

JIS

JAPANESE INDUSTRIAL STANDARD

Cold headed rivets

Ⓒ JIS B 1213—1995

Translated and Published

by

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



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B 1213-1995

1. **Scope** This Japanese Industrial Standard specifies cold headed ⁽¹⁾ rivets made of steel (hereafter referred to as "steel rivets"), rivets made of brass (hereafter referred to as "brass rivets"), rivets made of copper (hereafter referred to as "copper rivets") and rivets made of aluminium (hereafter referred to as "aluminium rivets") for general use.

Note ⁽¹⁾ This is defined as to form the head part by means of plastic working in a cold state, but does not mean the forming by caulking in a cold state.

Remarks 1. When the steel rivets, brass rivets, copper rivets and aluminium rivets are generically called in this Standard, they are simply called as "rivets".

2. The following standards are cited in this Standard:

JIS G 3505 Low carbon steel wire rods

JIS G 3539 Carbon steel wires for cold heading and cold forging

JIS H 3260 Copper and copper alloy wires

JIS H 4040 Aluminium and aluminium alloy rods, bars and wires

JIS Z 2201 Test pieces for tensile test for metallic materials

JIS Z 2241 Method of tensile test for metallic materials

2. **Types** The type of the rivets shall be five types of the round head rivets, small size round head rivets, countersunk head rivets, thin flat head rivets and pan head rivets.

3. Mechanical properties

3.1 **Toughness of head** When the rivet is tested in accordance with the specification of 7. (1) (a), no breakage shall take place at the joint between the head and the shank, and no cracking shall occur at the underhead fillet.

3.2 **Toughness of shank** When the rivet is tested in accordance with the specification of 7. (1) (b), no cracking shall occur on the periphery of the flattened test piece.

4. **Shape and dimensions** The shape and dimensions of the rivet shall be in accordance with Table 1.

Table 1. Shape and dimensions

Type	Shape and dimensions
Round head rivet	Attached Table 1
Small size round head rivet	Attached Table 2
Countersunk head rivet	Attached Table 3
Thin flat head rivet	Attached Table 4
Pan head rivet	Attached Table 5

5. Appearance The surface of the rivet shall be smooth and be free from cracks and harmful defects in use such as flaws, fins, burrs and exfoliations.

6. Materials The materials of the rivets shall be in accordance with Table 2. However, when other materials than given in this Table are used, it shall be as agreed upon between the parties concerned with delivery.

Table 2. Materials

Classification	Material	Tensile strength of material N/mm ²
Steel rivets	SWCH6R to SWCH17R of JIS G 3505 or JIS G 3539	343 min.
Brass rivets	C2600W, C2700W or C2800W of JIS H 3260	275 min.
Copper rivets	C1100W of JIS H 3260	198 min.
Aluminium rivets	JIS H 4040	78 min.

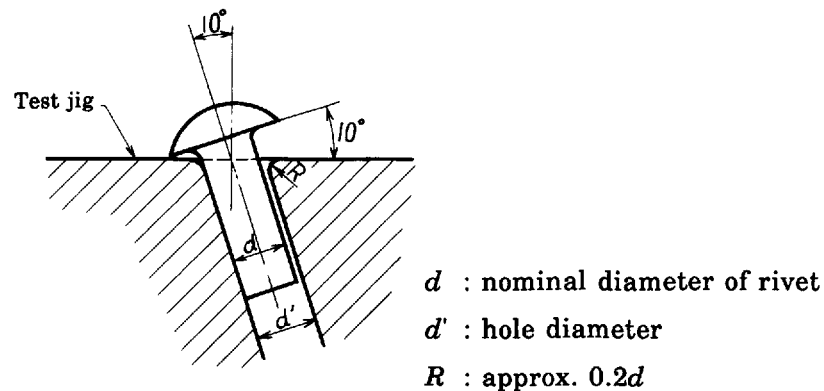
7. Inspection The inspection of the rivets shall be in accordance with the following:

The sampling inspection system in the lot inspection shall be as agreed upon between the parties concerned with delivery.

(1) Inspection on mechanical properties The inspection on mechanical properties shall be in accordance with the following:

- (a) Toughness of head When the head is struck at an ordinary temperature until its bearing surface gets in touch with the plane closely, inserting a rivet into the hole of the test jig inclined 10 degrees to vertical line as given in Fig. 1, the results shall conform to the requirement of 3.1.

Fig. 1. Inspection on toughness of head



Hole diameter of test jig

Unit: mm

Nominal diameter	Hole diameter d'	Nominal diameter	Hole diameter d'	Nominal diameter	Hole diameter d'	Nominal diameter	Hole diameter d'
1	$1^{+0.20}_{+0.10}$	2.5	$2.5^{+0.26}_{+0.16}$	6	$6^{+0.43}_{+0.31}$	18	$18^{+1.075}_{+0.895}$
1.2	$1.2^{+0.21}_{+0.11}$	2.6	$2.6^{+0.26}_{+0.16}$	8	$8^{+0.55}_{+0.40}$	19	$19^{+1.12}_{+0.91}$
1.4	$1.4^{+0.22}_{+0.12}$	3	$3^{+0.28}_{+0.18}$	10	$10^{+0.63}_{+0.48}$	20	$20^{+1.12}_{+0.91}$
1.6	$1.6^{+0.23}_{+0.13}$	3.5	$3.5^{+0.33}_{+0.21}$	12	$12^{+0.755}_{+0.575}$	22	$22^{+1.12}_{+0.91}$
1.7	$1.7^{+0.23}_{+0.13}$	4	$4^{+0.35}_{+0.23}$	13	$13^{+0.775}_{+0.595}$		
2	$2^{+0.24}_{+0.14}$	4.5	$4.5^{+0.37}_{+0.25}$	14	$14^{+0.835}_{+0.655}$		
2.3	$2.3^{+0.25}_{+0.15}$	5	$5^{+0.39}_{+0.27}$	16	$16^{+0.875}_{+0.695}$		

- (b) **Toughness of shank** When a compressive load is applied in axial direction at an ordinary temperature until the height reaches $\frac{1}{3}d$ as shown in Fig. 3, sampling the test piece of $1.5d$ in length as given in Fig. 2 from the shank of a rivet, the result shall conform to the requirement of 3.2.

The dimension d is the nominal diameter of the rivet.

Fig. 2. Test piece

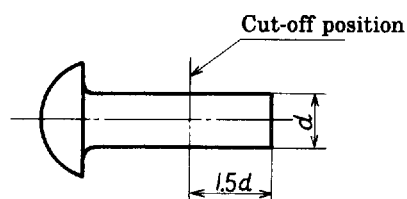
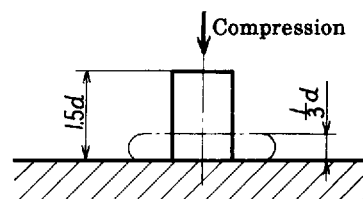


Fig. 3. Compressive load



- (2) **Inspection on shape and dimensions** The inspection on shape and dimensions shall be carried out by the direct measurements, limit gauges and other means, and the results shall conform to the requirements of 4.