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**Carbon steel tubes for boiler and
heat exchanger**

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In the event of any doubts arising as to the contents,
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Foreword

This Japanese Industrial Standard has been 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 Iron and Steel Federation (JISF) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (**JIS G 3461:2012**), which has been technically revised.

However, **JIS G 3461:2012** may be applied in the **JIS** mark certification based on the relevant provisions of Article 30, paragraph (1), etc. of the Industrial Standardization Act until 19 November 2020.

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NOTE Based on Article 9 of the Supplementary Provisions to the Unfair Competition Prevention Act etc., any submission of proposal, or employment of procedures such as deliberation by the Japanese Industrial Standards Committee under the previous Industrial Standardization Act shall be deemed to have been conducted pursuant to the provision of Article 12, paragraph (1) of the revised Industrial Standardization Act.

Carbon steel tubes for boiler and heat exchanger

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 9329-2:1997**, Edition 1, and **ISO 9330-2:1997**, Edition 1, with some modifications of the technical contents.

In addition to the specification items in the main body, the supplementary quality requirements to be applied upon agreement between the purchaser and the manufacturer, and the requirements for U-bent tubes that are applied when specified by the purchaser, are given in Annex JA and Annex JB, respectively. The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standards. A list of modifications with the explanations is given in Annex JC.

1 Scope

This Standard specifies requirements for the carbon steel tubes (hereafter referred to as tubes) used for exchanging heat between the inside and outside of the tube, such as water tubes, smoke tubes, superheater tubes and air preheater tubes, etc. of boilers, and heat exchanger tubes, condenser tubes and catalyser tubes, etc. used in chemical and petroleum industries. It is not applicable to the steel tubes for fired heater and steel heat exchanger tubes for low temperature service.

This Standard is generally applicable to tubes of outside diameters 15.9 mm to 139.8 mm.

NOTE The International Standards corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 9329-2:1997 *Seamless steel tubes for pressure purposes—Technical delivery conditions—Part 2: Unalloyed and alloyed steels with specified elevated temperature properties*

ISO 9330-2:1997 *Welded steel tubes for pressure purposes—Technical delivery conditions—Part 2: Electric resistance and induction welded unalloyed and alloyed steel tubes with specified elevated temperature properties (overall evaluation: MOD)*

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

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.