



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            | : <b>Mechanical testing,</b><br><b>Chemical testing</b><br>(As described in the appendix) |
| Premises covered by accreditation | : As described in the appendix.   |
| Expiry date of accreditation      | : June 30, 2026   |

|                       |               |
|-----------------------|---------------|
| Revised               | April 3, 2024 |
| Renewed               | July 1, 2022  |
| Initial accreditation | June 5, 1998  |

Y. Iizuka, President

**Japan Accreditation Board**



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## Appendix

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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 | <input checked="" type="checkbox"/> Testing service at permanent facilities<br><input type="checkbox"/> 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<br>Tensile Testing | JIS Z 2241   | Test force: Under 1000 kN   |
|                          | ASTM E8/E8M<br>ASTM E8/E8M - 98  | Test force: Under 500 kN  |
|                          | ISO 6892-1<br>ISO 6892-1:2016  | Test temperature: 23±5 °C<br>Test force: Under 1000 kN  |
|                          | JIS G 0567, ISO 6892-2,<br>ISO 6892-2:2011   | Test temperature:<br>35 °C or more, 1100 °C or less,<br>Test force: Under : 300 kN                                |
|                          | EN 10002-5:1991, ASTM E21  | Test temperature:<br>35 °C or more, less than 900 °C<br>Test force: Under 300 kN                                  |
|                          | ISO 6892-3   | Test temperature:<br>Liquid nitrogen temperature,<br>-150 °C or more, less than 10 °C<br>Test force: Under 300 kN |
|                          | ISO 5178   | Test temperature:<br>Liquid nitrogen temperature,-<br>150 °C or more, 1100 °C or less<br>Test force: Under 300 kN |



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

| CODE & NAME OF TCT*2             | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc.   |
|----------------------------------|--|---|
|                                  | JIS Z 3121, ISO 4136<br>EN 895:1995  | Test category: Tensile test<br>Test temperature: 23±5 °C<br>Test force: Under 1000 kN   |
|                                  | ASTM B557  | Test force: Under 500 kN<br>Test temperature: 23±5 °C   |
|                                  | ASTM B557M   | Test force: Under 500 kN<br>Test temperature: 23±5 °C   |
| B13.3.1<br>Bend testing          | JIS Z 2248<br>ISO 7438   | Press bend method<br>Test temperature: 23±5 °C<br>Test force: Under 1000 kN<br>Thickness: 3 mm or more, 30 mm or less   |
|                                  | JIS Z 3122<br>ISO 5173   | Test specimen: Side bend. Face bend. Root bend<br>Test force: Under 1000 kN<br>Thickness: 3 mm or more, 30 mm or less   |
|                                  | EN 910:1996  | Roller bend method<br>Test specimen: Side bend. Face bend. Root bend<br>Test temperature: 23±5 °C<br>Test force: Under 1000 kN<br>Thickness: 10 mm or more, 30 mm or less |
| B13.4.1<br>Charpy impact test    | JIS Z 2242, ISO 148-1<br>EN 10045-1:1990   | Test temperature:<br>Liquid nitrogen temperature, -130 °C or more, 900 °C or less<br>K2 up to 300 J   |
|                                  | ASTM E23   | Capacity: Up to 500 J<br>Test temperature:<br>Liquid nitrogen temperature, -130 °C or more, 900 °C or less  |
| B13.6.1<br>Brinell hardness test | JIS Z 2243-1, JIS Z 2243-2<br>ASTM E10   | Brinell hardness:<br>20 HBW 10/500 or more, 650 HBW 10/3000 or less<br>95.50HBW 5/750 or more, 650HBW 5/750 or less   |





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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 |

| CODE & NAME OF TCT*2                  | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc.  |
|---------------------------------------|--|--|
| B13.6.2<br>Vickers hardness test      | JIS Z 2244-1, JIS Z 2244-2<br>ISO 6507-1, ISO 6507-4                                   | Vickers hardness:<br>80 HV or more, 900 HV or less<br>Test force: 0.9807 N or more 9.807 N or less<br>Test force: 49.03 N or more, 490.3 N or less |
|                                       | ASTM E384<br>(except Knoop hardness)   | Vickers hardness: 50 HV or more, 900 HV or less<br>Test force: 0.9807 N or more, 9.807 N or less   |
|                                       | ASTM E92<br>(except Knoop hardness)  | Vickers hardness: 80 HV or more, 900 HV or less<br>Test force: 49.03 N or more, 490.3 N or less  |
| B13.6.3<br>Rockwell hardness test     | JIS Z 2245   | Rockwell hardness: 10 HRC or more, 70 HRC or less<br>Rockwell hardness: 20 HRBW or more, 100 HRBW or less  |
|                                       | ASTM E18   | Rockwell hardness: 20 HRC or more, 65 HRC or less  |
| B13.5.1<br>Fracture toughness testing | JIS G 0564:1999, ASTM E399   | Test specimen: CT specimen<br>Test temperature: Liquid nitrogen temperature, -150 °C or more, less than 800 °C<br>Test force: Up to 300 kN         |
|                                       | ASTM E1820, ASTM E1921   | Test specimen: CT specimen<br>Test temperature:<br>Liquid nitrogen temperature, -150 °C or more, less than 800 °C<br>Test force: Up to 300 kN      |
| B13.5.2<br>Drop-Weight test           | ASTM E208  | Test specimen: P-2, P-3<br>Capacity: Up to 550 J<br>Test temperature: -100 °C or more, less than 20 °C   |



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

| CODE & NAME OF TCT*2                                       | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED)  | TEST CONDITION etc.   |
|--|---|---|
| B13.16.1<br>Tensile creep testing                          | JIS Z 2271, ASTM E139, ASTM E292  | Test temperature: 100 °C or more, 1100 °C or less<br>Test force: 0.5 kN or more, 30.0 kN or less  |
| B2.1<br>Metallographic test                                | ASTM E3   |   |
| B2.1.1<br>Macroscopic examination                          | JIS G 0553, ASTM E 340, ISO 17639, EN 1321:1996   |   |
| B2.1.2<br>Microscopic examination                          | ASTM E407, ISO 17639<br>EN 1321:1996  |   |
| B2.1.3<br>Grain size determination                         | JIS G 0551, ISO 643<br>(Specimen adjustment: except heat treatment method)<br>(Evaluation method: except counting method)<br>ISO 643:2012<br>(Specimen adjustment: except heat treatment method)<br>(Evaluation method: except counting method) |   |
|  | ASTM E112<br>(Specimen adjustment: except heat treatment method)<br>(Evaluation method: except planimetric procedure)   |   |
|  | ASTM E930   |   |
| B2.1.4<br>Microscopic test for the non-metallic inclusions | JIS G 0555<br>ASTM E45 method A, method D   |   |
| B13.15.1<br>High-cycle fatigue testing                     | ASTM E466 Modified (Applied to high temperature test)   | Control waveform: Triangular wave, sine wave, trapezoidal wave<br>Test temperature: Room temperature or more, 1150 °C or less<br>Test force: Up to 200 kN |
| B13.15.2<br>Low-cycle fatigue                              | JIS Z 2279  | Control waveform: Triangular wave, sine wave  |



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

| CODE & NAME OF TCT*2          | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc.  |
|-------------------------------|--|--|
| testing                       |  | Test temperature:<br>Room temperature or more,<br>1150 °C or less<br>Test force: Up to 200 kN  |
|                               | ASTM E606/E606M  | Control waveform: Triangular wave, sine wave, trapezoidal wave<br>Test temperature:<br>Room temperature or more,<br>1150 °C or less<br>Test force: Up to 200 kN  |
| B13.15.6<br>Crack growth test | ISO 12108  | Test specimen: CT, CCT specimens<br>Propagation rate: 10-5 mm/cycle and over<br>Crack length measuring method:<br>Compliance method and measurement with 20x magnifier<br>Test temperature:<br>Room temperature or more, 900 °C or less (induction heating)<br>Test force: Up to 80 kN |
|                               | ASTM E647  | Test specimen: CT, MT specimens<br>Propagation rate: 10-5 mm/cycle and over<br>Crack length measuring method:<br>Compliance method and measurement with 20x magnifier<br>Test temperature:<br>Room temperature or more, 900 °C or less (induction heating)<br>Test force: Up to 80 kN  |





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

### 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                          | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc. |
|---|--|---------------------|
| B2.2.2<br>Determination of decarburized depth | JIS B 1051 (9.10.2)<br>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                   | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc.   |
|--|--|---|
| B13.1<br>Plastics Tensile Testing      | JIS K 7161-1, JIS K 7161-2<br>(except Poisson's ratio)                                 | Test specimen: Type 1A, Type 1B<br>Test material: Applicable to JIS K 7162<br>Test temperature: 23±2 °C<br>Test force: 4 N or more, 10 kN or less<br>Strain rate: Under 400 % |
| B13.3.1<br>Plastics Bend testing       | JIS K 7171   | Test specimen: Test specimen recommended in 6.1.2<br>Test temperature: 23±2 °C<br>Test force: 4 N or more, 10 kN or less  |
| B13.4.1<br>Plastics Charpy impact test | JIS K 7111-1   | Test specimen: Type 1<br>Hammer weight: 0.5, 1, 2, 4, 7.5, 15 (J)<br>Test temperature: 23±2 °C<br>Hammering direction: Edgewise   |



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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 |

| CODE & NAME OF TCT*2                          | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc.   |
|---|--|---|
| B13.4.2<br>Plastics Izod impact strength test | JIS K 7110   | Test specimen: Type 1<br>Hammer weight: 1, 2.75, 5.5, 11, 22 (J)<br>Test temperature: 23±2 °C   |
| B13.6.3<br>Plastics Rockwell hardness test    | JIS K 7202-2   | Rockwell hardness:<br>50 HRR or more, 115 HRR or less<br>Rockwell hardness:<br>50 HRM or more, 115 HRM or less<br>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                        | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc.   |
|---|--|---|
| B13.1<br>Tensile strength & elongation test | ASTM D3039/D3039M<br>(except Poisson's Ratio , Transition Strain)                      | Test force: Under 100 kN<br>Test temperature:<br>-60 °C or more, 100 °C or less |
| B13.2.1<br>Uniaxial compression             | SACMA SRM1R<br>ASTM D6641/D6641M<br>(except Poisson's Ratio )                          | Test force: Under 100 kN<br>Test temperature:<br>-60 °C or more, 100 °C or less |
| B13.8.2<br>Shear characteristic test        | ASTM D2344/D2344M<br>ASTM D3518/D3518M   | Test force: Under 100 kN<br>Test temperature:<br>-60 °C or more, 100 °C or less |





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

## Scope of Accreditation

|               |   |
|---------------|---|
| FIELD         | M26 Chemical Testing                        |
| CODE OF CIT*1 | M26.A1                                      |
| NAME OF CIT   | Metal, Material of metal,<br>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<br>Volumetric analysis I<br>(titration)                                       | Ni<br>Measurement Range<br>8.05 % or more, 14.26 % or less  | JIS G 1216-2  |
| B1.2<br>Volumetric analysis I<br>(Redox titration)                                 | Cr<br>Measurement Range<br>16.11 % or more, 30.00 % or less | JIS G 1217 4. a)                                    |
| B2.1<br>Absorptiometric<br>analysis:<br>Infrared<br>spectrophotometric<br>analysis | C<br>Measurement Range<br>0.01 % or more, 0.50 % or less    | JIS G 1211-3 [except 8.2 a), c)]                    |
|  | S<br>Measurement Range<br>0.001 % or more, 0.30 % or less   | JIS G 1215-4 (except 10.1, 10.2)                    |
| B2.1<br>Absorptiometric<br>analysis:<br>UV-visible<br>spectroscopy                 | Si<br>Measurement Range<br>0.05 % or more, 1.00 % or less   | JIS G 1212-2  |
|  | P<br>Measurement Range<br>0.005 % or more, 0.040 % or less  | JIS G 1214 4. a)                                    |
|  | Mn<br>Measurement Range<br>0.14 % or more, 1.5 % or less    | JIS G 1213 4. b)                                    |



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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 |

| CODE & NAME OF TCT*2  | PROPERTIES MEASURED   | TEST METHOD STANDARD / STANDARD OPERATING PROCEDURE  |
|---|---|--|
| B2.4<br>Emission Spectrochemical analysis:<br>ICP-AES                     | Mo<br>Measurement Range<br>0.01 % or more, 0.48 % or less                         | JIS G 1258-1   |
|   | Mn, Mo, Cu, Co, Nb, Ni, Cr<br>Measurement Range<br>0.01 % or more, 10.0 % or less | JIS G 1258-2*: Partially modified.<br>(The upper limit of quantification range for Nb expanded.) |
|   | B<br>Measurement Range<br>0.001 % or more, 0.010 % or less                        | JIS G 1258-5   |
|   | Al<br>Measurement Range<br>0.01 % or more, 2.00 % or less                         | JIS G 1258-3* : Partially modified<br>(Upper limit of quantitation range extended)               |
| B4.3<br>Thermal conductivity measurement :<br>Thermal conductivity method | N<br>Measurement Range<br>0.010 % or more, 0.20 % or less                         | JIS G 1228-3* : Partially modified<br>(Upper limit of quantitation range extended)               |

## 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<br>Volumetric analysis I (titration)       | Ni<br>Measurement Range<br>32.80 % or more, 73.43% or less | JIS G 1216-2 * : Partially modified<br>(Target material and quantitation range extended) |
| B1.2<br>Volumetric analysis I (Redox titration) | Cr<br>Measurement Range<br>11.35 % or more, 35.00% or less | JIS H 1279 4. b) * : Partially modified<br>(Upper limit of quantitation range extended)  |



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

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





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

## 1) Premises on which testing activities are performed

|  |   |  |
|--|---|--|
| Name of Premises   | Hitachi Minami Laboratory, Ibaraki Workshop   |  |
| Address of Premises  | Postal code   | 319-1231                                       |
|  | Address   | 1270-60, Tome-cho, Hitachi-shi, Ibaraki, Japan |
| Testing service at permanent facilities or on site testing service | <input checked="" type="checkbox"/> Testing service at permanent facilities<br><input type="checkbox"/> 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<br>Tensile Testing | JIS Z 2241, ASTM E8/E8M  | Test force: Under 1000 kN   |
|                          | JIS G 0567   | Test temperature:<br>35 °C or more, 1100 °C or less<br>Test force: Under 300 kN       |
|                          | ASTM E21   | Test temperature:<br>35 °C or more, less than 900 °C<br>Test force: Under 300 kN      |
|                          | JIS Z 3121   | Test category: Tensile test<br>Test temperature: 23±5 °C<br>Test force: Under 1000 kN |
|                          | ASTM B557  | Test force: Under 300 kN<br>Test temperature: 23±5 °C                                 |
|                          | ASTM B557M   | Test force: Under 300 kN<br>Test temperature: 23±5 °C                                 |
|                          | ISO 6892-1<br>ISO 6892-1:2016  | Test temperature: 23±5 °C<br>Test force: Under 1000 kN                                |
|                          | ISO 6892-2<br>ISO 6892-2:2011  | Test temperature: 35 °C or more,<br>1100 °C or less,<br>Test force: Under 100 kN      |



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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 |

| CODE & NAME OF TCT*2                  | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc.   |
|---------------------------------------|--|---|
| B13.3.1<br>Bend testing               | JIS Z 3122   | Test specimen: Side bend. Face bend.<br>Root bend<br>Test force: Under 1000 kN<br>Thickness: 3 mm or more., 30 mm or less                       |
| B13.4.1<br>Charpy impact test         | JIS Z 2242, ISO 148-1<br>ISO148-1:2009   | Test temperature:<br>-196 °C(cooled in liquid nitrogen),<br>-130 °C or more, less than 900 °C<br>K2 : up to 500 J                               |
| B13.6.1<br>Brinell hardness test      | JIS Z 2243-1, JIS Z 2243-2<br>ASTM E10   | Brinell hardness:<br>20 HBW 10/500 or more, 650 HBW<br>10/3000 or less,<br>95.50HBW 5/750 or more, 650 HBW<br>5/750 or less                     |
| B13.6.2<br>Vickers hardness test      | JIS Z 2244-1, JIS Z 2244-2<br>ASTM E92<br>(except Knoop hardness)                      | Vickers hardness:<br>80 HV or more, 900 HV or less<br>Test force: 0.9807 or more, 9.807 or less<br>49.03 N or more, 490.3 N or less             |
| B13.6.3<br>Rockwell hardness test     | JIS Z 2245   | Rockwell hardness:<br>10 HRC or more, 70 HRC or less<br>Rockwell hardness:<br>20 HRBW or more, 100 HRBW or less                                 |
|                                       | ASTM E18   | Rockwell hardness:<br>20 HRC or more, 65 HRC or less  |
| B13.5.1<br>Fracture toughness testing | ASTM E399  | Test specimen: CT specimen<br>Test temperature:<br>Liquid nitrogen temperature, -150°C<br>or more, less than 800 °C<br>Test force: Up to 300 kN |
|                                       | ASTM E1820, ASTM E1921   | Test specimen: CT specimen<br>Test temperature:<br>Liquid nitrogen temperature, -150°C<br>or more, less than 800 °C<br>Test force: Up to 300 kN |
| B2.1<br>Metallographic test           | ASTM E3  |   |



Accreditation No.

RTL00430

# Accreditation Certificate

## Appendix

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

| CODE & NAME OF TCT*2                                       | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED)  | TEST CONDITION etc.  |
|--|---|--|
| B2.1.1<br>Macroscopic examination                          | JIS G 0553, ASTM E 340,<br>ISO 17639, EN 1321:1996  |  |
| B2.1.2<br>Microscopic examination                          | ASTM E407, ISO 17639<br>EN 1321:1996  |  |
| B2.1.3<br>Grain size determination                         | JIS G 0551, NF EN ISO 643<br>(Specimen adjustment: except heat treatment method)<br>(Evaluation method: except counting method) |  |
|  | ASTM E112<br>(Specimen adjustment: except heat treatment method)<br>(Evaluation method: except planimetric procedure)           |  |
| B2.1.4<br>Microscopic test for the non-metallic inclusions | JIS G 0555  |  |
|  | ASTM E45 method A, method D   |  |
| B13.15.1<br>High-cycle fatigue testing                     | ASTM E466 *Partially changed: The test temperature was changed from room temperature to include high temperature range.         | Control waveform: Triangular wave, sine wave, trapezoidal wave<br>Test temperature: Room temperature or more, 1150 °C or less<br>Test force: Up to 80 kN |
| B13.15.2<br>Low-cycle fatigue testing                      | JIS Z 2279  | Control waveform: Triangular wave, sine wave<br>Test temperature: Room temperature or more, 1150 °C or less<br>Test force: Up to 80 kN                   |
|  | ASTM E606/E606M   | Control waveform: Triangular wave, sine wave, trapezoidal wave<br>Test temperature: Room temperature or more, 1150 °C or less<br>Test force: Up to 80 kN |





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|-------------------|----------|
| Accreditation No. | RTL00430 |
|-------------------|----------|

# Accreditation Certificate

## Appendix

|                    |   |
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| Name of Laboratory | Kobe Material Testing Laboratory Co., Ltd.                  |
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| CODE & NAME OF TCT*2          | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc.  |
|-------------------------------|--|--|
| B13.15.6<br>Crack growth test | ISO 12108<br>ASTM E647   | Test specimen: CT, CCT specimens<br>Propagation rate: 10-5 mm/cycle or more<br>Crack length measuring method:<br>Compliance method and measurement with 20x magnifier<br>Test temperature: Room temperature or more, 900 °C or less (induction heating)<br>Test force: Up to 80 kN |

### 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                          | TEST METHOD STANDARD OR STANDARD OPERATING PROCEDURE (SECTION NO. LIMITED OR EXCLUDED) | TEST CONDITION etc. |
|---|--|---------------------|
| B2.2.2<br>Determination of decarburized depth | JIS B 1051 (9.10.2)<br>Microscopic Method  |                     |

|  |
|--|
| (Notes on Accreditation Certificate)<br>The laboratory is only accredited for laboratory activities outlined within the methods listed above. Reference to any other activity within these standards, such as risk management or risk assessment, does not fall within the laboratory's accredited capabilities. |
| When version information of standards or methods are not identified in the scope, laboratories shall adapt to use the current version of such standards within six months at latest from the issued date of current version.   |
| Notes for EMC test laboratory for FCC<br>Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website ( <a href="https://apps.fcc.gov/oetcf/eas/">https://apps.fcc.gov/oetcf/eas/</a> ) for a listing of FCC approved laboratories.                            |