



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS G 3461 : 2019

(JISF)

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

ICS 23.040.10;27.060.30;77.140.10;77.140.75

Reference number : JIS G 3461 : 2019 (E)

Date of Establishment: 1962-03-01

Date of Revision: 2019-11-20

Date of Public Notice in Official Gazette: 2019-11-20

Investigated by: Japanese Industrial Standards Committee
Standards Board for ISO area
Technical Committee on Metal and Inorganic
Materials

JIS G 3461:2019, First English edition published in 2020-04

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2020

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

AT

Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	1
3 Symbol of grade	2
4 Manufacturing method	2
5 Chemical composition	3
6 Mechanical properties	4
6.1 Tensile strength, yield point or proof stress, and elongation	4
6.2 Flattening resistance	4
6.3 Flaring property	5
6.4 Reverse flattening resistance	5
7 Hydraulic test characteristics or non-destructive test characteristics	5
8 Dimensions, unit masses and dimensional tolerances	6
8.1 Dimensions and unit masses	6
8.2 Dimensional tolerances	7
9 Appearance	9
10 Supplementary quality requirements and U-bent tubes	10
11 Tests	10
11.1 Chemical analysis	10
11.2 Mechanical tests	10
11.3 Hydraulic test or non-destructive test	12
12 Inspection and reinspection	13
12.1 Inspection	13
12.2 Reinspection	13
13 Marking	13
14 Report	14
Annex JA (normative) Supplementary quality requirements	15
Annex JB (normative) U-bent tubes	17
Annex JC (informative) Comparison table between JIS and corresponding International Standards	19

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.

This **JIS** document is protected by the Copyright Act.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, published patent application or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, published patent application or utility model rights.

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.