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Titanium and titanium alloys—Bars

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by The Japan Titanium Society (JTS)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS H 4650:2012** is replaced with this Standard.

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Patent registration number	Title of invention	Patent holder	Expiration date
3916088	Titanium alloy for corrosion-resistant material	NIPPON STEEL & SUMITOMO METAL CORPORATION	2025-12-28
3967515	Titanium alloy material for muffler and muffler	Kobe Steel, Ltd.	2020-02-16
4125560	Titanium alloy superior in hydrogen absorption resistance	Kobe Steel, Ltd.	2022-08-07

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Titanium and titanium alloys—Bars

1 Scope

This Japanese Industrial Standard specifies bars of titanium and titanium alloys (hereafter referred to as “bars”). It is applicable to bars with square, rectangular and regular hexagonal sections as well as those with circular section. Bars with rectangular section, to which this Standard applies, have a thickness exceeding one-tenth of the width.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

- JIS H 0321 *General rules for inspection of non-ferrous metal materials*
- JIS H 1610 *Titanium and titanium alloys—Sampling methods*
- JIS H 1612 *Methods for determination of nitrogen in titanium and titanium alloys*
- JIS H 1614 *Methods for determination of iron in titanium and titanium alloys*
- JIS H 1617 *Methods for determination of carbon in titanium and titanium alloys*
- JIS H 1619 *Titanium and titanium alloys—Determination of hydrogen content*
- JIS H 1620 *Methods for determination of oxygen in titanium and titanium alloys*
- JIS H 1621 *Methods for determination of palladium in titanium alloys*
- JIS H 1622 *Titanium alloys—Methods for determination of aluminium*
- JIS H 1624 *Titanium alloys—Method for determination of vanadium*
- JIS H 1625 *Titanium alloy—Method for determination of lanthanum, cerium, praseodymium and neodymium*
- JIS H 1626 *Titanium alloys—Methods for determination of sulfur*
- JIS H 1630 *Method for atomic emission spectrometric analysis of titanium*
- JIS H 1631 *Titanium alloys—Method for X-ray fluorescence spectrometric analysis*
- JIS H 1632-2 *Titanium—ICP atomic emission spectrometry—Part 2: Determination of palladium, manganese, iron, magnesium, silicon, aluminium, vanadium, nickel, chromium, tin, copper, molybdenum, zirconium, niobium, tantalum, cobalt and yttrium*
- JIS H 4670 *Titanium and titanium alloys—Wires*
- JIS Z 2241 *Metallic materials—Tensile testing—Method of test at room temperature*
- JIS Z 2243 *Brinell hardness test—Test method*
- JIS Z 2244 *Vickers hardness test—Test method*

3 Terms and definitions

For the purpose of this Standard, the terms and definitions given in **JIS H 4670**, and the following apply.

3.1 bar

product which has been hot- or cold-worked into a bar (straight) shape and been cut to a specified length

NOTE 1 Hot-worked bars are manufactured by means of hot rolling, hot forging or hot swaging, including those obtained by straightening wire rods and then by cutting to a specified length.

NOTE 2 Cold-worked bars are manufactured by means of cold rolling, cold drawing or cold swaging, including those obtained by straightening wire rods and then by cutting to a specified length.

3.2 diameter

diameter of a bar with circular section

3.3 thickness

length of the short side of a bar with rectangular section

3.4 width

length of the long side of a bar with rectangular section

3.5 width across flats

distance between the opposite sides of a bar with square or regular hexagonal section

4 Classification, finishing methods, symbols, and applicable dimensions

The classification and finishing method of bars and their symbols shall be as given in Table 1. The applicable dimensions (diameter, thickness or width across flats) shall be as given in Table 2.

Representative dimensions of bars with circular section are shown in Annex A for reference.