

**BUREAU OF INDIAN STANDARDS**  
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Doc No.: PGD 37 (18747)  
August 2022

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*भारतीय मानक मसौदा*

**टिनमेन रिबेट्स — विशिष्टि**  
( IS 866 का पहला पुनरीक्षण )

*Draft Indian Standard*

**TINMEN'S RIVETS — SPECIFICATION**  
( *first revision of IS 866* )

ICS 21.060.20

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General Engineering and Fasteners Standards Sectional Committee, PGD 37

**FOREWORD**

*(Formal Clauses will be added later)*

This standard was originally published in 1957. In this revision following major changes have been made:

- a) References have been updated.
- b) Clause on hardness test has been modified.

Tinmen's rivets are commonly used in light sheet metal work, such as the manufacture of buckets, steel trunks and fabrication of air-conditioning ducts. As fasteners, they are required to conform to specific requirements regarding hardness, strength and workability. This standard specifies these requirements and has been prepared with a view to guiding the consumers in procuring rivets of the desirable qualities suitable for light sheet metal work. The specification covers rivets having lengths and diameters up to and including 14.3 mm and 7.0 mm, respectively.

The Sectional Committee responsible for the preparation of this standard has taken into consideration the views of producers, consumers and technologists, and has related the standard to the prevailing manufacturing and trade practices followed in the country in regard to the use of these rivets.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'.

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## 1 SCOPE

This standard prescribes the requirements regarding material, shape and dimensions, and tests for tinmen's rivets of sizes with even designating numbers ranging from 2 to 20 inclusive.

## 2 REFERENCES

The standards given below contain provisions, which through reference in this text, constitute provisions to this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

<i>IS No</i>	<i>Title</i>
280 : 2006	Mild Steel Wire for general Engineering purposes ( <i>fourth revision</i> )
1500 ( Part 1 ) : 2019/ ISO 6506-1 : 2014	Metallic materials — Brinell hardness test: Part 1 test method ( <i>fifth revision</i> )

## 3 TERMINOLOGY

For the purpose of this standard, the following definitions and terms shall apply.

### 3.1 Nominal Diameter of the Rivet

The diameter of the rivet shank.

### 3.2 Nominal Length of the Rivet

The length measured from the underside of the head to the extreme end of the shank.

## 4 MATERIAL

**4.1** Mild steel wire used in the manufacture of tinmen's rivets shall conform to IS 280.

**4.1.1** The condition of wire selected by the manufacturer shall be subjected to the requirements laid down in **8**.

**4.1.2** The heat treatment appropriate to the condition of wire used shall conform to that specified in **8**.

## 5 SHAPE AND DIMENSIONS

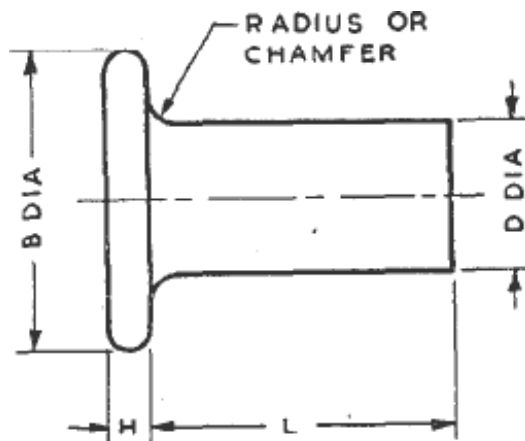
**5.1** The shape of tinmen's rivets shall be as shown in Fig 1 and their dimensions shall be in accordance with Table 1.

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**FIG. 1 TINMEN'S RIVET**

Table 1 Dimensions of Tinmen's Rivets  
*(Clause 5.1 and Fig 1)*

Rivet Size Designating Number	Length (L)	Shank Dia (D)	Head Dia (B)		Head Thickness (H)	
			max	min	max	min
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	mm	mm	mm	mm	mm	mm
2	4.0	2.1	4.2	4.0	0.6	0.5
4	4.8	2.4	4.8	4.6	0.6	0.5
6	5.2	2.7	5.6	5.3	0.8	0.6
8	6.0	3.1	6.4	6.0	0.9	0.7
10	6.8	3.8	7.8	7.4	1.1	0.9
12	8.3	4.2	8.5	8.1	1.1	0.9
14	9.1	5.2	10.7	10.2	1.4	1.1
16	11.5	5.6	11.4	10.8	1.5	1.2
18	12.7	6.4	13.0	12.3	1.7	1.4
20	14.3	7.0	14.3	13.6	1.9	1.6

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**6 TOLERANCE**

6.1 The tolerance on shank diameter of tinmen's rivets shall be as given below:

RIVET SIZE Designating Number	SHANK DIAMETER (D)	
	Under Head mm	At End mm
2 to 12 both inclusive	+0.05	+Nil
	-0.13	-0.13
16 to 20 both inclusive	+0.08	+Nil
	-0.15	-0.15

6.2 The tolerance on length of tinmen's rivets shall be as given below:

RIVET SIZE Designating Number	LENGTH (L)
	mm
2 to 12 both inclusive	{ +0.38 -0.13
16 to 20 both inclusive	± 0.38

**7 WORKMANSHIP AND FINISH**

The rivets shall be sound, free from cracks, flaws, burrs, seams, pits and other defects. The head shall be concentric with and at right angles to the shank. The end shall be cleanly sheared square.

**8 HEAT TREATMENT**

**8.1 General**

The most satisfactory metallurgical structure is obtained if the rivets are annealed above the upper critical point of the steel but provision is also made for sub-critically annealed rivets and rivets made from annealed or inter-annealed wire.

8.2 Rivets should preferably be annealed at a temperature above the upper critical point appropriate to the carbon content of the wire. If the rivets are so annealed, the manufacturer shall be free to select the hardness of the wire without any limitation.

8.2.1 When annealed at temperature above the upper critical point, the rivets shall remain at the following temperature for not less than 15 minutes:

- a) When made from wire having a carbon content not exceeding 0.20 percent 920°C
- b) When made from wire having a carbon content exceeding 0.20 percent but not exceeding 0.30 percent 880°C

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**8.3** Rivets may be subcritically annealed provided they are manufactured from wire in the half hard or hard condition only.

**8.3.1** When subcritically annealed, the rivets shall remain at a temperature of 650°C-680°C for not less than 30 minutes.

**8.4** Rivets shall not require any heat treatment when manufactured from annealed or inter-annealed wire having a tensile strength not exceeding 44 kg per sq mm.

## 9 TEST

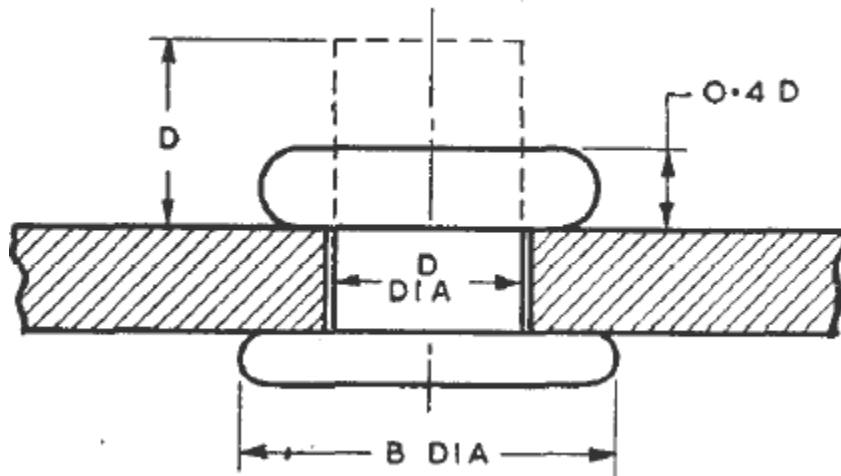
**9.1** Tinmen's rivets shall comply with the requirements of tests specified under **9.1.1** and **9.1.2**.

### 9.1.1 Hardness Test

Rivets shall have Brinell hardness not exceeding 150 when tested in the shank when tested as per IS 1500 (Part 1).

### 9.1.2 Riveting Test

Rivet shall be inserted in the appropriate hole in a plate so that the length of shank protruding is equal to the diameter of rivet. The shank protruding shall be flattened by hammering until the thickness of the flattened portion is not more than 0.4 times the nominal diameter of the rivet (see Fig 2), the periphery of the flattened portion being free from cracks.



**FIG. 2 RIVETING TEST**

## 10 PACKING

**10.1** Tinmen's rivets shall be packed in 2.5 kg or 5 kg parcels or cardboard cartons, or in 50 kg gunny bags according to the requirements of the purchase.

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**11 MARKING**

**11.1** Each package shall be clearly and indelibly marked with the following:

- a) Manufacturer's name or trade mark,
- b) Size of the rivets, and
- c) Weight of the package.

**11.2 BIS Certification Marking**

The product conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the product may be marked with the Standard Mark.