Testing Laboratory

Accreditation Certificate

Accreditation No.RTL00430

Kobe Material Testing Laboratory Co., Ltd.

47-13, Niijima, Harima-cho, Kako-gun, Hyogo, 675-0155 Japan

meets the following criteria. On the basis of this, Japan Accreditation Board (JAB) grants accreditation to the said testing laboratory.

Applicable accreditation criteria	:	JIS Q 17025:2018 (ISO/IEC 17025:2017)
Scope of accreditation	:	**Mechanical testing,** **Chemical testing** (As described in the appendix)
Premises covered by accreditation	:	As described in the appendix.
Expiry date of accreditation	:	June 30, 2022

Revised (28)	October 1, 2020
Renewed (6)	April 23, 2018
Initial accreditation	June 5, 1998

Y. Iizuka, President

Japan Accreditation Board

Issue No. : RTL00430-20201001

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Type of Laboratory	Testing Laboratory
Name of Laboratory	Kobe Material Testing Laboratory Co., Ltd.
Address	47-13, Niijima, Harima-cho, Kako-gun, Hyogo, 675-0155 Japan

1) Premises on which testing activities are performed

Name of Premises	Harima Workshop	
Address of Premises	Postal code	675-0155
	Address	47-13, Niijima, Harima-cho, Kako-gun, Hyogo, Japan
Testing service at permanent facilities or on site testing service		☑ Testing service at permanent facilities ☐ On site testing service

Scope of Accreditation

FIELD	M25 Mechanical Testing
CODE OF CIT*1	M25.A1.1
NAME OF CIT	Iron and Steel/Non-ferrous Metal

*1 CIT: Classification of Item to be Tested
*2 TCT: Technical Classification of Test

CODE & NAME OF TCT*2	TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED)	TEST CONDITION etc.
B13.1 Tensile Testing	JIS Z 2241	Test force: Under 1000 kN
	ASTM E8/E8M	Test force: Under 100 kN
	ISO 6892-1	Test temperature: 23±5 °C Test force: Under 1000 kN
	JIS G 0567, ISO 6892-2	Test temperature: 35 °C to 1100 °C, excl Test force: Under 100 kN
	EN 10002-5, ASTM E21	Test temperature: 100 °C to 900 °C, excl Test force: Under 100 kN
	ISO 6892-3	Test temperature: -150 °C to 10 °C Test force: Under 300 kN
	ISO 5178	Test temperature: -196 °C (cooled in liquid nitrogen),-150 °C to 1100 °C Test force: Under 300 kN
	JIS Z 3121, ISO 4136, EN 895	Test category: Tensile test Test temperature: 23±5 °C Test force: Under 1000 kN

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CODE & NAME OF TCT*2	TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED)	TEST CONDITION etc.
	ASTM B557	Test force: Under 100 kN Test temperature: 23±5 °C
	ASTM B557M	Test force: Under 100 kN Test temperature: 23±5 °C
B13.3.1 Bend testing	JIS Z 2248 ISO 7438	Press bend method Test temperature: 23±5 °C Test force: Under 1000 kN Thickness: 3 mm to 30 mm
	JIS Z 3122 ISO 5173	Test specimen: Side bend. Face bend. Root bend Test force: 1000 kN Thickness: 3 mm to 30 mm
	EN 910	Roller bend method Test specimen: Side bend. Face bend. Root bend Test temperature: 23±5 °C Test force: 1000 kN Thickness: 10 mm to 30 mm
B13.4.1 Charpy impact test	JIS Z 2242, EN 10045-1, ISO 148-1	Test temperature: -196 °C (cooled in liquid nitrogen),-130 °C to 150 °C K2 up to 300 J
	ASTM E23	Capacity: Up to 500 J Test temperature: -196 °C (cooled in Liquid nitrogen), -130 °C to 150 °C
B13.6.1 Brinell hardness test	JIS Z 2243-1, JIS Z 2243-2 ASTM E10	Brinell hardness: 20 HBW 10/500 to 650 HBW 10/3000
B13.6.2 Vickers hardness test	JIS Z 2244, ISO 6507-1, ISO 6507-4	Vickers hardness: 80 HV to 900 HV Test force: 0.9807 N to 9.807 N Test force: 49.03 N to 490.3 N
	ASTM E384 (except Knoop hardness)	Vickers hardness: 50 HV to 900 HV Test force: 0.9807 N to 9.807 N
	ASTM E92 (except Knoop hardness)	Vickers hardness: 80 HV to 900 HV Test force: 49.03 N to 490.3 N

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CODE & NAME OF TCT*2	TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED)	TEST CONDITION etc.
B13.6.3 Rockwell hardness test	JIS Z 2245	Rockwell hardness: 10 HRC to 70 HRC Rockwell hardness: 20 HRBW to 100 HRBW
	ASTM E18	Rockwell hardness: 10 HRC to 70 HRC Rockwell hardness: 20 HRBW to 100 HRBW
B13.5.1 Fracture toughness testing	JIS G 0564, ASTM E399	Test specimen: CT specimen Test temperature: Normal temperature Test force: Up to 300 kN
	ASTM E1820, ASTM E1921	Test specimen: CT specimen Test temperature: -165 °C to 800 °C Test force: Up to 300 kN
B13.5.2 Drop-Weight test	ASTM E208	Capacity: Up to 550 J Test temperature: -80 °C to 0 °C
B13.16.1 Tensile creep testing	JIS Z 2271, ASTM E139, ASTM E292	Test temperature: 100 °C to 1100 °C Test force: 0.5 kN to 30.0 kN
B2.1 Metallographic test	ASTM E3	
B2.1.1 Macroscopic examination	JIS G 0553, ASTM E 340, EN 1321, ISO 17639	
B2.1.2 Microscopic examination	ASTM E407, EN 1321 ISO 17639	
B2.1.3 Grain size determination	JIS G 0551, NF EN ISO 643 (Specimen adjustment: except heat treatment method) (Evaluation method: except counting method)	
	ASTM E112 (Specimen adjustment: except heat treatment method) (Evaluation method: except planimetric procedure)	

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	ASTM E930	
B2.1.4 Microscopic test for the non-metallic inclusions	JIS G 0555	
	ASTM E45 method A, method D	
B13.15.1 High-cycle fatigue testing	ASTM E466	Control waveform: Triangular wave, sine wave, trapezoidal wave Test temperature: Room temperature to 1150 °C Test force: Up to 200 kN
B13.15.2 Low-cycle fatigue testing	JIS Z 2279	Control waveform: Triangular wave, sine wave Test temperature: Room temperature to 1150 °C Test force: Up to 200 kN
	ASTM E606/E606M	Control waveform: Triangular wave, sine wave, trapezoidal wave Test temperature: Room temperature to 1150 °C Test force: Up to 200 kN
B13.15.6 Crack growth test	ISO 12108	Test specimen: CT, CCT specimens Propagation rate: 10-5 mm/cycle and over Crack length measuring method: Compliance method and measurement with 20x magnifier Test temperature: Room temperature to 900 °C (induction heating) Test force: Up to 70 kN
	ASTM E647	Test specimen: CT, MT specimens Propagation rate: 10-5 mm/cycle and over Crack length measuring method: Compliance method and measurement with 20x magnifier Test temperature: Room temperature to 900 °C (induction heating) Test force: Up to 70 kN

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Scope of Accreditation

FIELD	M25 Mechanical Testing
CODE OF CIT*1	M25.A1.2
NAME OF CIT	Fasteners

*1 CIT: Classification of Item to be Tested
*2 TCT: Technical Classification of Test

CODE & NAME OF TCT*2	PROPERTIES MEASURED	TEST METHOD STANDARD / STANDARD OPERATING PROCEDURE
B2.2.2 Determination of decarburized depth	JIS B 1051 (9.10.2) Microscopic Method	

Scope of Accreditation

FIELD	M25 Mechanical Testing
CODE OF CIT*1	M25.A2.1
NAME OF CIT	Plastics

*1 CIT: Classification of Item to be Tested
*2 TCT: Technical Classification of Test

CODE & NAME OF TCT*2	PROPERTIES MEASURED	TEST METHOD STANDARD / STANDARD OPERATING PROCEDURE
B13.1 Plastics Tensile Testing	JIS K 7161-1, JIS K 7161-2 (except Poisson's ratio)	Test specimen: Type 1A, Type 1B Test material: Applicable to JIS K 7162 Test temperature: 23±2 °C Test force: 4 N to 10 kN Strain rate: Under 400 %
B13.3.1 Plastics Bend testing	JIS K 7171	Test specimen: Test specimen recommended in 6.1.2 Test temperature: 23±2 °C Test force: 4 N to 10 kN
B13.4.1 Plastics Charpy impact test	JIS K 7111-1	Test specimen: Type 1 Hammer weight: 0.5, 1, 2, 4, 7.5, 15 (J) Test temperature: 23±2 °C Hammering direction: Edgewise
B13.4.2 Plastics Izod impact	JIS K 7110	Test specimen: Type 1 Hammer weight: 1, 2.75, 5.5, 11, 22 (J)

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CODE & NAME OF TCT*2	PROPERTIES MEASURED	TEST METHOD STANDARD / STANDARD OPERATING PROCEDURE
strength test		Test temperature: 23±2 °C
B13.6.3 Plastics Rockwell hardness test	JIS K 7202-2	Rockwell hardness: 50 HRR to 115 HRR Rockwell hardness: 50 HRM to 115 HRM Test temperature: 23±2 °C

Scope of Accreditation

FIELD	M25 Mechanical Testing
CODE OF CIT*1	M25.A13
NAME OF CIT	Composite Material

*1 CIT: Classification of Item to be Tested
*2 TCT: Technical Classification of Test

CODE & NAME OF TCT*2	PROPERTIES MEASURED	TEST METHOD STANDARD / STANDARD OPERATING PROCEDURE
B13.1 Tensile strength & elongation test	ASTM D3039/D3039M (except Poisson's Ratio , Transition Strain)	Test force: Under 100 kN Test temperature: -60 °C to 100 °C
B13.2.1 Uniaxial compression	SACMA SRM1R ASTM D6641/D6641M (except Poisson's Ratio)	Test force: Under 100 kN Test temperature: -60 °C to 100 °C
B13.8.2 Shear characteristic test	ASTM D2344/D2344M ASTM D3518/D3518M	Test force: Under 100 kN Test temperature: -60 °C to 100 °C

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1) Premises on which testing activities are performed

Name of Premises	Harima Workshop	
Address of Premises	Postal code	675-0155
	Address	47-13, Niijima, Harima-cho, Kako-gun, Hyogo, Japan
Testing service at permanent facilities or on site testing service		☑ Testing service at permanent facilities ☐ On site testing service

Scope of Accreditation

FIELD	M26 Chemical Testing
CODE OF CIT*1	M26.A1
NAME OF CIT	Metal、Material of metal、Matal Products

*1 CIT: Classification of Item to be Tested
*2 TCT: Technical Classification of Test

CODE & NAME OF TCT*2	PROPERTIES MEASURED	TEST METHOD STANDARD / STANDARD OPERATING PROCEDURE
B1.2 Volumetric analysis I (titration)	8.05 %≦Ni≦ 14.26 %	JIS G 1216 4.(2)
B1.2 Volumetric analysis I(Redox titration)	16.11 %≦Cr≦30.00 %	JIS G 1217 4. a)
B2.1 Absorptiometric analysis: Infrared spectrophotometric analysis	0.01 %≦C≦ 0.50 %	JIS G 1211-3 [except 8.4 a), b)]
	0.001%≦S≦ 0.30 %	JIS G 1215-4 (except 7.6.1, 7.6.2)
B2.1 Absorptiometric analysis: UV-visible spectroscopy	0.05 %≦Si≦1.00 %	JIS G 1212 4. (3)
	0.005 %≦P≦0.040 %	JIS G 1214 4. a)
	0.14 %≦Mn≦1.5 %	JIS G 1213 4. b)

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CODE & NAME OF TCT*2	PROPERTIES MEASURED	TEST METHOD STANDARD / STANDARD OPERATING PROCEDURE
B2.4 Emission Spectrochemical analysis: ICP-AES	0.01 %≦Mo≦0.48 %	JIS G 1258-1
	0.01 %≦Mn≦10.0 % 0.01 %≦Mo≦10.0 % 0.01 %≦Cu≦10.0 % 0.01 %≦Co≦10.0 % 0.01 %≦Nb≦10.0 % 0.01 %≦Ni≦10.0 % 0.01 %≦Cr≦10.0 %	JIS G 1258-2
	0.001 %≦B≦0.010 %	JIS G 1258-5
	0.01 %≦Al≦2.00 %	JIS G 1258-3* : Partially modified (Upper limit of quantitation range extended)
B4.3 Thermal conductivity measurement : Thermal conductivity method	0.010 %≦N≦0.045 %	JIS G 1228 4. d)

Scope of Accreditation

FIELD	M26 Chemical Testing
CODE OF CIT*1	M26.A1
NAME OF CIT	Metal (Nickel alloy)

*1 CIT: Classification of Item to be Tested
*2 TCT: Technical Classification of Test

CODE & NAME OF TCT*2	PROPERTIES MEASURED	TEST METHOD STANDARD / STANDARD OPERATING PROCEDURE
B1.2 Volumetric analysis I (titration)	32.80%≦Ni≦73.43%	JIS G 1216 4.(2) * : Partially modified (Upper limit of quantitation range extended)
B1.2 Volumetric analysis I (Redox titration)	11.35 %≦Cr≦35.00 %	JIS H 1279 4. b) * : Partially modified (Upper limit of quantitation range extended)

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CODE & NAME OF TCT*2	PROPERTIES MEASURED	TEST METHOD STANDARD / STANDARD OPERATING PROCEDURE
B2.1 Absorptiometric analysis: Infrared spectrophotometric analysis	0.004 %≦C≦0.082 %	JIS H 1275 4. e)
	0.001 %≦S≦0.012 %	JIS H 1277 4. d)
B2.1 Absorptiometric analysis: UV-visible spectroscopy	0.05 %≦Si≦1.00 %	JIS H 1276 4. b)
	0.005 %≦P≦0.030 %	JIS H 1278 4. a)
B2.4 Emission Spectrochemical analysis: ICP-AES	0.01 %≦Nb≦5.00 % 0.01 %≦Ta≦1.00 %	JIS H 1289
	0.01 %≦Mn≦5.00 % 0.01 %≦Mo≦1.00 % 0.01 %≦Cu≦1.00 % 0.01 %≦Co≦1.00 % 0.01 %≦Ti≦5.00 % 0.01 %≦Al≦5.00 % 1.00 %≦Fe≦20.0 % 0.001 %≦B≦0.020 %	JIS H 1289* : Partially modified (Measurement components added)
B4.3 Thermal conductivity measurement : Thermal conductivity method	0.006 %≦N≦0.073 %	JIS G 1228 4. d)