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**Carbon steels for machine structural use**

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## Contents

	Page
Introduction .....	1
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	2
4 Symbol of grade .....	2
5 Manufacturing method .....	2
6 Chemical composition .....	3
7 Shape, dimensions, mass and tolerances .....	4
7.1 Shape, dimensions and tolerances of hot-rolled steel bars and wire rods .....	4
7.2 Shape, dimensions, mass and tolerances of hot-rolled steel plates, sheets and strips .....	6
7.3 Shape, dimensions and tolerances of hot-rolled flat steels .....	7
7.4 Shape, dimensions and tolerances of hot-extruded sections .....	7
7.5 Shape, dimensions and tolerances of other steel products .....	7
8 Appearance .....	7
8.1 Appearance of hot-rolled steel bars and wire rods .....	7
8.2 Appearance of hot-rolled steel plates, sheets and strips .....	9
8.3 Appearance of hot-rolled flat steels .....	9
8.4 Appearance of hot-extruded sections .....	9
8.5 Appearance of other steel products .....	9
9 Tests .....	10
10 Inspection .....	10
11 Marking .....	10
12 Information to be supplied by the purchaser .....	11
13 Report .....	11
Annex JA (normative) Manufacturing method and quality requirements for hot-extruded sections .....	12
Annex JB (normative) Symbol of grade and chemical compositions applicable to steel plates, sheets and strips only .....	14
Annex JC (normative) Quality requirements for cold-rolled steel plates, sheets and strips .....	15
Annex JD (normative) Manufacturing method of steel plates and sheets .....	18

Annex JE (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 based on the provision of Article 14, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act in response to a proposal for revision of Japanese Industrial Standard with a draft being attached, submitted by The Japan Iron and Steel Federation (JISF), an accredited standards development organization. This edition replaces the previous edition (**JIS G 4051** : 2018), which has been technically revised.

However, **JIS G 4051** : 2018 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 21 May 2024.

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# Carbon steels for machine structural use

## Introduction

This Japanese Industrial Standard has been prepared based on **ISO 683-1** : 2016, Edition 3, and **ISO 683-3** : 2022, Edition 4, with some modifications of the technical contents.

Annex JA to Annex JD are unique to **JIS** and not given in the corresponding International Standard. The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JE.

## 1 Scope

This Standard specifies requirements for carbon steels for machine structural use (hereafter referred to as steel products) which are manufactured by hot rolling, hot forging and hot extruding. This Standard applies to steel products with a uniform cross-section, which are generally supplied for use after further processes such as forging and cutting, and heat treatment. This Standard is not applicable to steel tubes <sup>1)</sup>.

The manufacturing method and quality requirements for hot-extruded sections are given in Annex JA.

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

ISO 683-1 : 2016 *Heat-treatable steels, alloy steels and free-cutting steels — Part 1 : Non-alloy steels for quenching and tempering*

ISO 683-3 : 2022 *Heat-treatable steels, alloy steels and free-cutting steels — Part 3 : Case-hardening steels* (overall evaluation : MOD)

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

Note <sup>1)</sup> Steel tubes are covered in **JIS G 3478** [1].

## 2 Normative references

Part or all of the provisions of the following standards, 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 G 0201 *Glossary of terms used in iron and steel (Heat treatment)*

JIS G 0202 *Glossary of terms used in iron and steel (Testing)*

JIS G 0203 *Glossary of terms used in iron and steel (Products and quality)*