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(HPI)

Titanium clad steels

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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 High Pressure Institute of Japan (HPI) 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 G 3603 : 1992** is replaced with this Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

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In the event of any doubts arising as to the contents,
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Titanium clad steels

1 Scope This Japanese Industrial Standard specifies the clad steels with titanium to be used for pressure vessels, boilers, nuclear reactors, storage tanks and the like.

2 Normative references The standards listed in attached table 1 contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) shall be applied.

3 Types and symbols The types and symbols of the clad steels shall be classified depending on the manufacturing methods and application as given in table 1.

Table 1 Types and symbols

Type			Symbol	Remarks
Rolled clad steels	Rolled clad steels	Class 1	R1	Class 1: To be designed as reinforcing metals including cladding metals or for special purposes. Examples for special purposes are those intended for use at high temperature, etc. or cases to be subjected to strict processing in the manufacture of some structures. Class 2: Other clad steels than Class 1. For example, those designed as corrosion allowances, or those to be used in place of linings.
		Class 2	R2	
	Explosive welded and rolled clad steels	Class 1	BR1	
		Class 2	BR2	
Explosive welded clad steels		Class 1	B1	
		Class 2	B2	

4 Mechanical properties The tensile strength, elongation, bending strength and shearing strength of the clad steel shall be as given in table 2, when subjected to the tests in clause 11.

Table 2 Mechanical properties

Tensile strength N/mm ²	Elongation %	Bending characteristics			Shearing strength ⁽⁵⁾ N/mm ²
		Bend angle	Inside radius	Quality	
$\sigma_B^{(1) (2)}$ or over	The standardized values of base metal or cladding metal, whichever is the smaller ⁽³⁾ .	180°	For the face bend, the specification for the cladding metal shall apply ⁽⁴⁾ . For the root bend, the specification for the base metal shall apply ⁽⁴⁾ . However, where the inside radius in the specification for base metal is less than once the overall thickness, it shall be considered to be once.	The outside of the bend portion shall be free from cracks.	140 or over

Notes (1) The lower specification limit value σ_B of the tensile strength of clad steels shall be calculated from the following formula: