



Indian Standard
**SPECIFICATION FOR
STEEL COUNTERSUNK HEAD WIRE NAILS**
(*Second Revision*)

1. Scope — Requirements of steel countersunk head wire nails.

2. Material — Nails shall be manufactured from mild steel wire conforming to IS : 280-1962 'Specification for mild steel wire for general engineering purposes (*revised*)' having a minimum ultimate tensile strength of 550 MPa and satisfying bend test as in 7.1.

3. Dimensions and Tolerances — The dimensions and tolerances of the countersunk head type wire nails shall be according to Tables 1 to 4.

3.1 The bend of shank as shown in Fig. 1 shall not exceed 1.0 percent of total length.

3.2 Eccentricity and ovality of the centre of the nail head from axis of shank shall be as below:

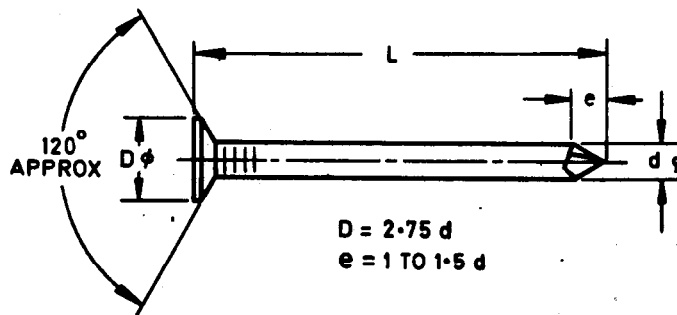
For nails with shank diameter ≥ 2.00 mm; maximum 12 percent of shank diameter, *Max*

For nails with shank diameter < 2.00 mm; maximum 14 percent of shank diameter, *Max*

TABLE 1 DIMENSIONS AND TOLERANCES OF STEEL COUNTERSUNK HEAD WIRE NAILS
(SIZE 1.25 TO 1.40 mm)

(*Clauses 3 and 5*)

All dimensions in millimetres.



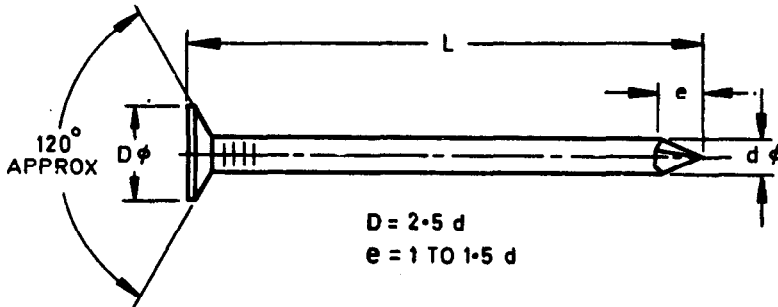
Size <i>d</i> (Shank Dia)		Head Diameter <i>D</i>		Length <i>L</i>		Approximate Number of Nails/kg
Basic	Tolerance	Basic	Tolerance	Basic	Tolerance	
1.25	± 0.04	3.4	± 0.17	20	± 1.0	5 060
1.40	± 0.04	3.8	± 0.17	20	± 1.0	3 040

Note — The number of nails per kilogram is likely to vary to a considerable extent. The figure given in the table is intended only for guidance to the purchaser.

**TABLE 2 DIMENSIONS AND TOLERANCES OF STEEL COUNTERSUNK HEAD WIRE NAILS
(SIZE 1·60 TO 1·80 mm)**

(Clauses 3 and 5)

All dimensions in millimetres.



Side <i>d</i> (Shank Dia)		Head Diameter <i>D</i>		Length <i>L</i>		Approximate Number of Nails/kg
Basic	Tolerance	Basic	Tolerance	Basic	Tolerance	
1·60	±0·04	4·0	±0·2	15	±1·0	3 940
				20	±1·0	2 710
				25	±1·2	2 110
1·80	±0·04	4·5	±0·23	25	±1·2	1 720
				30	±1·2	1 410

Note — The number of nails per kilogram is likely to vary to a considerable extent. The figure given in the table is intended only for guidance to the purchaser.

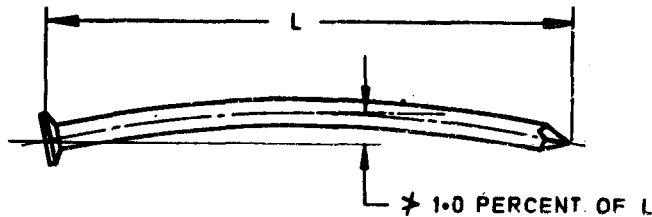


FIG. 1 BEND OF SHANK

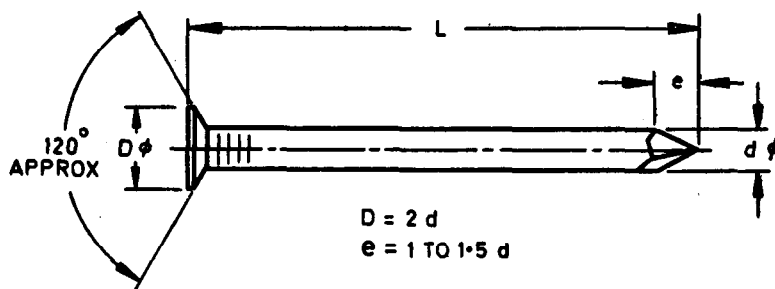
4. Designation — The countersunk head nails shall be designated by the size, length and the number of this standard.

Example:

A countersunk head nail of size 4·00 mm and length 100 mm shall be designated as:
Nail 4 × 100 IS : 723

TABLE 3 DIMENSIONS AND TOLERANCES FOR STEEL COUNTERSUNK HEAD WIRE NAILS
(SIZE 2·00 TO 2·80 mm)
(Clauses 3 and 5)

All dimensions in millimetres.



Size d (Shank Dia)		Head Diameter D		Length L		Approximate Number of Nails/kg
Basic	Tolerance	Basic	Tolerance	Basic	Tolerance	
2·00	$\pm 0\cdot04$	4·00	$\pm 0\cdot2$	25	$\pm 1\cdot2$	1 470
				30	$\pm 1\cdot2$	1 170
				40	$\pm 1\cdot5$	840
				50	$\pm 2\cdot1$	650
2·24	$\pm 0\cdot04$	4·5	$\pm 0\cdot23$	40	$\pm 1\cdot5$	700
2·50	$\pm 0\cdot05$	5·0	$\pm 0\cdot25$	50	$\pm 2\cdot1$	550
2·80	$\pm 0\cdot06$	5·6	$\pm 0\cdot28$	60	$\pm 2\cdot1$	350

Note — The number of nails per kilogram is likely to vary to a considerable extent. The figure given in the table is intended only for guidance to the purchaser.

5. General Requirements — The nails shall be machine made and may have die marks and feeding knife marks on the shank. They shall be uniformly circular in section, straight, free from wasters and the ends shall be pointed to conform to the dimensions given in Tables 1 to 4. The heads shall be properly tormed, chequered and concentric with the shank.

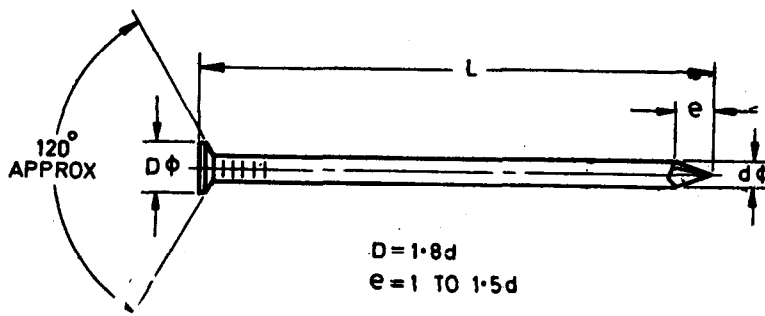
6. Finish — Unless otherwise specified by the purchaser countersunk head wire nails shall be supplied bright finished.

7. Test

7.1 Bend Test — Steel countersunk head wire nails, selected according to 9.2, when cold shall not break or develop cracks, when doubled over either by pressure or by blow from a hammer until the internal radius is equal to the diameter of the test piece and the sides are parallel.

TABLE 4 DIMENSIONS AND TOLERANCES FOR STEEL COUNTERSUNK HEAD WIRE NAILS
(SIZE 3.15 TO 10 mm)
(Clauses 4 and 5)

All dimensions in millimetres.



Size d (Shank Dia)		Head Diameter D		Length L		Approximate Number of Nails/kg
Basic	Tolerance	Basic	Tolerance	Basic	Tolerance	
3.15	± 0.06	5.7	± 0.29	60	± 2.1	230
3.55	± 0.06	6.4	± 0.32	80	± 2.6	140
4.00	± 0.06	7.2	± 0.36	100	± 3.4	90
4.50	± 0.06	8.1	± 0.41	90	± 3.1	90
				100	± 3.4	80
				125	± 3.8	65
5.00	± 0.06	9.0	± 0.45	100	± 3.4	60
				125	± 3.8	50
				150	± 3.8	40
6.30	± 0.06	11.3	± 0.57	150	± 3.8	30
8.00	± 0.06	14.4	± 0.72	200	± 4.4	12
				225	± 4.4	10
10.00	± 0.06	18.0	± 0.90	250	± 4.4	7

Note — The number of nails per kilogram is likely to vary to a considerable extent. The figure given in the table is intended only for guidance to the purchaser.

8. Packing — Nails of different sizes and types shall be packed in separate containers.

8.1 Nails including 25 mm in length and below shall be packed in cardboard boxes and the net weight of each box shall be 0.5 kg. The nails may also be supplied in gunny bags, and the net weight of each bag shall be 50 kg.

8.2 Nails above 25 mm and below 80 mm in length shall be packed in cardboard boxes and the net weight of each box shall be 2.5 kg. The nails may also be supplied in gunny bags, and the net weight of each bag shall be 50 kg.

8.3 Nails 80 mm and above in length shall be packed in wrappings of double gunny bags, the weight of the each package being 15 kg. The nails may also be supplied in cases of bituminized canvas or hessian bags; the net weight of each package shall be 50 kg.

9. Scale of Sampling and Criteria for Conformity

9.1 Lot — In any consignment all the packages of nails of the same type and size manufactured under essentially similar conditions shall be grouped together to constitute a lot.

9.2 Selection of Samples — The number of nails 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 5. The nails shall be selected from at least 25 percent of the packages.

9.3 Visual and Dimensional Characteristics

9.3.1 Number of tests and criteria for conformity — All the nails selected as in 9.2 shall be examined for manufacturing defects, dimensions and finish.

9.3.2 The lot shall be considered as conforming to the requirements of these characteristics if the number of nails examined for characteristics mentioned in 9.3.1 and found defective does not exceed the corresponding acceptance number given in col 3 of Table 5.

TABLE 5 SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

(Clauses 9.2, 9.3.2 and 9.4.1)

Approximate Number of Nails in the Lot	For Visual and Dimensional Characteristic		For Bend Test	
	Number of Nails to be Selected	Permissible Number of Defective Nails	Sub-sample Size	Permissible Number of Defective Nails
(1)	(2)	(3)	(4)	(5)
Up to 1 000	32	5	8	0
1 001 to 3 000	50	7	13	0
3 001 „ 10 000	80	10	20	0
10 001 „ 35 000	125	14	32	1
35 001 and above	200	21	50	2

Note — The sampling plan accepts the lots containing 7 percent or less defectives in respect of visual and dimensional characteristics more than 95 percent of the times. In the case of bend test the lot containing 1.5 percent or less defectives will be accepted more than 95 percent of the times.

9.4 Bend Test

9.4.1 Number of tests and criteria for conformity — The number of nails to be selected for carrying out bend test shall be according to col 4 of Table 5. These nails shall be selected from those already inspected according to 9.3.1 and found satisfactory.

The lot shall be considered as conforming to the requirements of bend test if the number of nails failing to pass this test does not exceed the corresponding acceptance number in col 5 of Table 5.

9.5 The lot shall be considered as conforming to the requirements of the specification if it satisfies 9.3.1 and 9.4.1.

10. Marking — All packages of nails shall be marked with the following information:

- a) Manufacturer's name or trade-mark,
- b) Type of nail,
- c) Size (shank diameter) and length of nail, and
- d) Net weight of the package.

10.1 ISI Certification Marking — Details available with the Indian Standards Institution.

EXPLANATORY NOTE

The specification for mild steel wire nails was first revised in 1961. In the present revision the following changes have been made:

- a) The angle of countersunk has been increased from 90° to 120°.
- b) Nail head diameter has been changed to $2d$ for shank diameters ranging between 2.0 to 2.8 mm and to $1.8d$ for shank diameters above 2.8 mm.
- c) Tolerances for eccentricity and ovality of nail heads has been specified.
- d) Provision for galvanized finish nails has been deleted and plain finish has been specified.
- e) The sampling plan has been suitably modified to permit allowable percentage of defective nails from 4 percent to 7 percent.
- f) The present revision covers only countersunk head wire nails. The other types are being covered by separate standards, as follows:

IS : 6730-1972 Felt nails

IS : 6732-1972 Double point nails

IS : 6733-1972 Wall and roofing nails

IS : 6734-1972 Cut lath and lath nails

IS : 6738-1972 Panel pins and lost head nails