

JIS

JAPANESE INDUSTRIAL STANDARD

Brass Castings

JIS H 5101—1988

The text in Japanese of this English version
has been withdrawn.

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**In the event of any doubt arising,
the original Standard in Japanese is to be final authority.**

JAPANESE INDUSTRIAL STANDARD

J I S

Brass Castings

H 5101-1988

1. Scope

This Japanese Industrial Standard specifies the brass castings for general use, hereinafter referred to as the "castings".

Remark: The units and numerical values given in { } in this Standard are based on the International System of Units (SI) and are appended for informative reference.

Further, the traditional units and numerical values accompanied by the SI units and converted values in { } shall be replaced by the units and the numerical values given in the Appendix on January 1, 1991.

2. Classes and Symbols

The classes and symbols of the castings classified depending upon the chemical composition shall be as given in Table 1.

Applicable Standards:

JIS H 0321-General Rules for Inspection of Non-ferrous Metal Materials

JIS H 1051-Methods for Determination of Copper in Copper and Copper Alloys

JIS H 1052-Methods for Determination of Tin in Copper and Copper Alloys

JIS H 1053-Methods for Determination of Lead in Copper and Copper Alloys

JIS H 1054-Methods for Determination of Iron in Copper and Copper Alloys

JIS H 1056-Methods for Determination of Nickel in Copper and Copper Alloys

JIS H 1057-Methods for Determination of Aluminium in Copper and Copper Alloys

JIS H 1222-Methods for Chemical Analysis of Special Brass

JIS Z 2201-Test Pieces for Tensile Test for Metallic Materials

JIS Z 2241-Method of Tensile Test for Metallic Materials

Table 1. Classes and Symbols

Class	Symbol	Informative reference
		Features and examples of use
Class 1	YB _s C 1	Easy to be soldered. Used for glanges, electrical appliance parts, decorative articles, etc.
Class 2	YB _s C 2	Relatively easy to be cast. Used for electrical appliance parts, instrument parts, general machinery parts, etc.
Class 3	YB _s C 3	Superior to Class 2 in mechanical properties. Used for water supply and sanitary fittings, electrical appliance parts, metal fittings for buildings, general machinery parts, etc.

3. Quality

3.1 Appearance The castings shall be of uniform quality and free from such abnormalities as flaws, cracks or casting defects injurious to use.

3.2 Chemical Composition The chemical composition of the castings shall conform to Table 2.

Table 2. Chemical Composition

Unit: %							
Class	Cu	Zn	Pb	Sn	Al	Fe	Ni
Class 1	83.0 to 88.0	11.0 to 17.0	0.5 max.	(0.1 max.)	(0.2 max.)	(0.2 max.)	(0.2 max.)
Class 2	65.0 to 70.0	24.0 to 34.0	0.5 to 3.0	(1.0 max.)	(0.5 max.)	(0.8 max.)	(0.2 max.)
Class 3	58.0 to 64.0	30.0 to 41.0	0.5 to 3.0	(1.0 max.)	(0.5 max.)	(0.8 max.)	(1.0 max.)

Remark: The chemical components with their numerical values shown in () shall be subjected to analysis only at the request of the purchaser.

3.3 Mechanical Properties The mechanical properties (tensile strength and elongation) of the castings shall be as specified in Table 3.

Table 3. Mechanical Properties
(Applicable till the end of 1990)

Class	Tensile test	
	Tensile strength kgf/mm ² {N/mm ² }	Elongation %
Class 1	15 min. {147 min.}	25 min.
Class 2	20 min. {196 min.}	20 min.
Class 3	25 min. {245 min.}	20 min.

4. Shapes, Dimensions and Mass

The shapes, dimensions and mass of the castings shall be specified either by model or in drawing. The tolerances shall be subject to agreement between the parties concerned.

5. Tests

5.1 Chemical Analysis The chemical analysis shall be in accordance with one of the following Standards.

JIS H 1051 JIS H 1052 JIS H 1053 JIS H 1054 JIS H 1056
JIS H 1057 JIS H 1222

Further, the methods for emission spectrochemical analysis, atomic absorption spectrometry and fluorescent X-ray analysis shall be subject to agreement between the parties concerned.

5.2 Tensile Test The tensile test shall be as specified in JIS Z 2241. The test piece to serve shall be No. 4 test piece specified in JIS Z 2201 to be taken from the specimen sampled in accordance with 6. (2).

6. Inspection

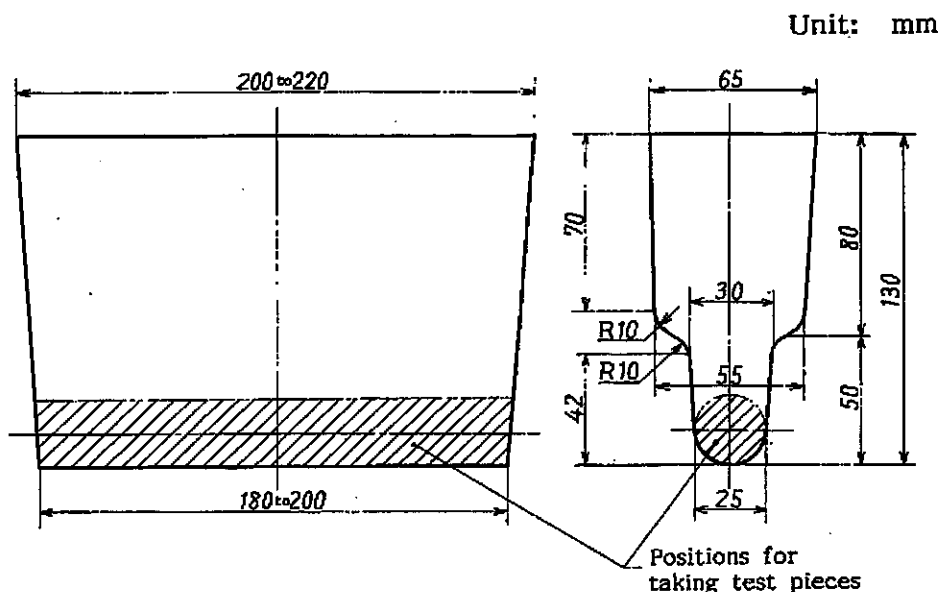
- (1) The castings shall be examined for appearance, shapes, dimensions and mass and further tested in accordance with 5. and then those complying with the requirements of 3. and 4. shall be deemed acceptable.

- (2) The specimen necessary to the preparation of the tensile test piece shall be sampled as follows:
- (a) The specimen shall be cast concurrently and integrally with the product.
 - (b) Unless otherwise specified, at least one specimen shall be taken from each heat.
 - (c) The dimensions of the specimen and the position for taking the test piece shall be as shown in Figure.

The specimen of this shape shall be called Type B specimen.

- (3) The methods and general matters of sampling the specimens for chemical analysis shall be as specified in JIS H 0321.

Figure Shape, Dimensions of Type A Specimen and Positions for Taking Test Pieces



7. Marking

When required by agreement between the parties concerned, the following particulars shall be marked on the castings or the packages by a suitable means:

- (1) Class or class symbol
- (2) Manufacture number or date of manufacture
- (3) Manufacturer's name or its abbreviation

Appendix

The tensile strength and elongation values specified in 3.3 of the main text of this Standard on the basis of the traditional units shall be replaced by the specified values based on the SI units on January 1, 1991.

Appendix Table. Mechanical Properties

(Applicable on and after Jan. 1, 1991)

Class	Tensile test	
	Tensile strength N/mm ²	Elongation %
Class 1	145 min.	25 min.
Class 2	195 min.	20 min.
Class 3	245 min.	20 min.

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