-08-03
				Iron,steel and alloy-Determination of nickel content-The dimethylglyoxime spectrophotometric method GB/T 223.23-2008	Accredited only for method one; Determination of nickel content-The dimethylglyoxime spectrophotometric method	2026-08-03
		6	Mn	Alloyed steel-Determination of manganese content-Potentiometric or visual titration method. GB/T 223.4-2008	Accredited only for visual titration	2026-08-03



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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
				Iron, steel and alloy—Determination of manganese content—Sodium (potassium)periodate spectrophotometric method GB/T 223.63-2022	method	2026-08-03
		7	Cr	Iron, steel and alloy-Determination of chromium content-Titrimetric method and spectrophotometric method GB/T 223.11-2025	Accredited only for method one: Titrimetric method	2026-08-03
		8	C,Si,Mn,P,S,Cr,Ni,Mo,Cu,Al,Sb,As,Nb,Ti,V,Co,Sn,Pb,B,Ca	Standard Test Method for Analysis of Carbon and Low-Alloy Steel by Spark Atomic Emission Spectrometry ASTM E415-21	Accredited only for C:0.02%-1.1%, Si:0.10%-1.30%, Mn:0.10%-1.50%, P:0.006%-0.085%, S:0.007%-0.055%, Cr:0.020%-5.0%, Ni:0.10%-4.5%, Mo:0.06%-1.3%, Al:0.02%-0.08%,	2026-08-03



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		№	Item/ Parameter			
					Cu:0.04%-0.5%, Sb:0.006%-0.025%, Ti:0.04%-0.15%, Nb:0.003%-0.10%, V:0.003%-0.25%, Co:0.01%-0.10%, As:0.003%-0.1%, Sn:0.005%-0.06%, Ca:0.002%-0.003%, B:0.0005%-0.007%, Pb:0.002%-0.05%	
		9	C,Si,Mn,P,S,Cr,Ni,W,Mo,V,Al,Ti,Cu,Nb,Co,B,As,Sn	Carbon and low-alloy steel-Determination of multi-element contents-Sparkdischarge atomic emission spectrometric method (routine method) GB/T 4336-2016	C:0.030%-1.3%,Si:0.17%-1.2%,Mn:0.07%-2.2%,P:0.010%-0.070%,S:0.0080%-	2026-08-03



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		№	Item/ Parameter			
					0.050%,Cr: 0.10%- 3.0%,Ni:0. 0090%- 4.2%, W:0.060%- 1.7%,Mo:0. 030%- 1.2%,V:0.1 0%- 0.60%,Al:0 .030%- 0.16%,Ti:0. 015%- 0.50%,Cu:0 .020%- 0.90%,Nb: 0.020%- 0.12%,Co:0 .0040%- 0.30%,B:0. 0008%- 0.011%, As:0.0040 %-0.014%, Sn:0.0060 %-0.020%	
		10	Tensile testing	Metallic materials-Tensile testing Part 1:Method of test at room temperature GB/T 228.1-2021	Accredited only for R_m , R_{eL} , R_p , A , less than	2026-08-03



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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
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					250 kN and by method B	
				Standard Test Methods for Tension Testing of Metallic Materials ASTM E8/E8M-24	Accredited only for under 250 kN, Su, UYS, LYS, YS (offset=0.2%), YS (EUL=0.5%), elongation after fracture, reduction of area. Historical standard, limited to specific client contract.	2026-08-03
				Metallic materials-Tensile testing Part 2: Method of test at elevated temperature GB/T 228.2-2015	Accredited only for $F_m \leq 100\text{kN}$, R_m, R_t, R_p , A, Z, (100-900) °C	2026-08-03
				Metallic materials -Tensile testing Part 2: Method of test at	Accredited only for	2026-08-03

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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
				elevated temperature ISO 6892-2: 2018	Fm≤100kN ,Rm,Rt,Rp, A,Z, (100- 900) °C	
				Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials ASTM E21-20	Accredited only for Fm≤100kN ,Su, UYS, LYS,YS (offset=0.2%) ,YS (EUL=0.5%) ,Elongation after fracture, Reduction of area; (100-900)°C	2026-08-03
				Standard Test Methods and Definitions for Mechanical Testing of Steel Products ASTM A370-24 7~14	Accredited only for under 250 kN,Su,UYSLYS,YS (offset=0.2%) ,YS (EUL=0.5%) ,elonga	2026-08-03



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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
					tion after fracture, reduction of area。 Historical standard, limited to specific client contract.	
		11	Tensile strain hardening exponent (n-values)	Metallic materials-Sheet and strip-Determination of tensile strain hardening exponent(n) GB/T 5028-2025	Accredited only for automatic measurement method B	2026-08-03
		12	Plastic strain ratio (r-values)	Metallic materials - sheet and strip - Determination of plastic strain ratio(r) GB/T 5027-2025	Accredited only for automatic measurement method A	2026-08-03
		13	Rockwell hardness	Metallic materials - Rockwell hardness test - Part 1: Test method. GB/T 230.1-2018	Accredited only for HRBW and HRC	2026-08-03
				Standard Test Methods for Rockwell Hardness of Metallic Materials' ASTM E18-24	Accredited only for : HRBW, HRC。	2026-08-03



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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
					Historical standard, limited to specific client contract.	
				Metallic materials – Rockwell hardness test - Part 1: Test method ISO 6508-1: 2023	Accredited only for: HRC, HRBW	2026-08-03
		14	Brinell hardness	Metallic materials - Brinell hardness test - Part 1: Test method. GB/T 231.1-2018	Accredited only for HBW2.5/187.5	2026-08-03
				Standard Test Method for Brinell Hardness of Metallic Materials ASTM E10-23	Accredited only for HBW2.5/187.5	2026-08-03
				Metallic materials - Brinell hardness test- Part 1: Test method ISO 6506-1: 2014	Accredited only for: HBW2.5/187.5	2026-08-03
		15	Vickers hardness	Metallic materials - Vickers hardness test - Part 1: Test method GB/T 4340.1-2024	Accredited only for HV10 and HV30	2026-08-03
				Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials ASTM E92-23	Accredited only for HV10 and HV30	2026-08-03



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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
				Metallic materials - Vickers hardness test Part 1:Test method ISO 6507-1: 2023	Accredited only for:HV10, HV30	2026-08-03
		16	Average grain size	Determination of estimating the average grain size of metal GB/T 6394-2017	Accredited only for comparison method	2026-08-03
				Standard Test Methods for Determining Average Grain Size ASTM E112-13(2021)	Accredited only for comparison method。 Historical standard, limited to specific client contract.	2026-08-03
				Standard Practice for Determining Average Grain Size Using Electron Backscatter Diffraction (EBSD) in Fully Recrystallized Polycrystalline Materials ASTM E2627-13(2019)		2026-08-03
		17	nonmetallic inclusion	Determination of content of nonmetallic inclusions in steel- Micrographic method using standards diagrams GB/T 10561-2023	Accredited only for method A	2026-08-03
				Standard Test Methods for Determining the Inclusion Content of Steel ASTM E45-18a (2023)	Accredited only for : method A。 Historical standard,	2026-08-03



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		№	Item/ Parameter			
					limited to specific client contract.	
		18	Quantitative analysis of micro zone	Quantitative method for electron probe microanalysis of metals and alloys GB/T 15616-2008	Accredited only for Cr	2026-08-03
		19	O	Steel and Iron-Determination of oxygen content-The pulse heating inert gas fusion-infra-red absorption method GB/T 11261-2006	Accredited only for 0.003%-0.017%	2026-08-03
				Standard Test Methods for Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel, Iron, Nickel, and Cobalt Alloys by Combustion and Inert Gas Fusion Techniques ASTM E1019-24	Accredited only for 0.002%-0.005%	2026-08-03
		20	N	Steel and iron-Determination of nitrogen content-Thermal conductimetric method after fusion in a current of inert gas(Routine method) GB/T 20124-2006	Accredited only for 0.005%-0.2%	2026-08-03
				Standard Test Methods for Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel, Iron, Nickel, and Cobalt Alloys by Combustion and Inert Gas Fusion Techniques ASTM E1019-24	Accredited only for 0.02%-0.2%	2026-08-03
		21	Bend test	Metallic materials-Bend testing method GB/T 232-2024	Accredited only for: ≤500kN, Guided-bend test	2026-08-03
				Standard Test Methods for Bend Testing of Material for Ductility ASTM E290-22	Accredited only for:	2026-08-03



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		№	Item/ Parameter			
					≤500kN, Guided-bend test	
2	Water quality	1	pH	Water quality-Determination of pH value-Glass electrode method GB/T 6920-1986	Only when specified by the customer.	2026-08-03
				Water quality-Determination of pH-Electrode method HJ 1147-2020		2026-08-03
		2	SS	Water quality-Determination of suspended substance - Gravimetric method GB/T 11901-1989		2026-08-03
		3	chromium(VI)	Water quality-Determination of chromium(VI)-1,5 Diphenylcarbohydrazide spectrophotometric method GB/T 7467-1987		2026-08-03
		4	P	Water quality-Determination of total phosphorus-Ammonium molybdate spectrophotometric method GB/T 11893-1989		2026-08-03
		5	COD _{Cr}	Water quality-Determination of the chemical oxygen demand-Dichromate method HJ 828-2017		2026-08-03
		6	N	Water quality-Determination of total nitrogen-Alkaline potassium persulfate digestion UV spectrophotometric method HJ 636-2012		2026-08-03
		7	Ammonia Nitrogen	Water quality-Determination of ammonia nitrogen-Nessler's reagent spectrophotometry HJ 535-2009		2026-08-03
3	Laterite nickel ores	1	Ni	Methods for chemical analysis of laterite nickel ores-Part 2:Determination of nickel content-Dimetyglyoxime spectrophotometry YS/T 820.2-2012		2026-08-03
		2	Fe	Methods for chemical analysis of laterite nickel ores-Part 3:Determination of total iron content-Potassium dichromate titration YS/T 820.3-2012		2026-08-03



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4	Stainless Steel	1	C,Si,Mn,P,S,Cr,Ni, Mo,Cu,Al,W,Ti,Nb, V,Co,As,Sn	Stainless steel-Determination of multi-element contents-Spark discharge atomic emission spectrometric method (Routine method) GB/T 11170-2008	Accredited only for C:0.02%-0.29%, Si:0.12%-1.10%, Mn:0.12%-9.14%, P:0.005%-0.041%, S:0.006%-0.038%, Cr:8.55%-26.29%, Ni:0.17%-19.33%, Mo:0.09%-3.42%, Al:0.03%-0.24%, Cu:0.05%-3.17%, W:0.08%-0.15%, Ti:0.05%-0.69%, Nb:0.05%-0.76%, V:0.05%-0.32%, Co:0.01%-	2026-08-03



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		№	Item/ Parameter			
					0.28%, As:0.003%- 0.024%, Sn:0.007%- 0.051%	
		2	Impact test	Metallic materials - Charpy pendulum impact test method GB/T 229-2020	Accredited only for $KV_2 < 500J$, -60°C ~ 20°C, room temperature, -196 °C	2026-08-03
				Standard Test Methods for Notched Bar Impact Testing of Metallic Materials ASTM E23-24	Accredited only for : Charpy Impact, V-Notch, 2mm striker, < 500J, -60°C ~ 20°C, 室温, -196 °C。 Historical standard, limited to specific client	2026-08-03



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		№	Item/ Parameter			
				Metallic materials - Charpy pendulum impact test - Part 1: Test method ISO 148-1: 2016	contract. Accredited only for : KV ₂ < 500J, -60°C ~ 20°C, 室温, -196 °C	2026-08-03
		3	C, Si, Mn, P, S, Cr, Ni, Mo, Cu, W, Ti	Standard Test Methods and Practices for Chemical Analysis of Steel Products ASTM A751-21	Accredited only for specific client contract because of historical standard; Accredited only for Spark Atomic Emission Spectrometry ; Accredited only for C: 0.006%-4.0%, Si: 0.018%-4.0%,	2026-08-03



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		№	Item/ Parameter			
					Mn:0.13%-11.0%, P:0.004%-0.25%, S:0.0015%-0.1%, Cr:0.08%-25.5%, Ni:0.01%-25.0%, Mo:0.01%-4.5%, Cu:0.006%-4.0%, W:0.009%-1.0%, Ti:0.005%-1.0%	
		4	C,Si,Mn,P,S,Cr,Ni, Mo,Cu	Standard Test Method for Analysis of Austenitic Stainless Steel by Spark Atomic Emission Spectrometry ASTM E1086-22	Accredited only for C:0.017%-0.21%, Si:0.31%-0.72%, Mn:0.70%-2.0%, P:0.017%-0.055%, S:0.003%-0.042%, Cr:17.0%-	2026-08-03



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					20.0%, Ni:7.5%- 13.0%, Mo:0.02%- 2.5%, Cu:0.02%- 0.27%	
		5	α -phase	Method for determining content of the α -phase in stainless steels GB/T 13305-2024	Accredited only for: (F+A) stainless steel,the standard comparison charts	2026-08-03
				Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count ASTM E562-19e1		2026-08-03
		6	Intergranular corrosion	Corrosion of metals and alloys - Test methods for intergranular corrosion of austenitic and ferritic-austenitic (duplex) stainless steels GB/T 4334-2020	Accredited only for method E	2026-08-03
				Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels ASTM A262-15(2021)	Accredited only for method E	2026-08-03
		7	5% sulfuric acid test	Test method for stainless steels in 5% sulfuric acid GB/T 4334.6- 2015		2026-08-03
		8	Pitting corrosion	Corrosion of metals and alloys - Corrosion test for pitting corrosion resistance of stainless steels in the ferric chloride solution GB/T 17897-2016		2026-08-03
				Standard Test Methods for Pitting and Crevice Corrosion Resistance of Stainless Steels and Related Alloys by Use of	Accredited only for:	2026-08-03



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		№	Item/ Parameter			
				Ferric Chloride Solution ASTM G48-11(2020)e1	method A。 Historical standard, limited to specific client contract.	
				Petroleum, petrochemical and natural gas industries - Test methods for quality control of microstructure of ferritic/austenitic(duplex) stainless steels ISO 17781:2017(E) 5.5		2026-08-03
				Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels ASTM A923-25	Accredited only for: method C	2026-08-03
				Standard Test Method for Detecting Detrimental Phases in Lean Duplex Austenitic/Ferritic Stainless Steels ASTM A1084-15a(2022)	Accredited only for: Test Method C	2026-08-03
		9	Neutral salt spray test	Corrosion tests in artificial atmospheres - Salt spray tests GB/T 10125-2021		2026-08-03
		10	Pitting potential	Corrosion of metals and alloys—Method of measuring the pitting potential for stainless steels by potentiodynamic control in sodium chloride solution GB/T 17899-2023		2026-08-03
		11	Crevice corrosion	Ferric chloride crevice corrosion test of stainless steels GB/T 10127-2002		2026-08-03
		12	Intermetallic phase	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels ASTM A923-25	Accredited only for: method A	2026-08-03
				Standard Test Method for Detecting Detrimental Phases in Lean Duplex Austenitic/Ferritic Stainless Steels' ASTM A1084-	Test Method A	2026-08-03



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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
				15a(2022)		
				Petroleum, petrochemical and natural gas industries - Test methods for quality control of microstructure of ferritic/austenitic(duplex) stainless steels ISO 17781:2017(E) 5.2		2026-08-03
		13	Stress corrosion	Corrosion of metals and alloys—Methodology for determining the resistance of metals to stress corrosion cracking using the four-point bend method GB/T 40403-2021		2026-08-03
5		1	Hole expanding test	Sheet metal formability and test methods-Part 4: Hole expanding test GB/T 15825.4-2008		2026-08-03
		2	Drawing and drawing load test	Sheet metal formability and test methods-Part 3 : Drawing and drawing load test GB/T 15825.3-2008		2026-08-03
		3	Earing test	Sheet metal formability and test methods-Part 7 : Earing test GB/T 15825.7-2008		2026-08-03
		4	Conical cup test	Sheet metal formability and test methods-Part 6 :Conical cup test GB/T 15825.6-2008		2026-08-03
		5	Erichsen cupping test	Metallic materials-Sheet and strip-Erichsen cupping test GB/T 4156-2020		2026-08-03



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