IS 725 (1961): Copper Wire Nails [PGD 31: Bolts, Nuts and Fasteners Accessories]

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(Reaffirmed 2001)

Indian Standard

SPECIFICATION FOR COPPER WIRE NAILS

(Revised)

UDC

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Indian Standard

SPECIFICATION FOR COPPER WIRE NAILS *(Revised)*

0. FOREWORD

0.1 This revised Indian Standard was adopted by the Indian Standards Institution on 25 November 1961, after the draft finalized by the Builder's Hardware Sectional Committee had been approved by the Building Division Council.

0.2 This standard was first issued in 1956 specifying the shank diameters of various types of copper wire nails in SWG (Standard Wire Gauge), lengths in inches and packing requirement in pounds. In view of the adoption of the metric system of weights and measures by the Government of India, revision of this standard was felt necessary by all concerned interests. During working of this standard certain manufacturing difficulties also came to light. This revision, therefore, provides for tolerance on taper length of nails and relaxes tolerance on size of head in case of rose-head boat nails and specifies the dimensions and packing requirements of copper wire nails in the metric system.

0.3 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 manufacturing and trade practices followed in the country in this field. Due weightage has also been given to the need for international co-ordination among standards prevailing in different countries of the world.

0.4 Wherever a reference to any Indian Standard appears in this specification it shall be taken as a reference to the latest version of the standard.

0.5 Metric system has been adopted in India and all quantities and dimensions in this standard have been given in this system.

0.6 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 or analysis, shall be rounded off in accordance with IS: 2-1960 Rules for Rounding Off Numerical Values (*Revised*). The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

0.7 This standard is intended chiefly to cover the technical provisions relating to copper wire nails, and it does not include all the necessary provisions of a contract.

1. SCOPE

1.1 This standard covers the following types of copper wire nails:

a) Rose-head boat nails, square shank, square point (*see* Fig. 1),
b) Countersunk-head boat nails, square shank, sharp square point (*see* Fig. 2),
c) Countersunk-head boat nails, square shank, round point (*see* Fig. 3),
d) Wrought tacks (*see* Fig. 4), and
e) Cut-lath nails (Cut tacks) (*see* Fig. 5).

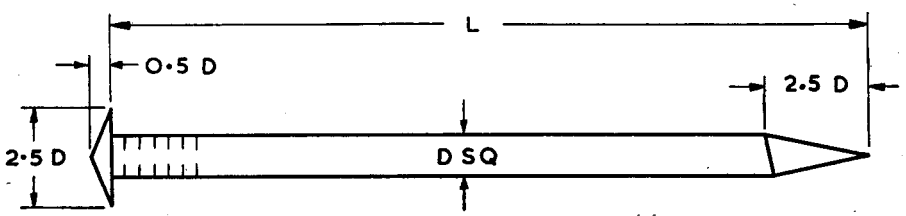

FIG. 1 ROSE-HEAD BOAT NAIL, SQUARE SHANK, SQUARE POINT

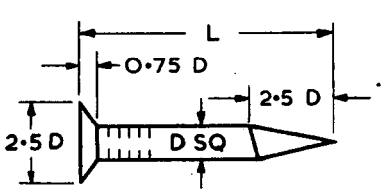

FIG. 2 COUNTERSUNK-HEAD BOAT NAIL, SQUARE SHANK, SHARP SQUARE POINT

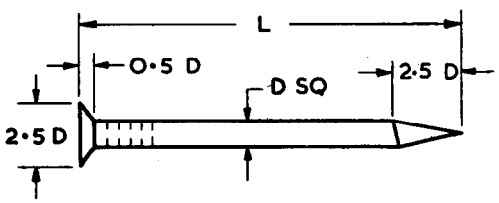

FIG. 3 COUNTERSUNK-HEAD BOAT NAIL, SQUARE SHANK, ROUND POINT

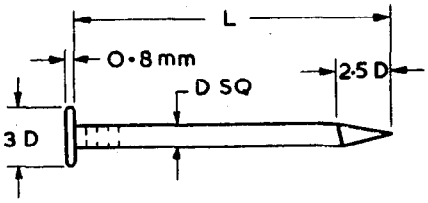

FIG. 4 WROUGHT TACK

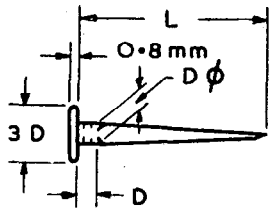

FIG. 5 CUT-LATH NAIL (CUT TACK)

2. MATERIAL

2.1 The wire used for nails shall have copper content not less than 99·2 percent and shall have a minimum ultimate tensile strength of 28·0 kg/mm² with a maximum elongation of 10 percent on a length of 50 mm. The wire shall withstand the following bend test:

Suitable test pieces when cold shall not break or develop crack when doubled over, either by pressure or by blows from a hammer, until the internal radius is equal to the diameter of the test piece and the sides are parallel.

2.2 The tin used in finishing of copper nails shall have a purity of 99 percent.

3. MANUFACTURE

3.1 The nails shall be machine made and may have die marks on the neck. They shall be uniform in section, straight, free from wasters, and shall have sharp points. The heads shall be properly formed and concentric with the shank.

4. DIMENSIONS AND TOLERANCES

4.1 The dimensions of the different types of copper nails shall satisfy the respective requirements specified for them in Fig. 1 to Fig. 5 and Table I.

4.2 Tolerances

4.2.1 The maximum permissible variation from the dimensions given in Table I for copper nails other than cut-lath nails (cut tacks) shall be as follows:

Size of Shank, Across Flats	Tolerance		
	Head Dia or Side of Square	Size of Shank, Across Flats, *DSQ*	Length, *L*
mm	percent	mm	mm
5·00 to 2·50	± 7½	± 0·05	− 0·0 + 1·5
2·50	± 7½	± 0·05	− 0·0 + 1·0
Less than 2·50	± 7½	± 0·04	− 0·0 + 1·0

4.2.2 In the case of cut-lath nails (cut tacks) the maximum permissible variation from the dimensions given in Table I shall be as follows:

Tolerance on		
Head Dia	Size of Shank, *D* (Dia)	Length, *L*
percent	mm	mm
± 5	± 0·10	± 1·0

4.2.3 The tolerance on taper length (2·5*D*) of the different types of copper wire nails shall be $^{-0\cdot0}_{+0\cdot5}D$ provided the overall length (*L*) of the nail is within the tolerance permitted.

5. FINISH

5.1 Copper nails shall be finished bright unless specifically required by the purchaser to be tinned. They shall be free from burrs and sharp edges except at the points.

5.1.1 When copper nails are tinned, the tin coating shall cover the nails completely, and shall be even, smooth and uniform.

TABLE I DIMENSIONS AND APPROXIMATE COUNT OF COPPER NAILS

(*Clauses* 4.1, 4.2.1 *and* 4.2.2)

Type of Nail	Length, *L*	Size of Shank, Across Flats, *DSQ*	Head Dia or Side of Square	Depth of Head	Approx No. of Nails per kg
(1)	(2)	(3)	(4)	(5)	(6)
	mm	mm	mm	mm	
Rose-head boat nails, square shank, square point	110	5·00	12·5	2·5	40
	110	4·00	10·0	2·0	65
	100	5·00	12·5	2·5	50
	100	4·00	10·0	2·0	70
	100	3·15	7·9	1·6	110
	90	5·00	12·5	2·5	55
	90	4·00	10·0	2·0	80
	90	3·15	7·9	1·6	120
	80	4·50	11·2	2·2	80
	80	4·00	10·0	2·0	90
	80	3·15	7·9	1·6	145

(*Continued on p.* 4)

TABLE I DIMENSIONS AND APPROXIMATE COUNT OF COPPER NAILS — *Contd*

Type of Nail	Length, *L*	Size of Shank, Across Flats, *DSQ*	Head Dia or Side of Square	Depth of Head	Approx No. of Nails per kg
(1)	(2)	(3)	(4)	(5)	(6)
	mm	mm	mm	mm	
	80	2·50	6·2	1·2	220
	70	4·00	10·0	2·0	100
	70	3·15	7·9	1·6	160
	70	2·50	6·2	1·2	240
	60	4·00	10·0	2·0	110
	60	3·15	7·9	1·6	170
	60	2·50	6·2	1·2	260
	60	2·00	5·0	1·0	440
	50	3·15	7·9	1·6	220
	50	2·50	6·2	1·2	330
	50	2·00	5·0	1·0	550
	45	3·15	7·9	1·6	220
	45	2·50	6·2	1·2	380
	45	2·00	5·0	1·0	640
	40	3·15	7·9	1·6	270
	40	2·50	6·2	1·2	430
	40	2·00	5·0	1·0	750
	35	3·15	7·9	1·6	330
	35	2·50	6·2	1·2	500
	35	2·00	5·0	1·0	900
	30	3·15	7·9	1·6	400
	30	2·50	6·2	1·2	600
	30	2·00	5·0	1·0	1 000
	25	5·00	12·5	2·5	160
	25	2·50	6·2	1·2	890
	25	2·00	5·0	1·0	1 000
	25	1·60	4·0	0·8	1 760
Countersunk-head boat nails, square shank, sharp square point	125	5·00	12·5	3·8	40
	100	5·00	12·5	3·8	50
	100	4·00	10·0	3·0	70
	100	3·15	7·9	2·4	120
	90	3·55	8·9	2·7	100
	80	5·00	12·5	3·8	60
	80	3·15	7·9	2·4	130
	70	5·00	12·5	3·8	70
	70	3·15	7·9	2·4	160
	60	4·00	10·0	3·0	115
	60	3·15	7·9	2·4	170
	50	3·55	8·9	2·7	170
	50	3·15	7·9	2·4	210
	40	3·15	7·9	2·4	290
	30	3·15	7·9	2·4	370
	25	3·15	7·9	2·4	420
	20	3·15	7·9	2·4	375
Countersunk-head boat nails, square shank, round point	40	2·50	6·2	1·2	480
	25	2·50	6·2	1·2	780
Wrought tacks	30	2·00	6·0	0·8	800
	25	2·00	6·0	0·8	980
	20	2·00	6·0	0·8	1 230
	20	1·60	4·8	0·8	1 470
		Diameter			
Cut-lath nails (cut tacks)	20	1·80	5·4	0·8	1 820
	15	1·80	5·4	0·8	2 000
	10	1·80	5·4	0·8	4 500
	10	1·60	4·8	0·8	4 950

NOTE — The number of nails per kilogram is likely to vary to a considerable extent. The figures given in col 6 are intended only for guidance to the purchaser.

6. INSPECTION AND MANUFACTURER'S CERTIFICATE

6.1 The purchaser or his authorized representative shall, where desired, be granted facilities for inspection of finished goods prior to despatch from the manufacturer's works.

6.2 The manufacturer shall supply, on request, a certificate stating that the copper nails comply with the requirements of this standard.

6.2.1 The manufacturer's certificate shall not be necessary if the package of nails bears ISI Certification Mark (*see* **9.1.1**) as the mark itself is a certificate of compliance.

6.3 The purchaser shall be at liberty to reject any goods purporting to have been supplied to this standard if they do not comply with any of the requirements of this standard.

7. PACKING

7.1 Unless specified otherwise, copper nails shall be packed in cardboard boxes, the net weight of each box being 2·5 kg.

8. SAMPLE SIZE AND CRITERION FOR CONFORMITY

8.1 Lot — In any consignment, all the packages of copper wire nails of the same type and size manufactured at the same time shall be grouped together to constitute a lot.

8.2 Selection of Packages and Nails

8.2.1 The number of packages to be selected at random from the lot shall depend on the size of the lot and shall be in accordance with col 1 and 2 of Table II.

8.2.2 The number of nails to be selected at random from each package shall depend upon the length of nails in the package and shall be as given in col 3 to 5 of Table II.

8.3 Number of Tests — All the copper wire nails selected as in **8.2.2** shall be examined for manufacturing defects (*see* **3**), dimensions (*see* **4**) and finish (*see* **5**).

8.4 Criterion for Conformity — The lot shall be considered as conforming to the requirements of this standard if the number of nails failing in any one or more of the requirements mentioned in **8.3** does not exceed the corresponding number mentioned in the appropriate column, from col 6 to 8, of Table II.

9. MARKING

9.1 All packages of nails shall be marked with the following information:

a) Manufacturer's name or trade-mark,
b) Type of nail,

TABLE II SAMPLE SIZE AND CRITERION FOR CONFORMITY

(*Clauses* 8.2.1, 8.2.2 *and* 8.4)

Number of Packages in the Lot	Number of Packages to be Selected	Number of Nails to be Selected from each Package if the Length of the Nails is			Permissible Number of Defective Nails if the Length of Nails is		
		Below 25 mm	From 25 to 80 mm	80 mm and Above	Below 25 mm	From 25 to 80 mm	80 mm and Above
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2 to 8	2	25	10	5	4	2	1
9 ,, 15	3	25	10	5	6	3	1
16 ,, 25	4	25	10	5	7	3	2
26 ,, 40	5	25	10	5	9	4	2
41 ,, 65	7	25	10	5	11	6	3
66 and above	10	25	10	5	15	7	4

NOTE — The sampling plan given here is such that lots with 4 percent or less defectives would be accepted most of the time.

c) Size (length and dia or side of square of shank) of nail,
d) Finish of nail, and
e) Net weight of contents.

9.1.1 Each package of nails may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, 1952 and the Rules and Regulations made thereunder. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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