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Dimensions, mass and permissible variations of hot rolled steel sections

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

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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 Iron and Steel Federation (JISF) 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 3192** : 2005 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.

Dimensions, mass and permissible variations of hot rolled steel sections

Introduction

This Japanese Industrial Standard has been prepared based on the first editions of **ISO 657-1** and **ISO 657-2** published in 1989, the first edition of **ISO 657-5** published in 1976, the first editions of **ISO 657-11**, **ISO 657-15**, **ISO 657-16**, **ISO 657-18**, and **ISO 657-19** published in 1980, the first edition of **ISO 657-21** published in 1983 with some modifications of the technical contents. In the text of this Standard, conventional items specified in **JIS** have been described. In Annexes, corresponding International Standards are specified without modifying the technical contents.

The portions given sidelines or dotted underlines are the matters in which the contents of the original International Standards have been modified. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies the dimensions, mass and their tolerances of hot rolled steel sections as well as the appearance, shapes and permissible variations thereof. The scope of this Standard and the choice of specified items in this Standard shall be specified in respective product standards or upon the agreement between the purchaser and the supplier.

Unless otherwise specified, the text of this Standard shall be applied, however, Annexes may be applied in place of the text upon the agreement between the purchaser and the supplier.

NOTE : The International Standards corresponding to this Standard are as follows.

ISO 657-1 : 1989 *Hot-rolled steel sections—Part 1: Equal-leg angles—Dimensions*

ISO 657-2 : 1989 *Hot-rolled steel sections—Part 2: Unequal-leg angles—Dimensions*

ISO 657-5 : 1976 *Hot-rolled steel sections—Part 5: Equal-leg angles and unequal-leg angles—Tolerances for metric and inch series*

ISO 657-11 : 1980 *Hot-rolled steel sections—Part 11: Sloping flange channel sections (Metric series)—Dimensions and sectional properties*

ISO 657-15 : 1980 *Hot-rolled steel sections—Part 15: Sloping flange beam sections (Metric series)—Dimensions and sectional properties*

ISO 657-16 : 1980 *Hot-rolled steel sections—Part 16: Sloping flange column sections (metric series)—Dimensions and sectional properties*

ISO 657-18 : 1980 *Hot-rolled steel sections—Part 18: L sections for shipbuilding (metric series)—Dimensions, sectional properties and tolerances*

ISO 657-19 : 1980 *Hot-rolled steel sections—Part 19: Bulb flats (metric series)—Dimensions, sectional properties and tolerances*

ISO 657-21 : 1983 *Hot-rolled steel sections—Part 21: T-sections with equal depth and flange width—Dimensions*

(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**.

2 Normative reference

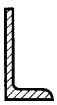
The following standard contains provisions which, through reference in this text, constitute provisions of this Standard. The most recent edition of the standard (including amendments) indicated below shall be applied.

JIS Z 8401 *Guide to the rounding of numbers*

3 Classification and sectional shape

The classification and sectional shapes of steel sections shall be as given in table 1.

Table 1 Classification and sectional shape of steel sections

Classification		Sectional shape diagram
Angles	Equal-legs	
	Unequal-legs	
	Unequal-legs and unequal thickness	
I-sections		
Channels		
Bulb flats		
T-sections		
H-sections		

4 Expression of dimensions

The dimensions of steel sections shall be expressed by each sectional dimension in millimetre and the length in metre. As a rule, dimensions shall be expressed by items among leg length (A, B), depth (H) and thickness (t, t_1, t_2) of each section shown in

table 3, table 4, table 7 to table 11 according to each sectional shape. The thickness of channels in table 11 may be expressed only by t_1 out of t_1 and t_2.

5 Standard dimensions

The standard dimensions shall be as follows.

a) The standard sectional dimensions of steel sections shall be as given in table 7 to table 14.

b) The standard lengths of steel sections shall be as given in table 2.

Table 2 Standard length

Unit : m

6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0

6 Shape and dimensional tolerances

The shape and dimensional tolerances of steel sections shall be as follows. The tolerances of steel sections other than those specified in **a**) and **b**) shall be upon the agreement between the purchaser and the supplier.

a) The shapes and dimensional tolerances of angles, I-sections, channels, bulb flats and T-sections shall be as given in table 3.

b) The shape and dimensional tolerances of H-sections shall be as given in table 4. The tolerances on sectional squareness, however, shall be applied on the request of the purchaser.

7 Mass

The mass of steel sections shall be as follows.

a) The mass of steel sections shall, as a rule, be expressed by theoretical mass in kilogramme.

b) The method for calculation of mass of the steel sections shall be in accordance with table 5 based on the nominal dimensions [1)].

c) The sectional area and unit mass of steel sections obtained in terms of the standard sectional dimension according to table 5 shall be as given in table 7 to table 14. Besides the sectional area and unit mass, table 7 to table 14 show the position of gravity centre, the geometrical moment of inertia, the radius of gyration of area and the modulus of sections for informative reference.

Note [1)] The nominal dimensions usually refer to only dimensions and are used in commercial trade. Here, “nominal dimensions” are used to avoid the confusion with the actually measured dimensions.

8 Tolerance on mass

When requested by the purchaser, the mass tolerances for steel sections shall be as given in table 6. In this case, the tolerances on mass shall be expressed by the quotient in percentage that the difference between the theoretical mass and actual mass is divided by the theoretical mass.