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IS 1929 (1982): Hot Forged Steel Rivets for Hot Closing (12 to 36 mm Diameter) [PGD 31: Bolts, Nuts and Fasteners Accessories]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR
HOT FORGED STEEL RIVETS FOR HOT CLOSING
(12 TO 36 mm DIAMETER)

(First Revision)

1. Scope — Covers the requirements of hot forged solid mild steel and high tensile steel rivets for hot closing in the diameter range 12 to 36 mm intended for general engineering purposes.

2. Material — The rivets shall be manufactured from steel conforming to IS : 1148-1973 'Specification for hot rolled steel rivet bars (up to 40 mm diameters) for structural purposes (second revision)' or IS : 1149-1973 'Specification for high tensile steel rivet bars for structural purposes (second revision)'. They may also be manufactured from steel conforming to IS : 226-1969 'Specification for structural steel (standard quality) (fifth revision)', provided that the steel meets the dump test requirements given in IS : 1148-1973.

3. Dimensions — The dimensions of rivets shall be as shown in Tables 1 to 3.

3.1 Where the rivets with snap head and countersink head are made with flat edge, the latter shall conform to the values given in IS : 10102-1982 'Technical supply conditions for rivets'.

3.2 The preferred nominal diameter-length combinations are given in Table 4.

4. Method of Manufacture — The rivets shall be made by the hot forging process and they shall be allowed to cool gradually.

5. Acceptance Tests

5.1 General — The sampling and acceptance criteria of the rivets shall be in accordance with IS : 10102-1982.

5.2 Tests for Material — The material used in the manufacture of the rivets shall be tested as per stipulations of the relevant material specifications indicated at 2.

5.3 Shear Test — When tested by the method prescribed in IS : 10102-1982, the mild steel rivets shall satisfy a minimum shear strength of 260 MPa and high tensile rivets a minimum shear strength of 370 MPa.

5.4 Head Soundness Test — When tested by method prescribed in IS : 10102-1982 rivets, at room temperature, shall withstand the test without exhibiting any sign of cracking at the fillet between the head and the shank.

6. Designation

6.1 A mild steel snap head rivet of 16 mm diameter having a length of 70 mm shall be designated as:

Snap Head Rivet 16 × 70 IS : 1929

A high tensile steel snap head rivet of 16 mm diameter having a length of 70 mm shall be designated as:

Snap Head Rivet 16 × 70 HT IS : 1929

6.2 Rivets of other types shall be designated in a similar manner.

7. Marking

7.1 All rivets shall be marked with the manufacturer's trade-mark on the head in raised figure. In addition, all high tensile steel rivets shall be marked with the raised letter HT on the head.

7.2 Certification Marking — Details available with the Bureau of Indian Standards.

Adopted 24 March 1982

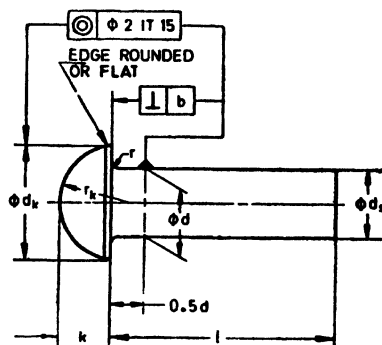
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TABLE 1 DIMENSIONS FOR SNAP HEAD RIVETS

(Clause 3)

All dimensions in millimetres.



Nom	12	(14)	16	(18)	20	(22)	24	(27)	30	(33)	36
d Max	12.8	14.8	16.8	18.8	20.8	22.8	24.8	27.8	30.8	33.8	36.8
Min	12.0	14.0	16.0	18.0	20.0	22.0	24.0	27.0	30.0	33.0	36.0
d_k Min	11.3	13.2	15.2	17.1	19.1	20.9	22.9	25.8	28.6	31.6	34.6
Nom	19.2	22.4	25.6	28.8	32.0	35.2	38.4	43.2	48.0	52.8	57.6
d_k Max	19.55	22.8	26.1	29.3	33.2	36.4	39.6	44.4	49.2	54.0	59.0
Min	18.85	22.0	25.1	28.3	30.8	34.0	37.2	42.0	46.8	51.6	56.2
Nom	8.4	9.8	11.2	12.6	14.0	15.4	16.8	18.9	21.0	23.1	25.2
k Max	9.3	10.7	12.3	13.7	15.1	16.5	17.9	20.2	22.3	24.4	26.6
Min	8.4	9.8	11.2	12.6	14.0	15.4	16.8	18.9	21.0	23.1	25.2
r Max	0.8	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5	1.7	1.8
r_k =	9.5	11	13	14.5	16.5	18.5	20.5	22	24.5	27	30

Note 1 — The nominal diameter d shown in parenthesis are of second preference.Note 2 — For perpendicularity tolerance value, b , see IS : 10102-1982.

Note 3 — For permissible limits of shank diameter, see also IS : 10102-1982.

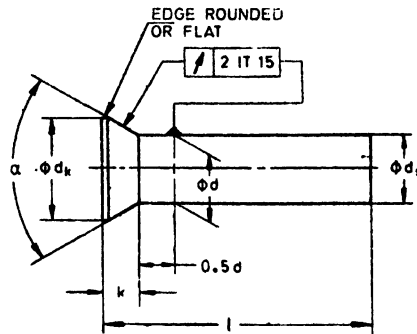
Note 4 — Rivets shall be furnished with a definite radius under the head which shall not exceed the value r given.

Note 5 — The shape of head shall be forged into part of a sphere. Necessary flat land for trimming (see 3.1) on the head periphery is permissible.

TABLE 2 DIMENSIONS FOR FLAT COUNTERSUNK HEAD RIVETS

(Clause 3)

All dimensions in millimetres.



Nom	12	(14)	16	(18)	20	(22)	24	(27)	30	(33)	36
d Max	12.8	14.8	16.8	18.8	20.8	22.8	24.8	27.8	30.8	33.8	36.8
Min	12.0	14.0	16.0	18.0	20.0	22.0	24.0	27.0	30.0	33.0	36.0
d _s Min	11.3	13.2	15.2	17.1	19.1	20.9	22.9	25.8	28.6	31.6	34.6
Nom	18	21	24	27	30	33	33	40.8	45	49.5	54
d _k Max	18.0	21.0	24.0	27.0	30.0	33.0	36.0	40.5	45.0	49.5	54.0
Min	16.9	19.7	22.7	25.7	28.7	31.4	34.4	38.9	43.4	47.9	52.1
k Ref ≈	5.2	6.1	6.9	7.8	8.7	9.5	10.4	11.7	13.0	14.3	15.6
α + 5° 0	60°										

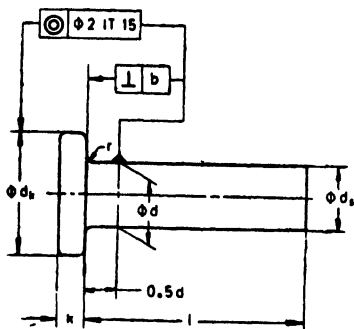
Note 1 — The nominal diameters, *d* in parenthesis are of second preference.

Note 2 — For permissible limits of shank diameter, see also IS : 10102-1982.

TABLE 3 DIMENSIONS FOR FLAT HEAD RIVETS

(Clause 3)

All dimensions in millimetres.



Nom	12	(14)	16	(18)	20	(22)	24	(27)	30	(36)	36
d Max	12.8	14.8	16.8	18.8	20.8	22.8	24.8	27.8	30.8	33.8	36.8
Min	12.0	14.0	16.0	18.0	20.0	22.0	24.0	27.0	30.0	33.0	36.0
d_s Min	11.3	13.2	15.2	17.1	19.1	20.9	22.9	25.8	28.6	31.6	34.6
Nom	24	28	32	36	40	44	48	54	60	66	72
d_s Max	24.0	28.0	32.0	36.0	40.0	44.0	48.0	54.0	60.0	66.0	72.0
Min	22.7	26.7	30.4	34.4	38.4	42.4	46.4	52.1	58.1	64.1	70.1
Nom	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.75	7.50	8.25	9.0
k Max	3.6	4.25	4.75	5.25	5.75	6.25	6.75	7.65	8.40	9.15	9.9
Min	3.0	3.50	4.0	4.5	5.0	5.5	6.0	6.75	7.50	8.25	9.0
r Max	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5	1.7	1.8

Note 1 — The nominal diameters, in parenthesis are of second preference.

Note 2 — For permissible limits of shank diameter, see also IS : 10102-1982.

Note 3 — For perpendicularity tolerance value, b, see IS : 10102-1982.

Note 4 — Rivets shall be furnished with a definite radius under the head and shall not exceed the value, r given above.

TABLE 4 DIAMETER-LENGTH COMBINATIONS FOR HOT FORGED RIVETS

(Clause 3.2)

All dimensions in millimetres.

TOL $\begin{matrix} +1.5 \\ 0 \\ -3.0 \end{matrix}$ FOR $d \leq 16$ $\begin{matrix} +1.5 \\ 0 \\ -3.0 \end{matrix}$ FOR $d > 16$	NOMINAL DIAMETER d											
	12	(14)	16	(18)	20	(22)	24	(27)	30	(33)	36	
28												
30												
32												
35												
38												
40												
45												
50												
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225												
RIVET HOLE DIAMETER (FOR REFERENCE)	BASIC TOL H12	13.5	15.5	17.5	19.5	21.5	23.5	25.5	29.0	32.0	35.0	38.0

Note 1 — The nominal diameters in parenthesis are of second preference.

Note 2 — The preferred lengths are between the stepped lines.

IS : 1929 - 1982

8. General Requirements

8.1 The general requirements for the supply of rivets and their workmanship shall be in accordance with IS : 10102-1982.

8.2 Limits of surface cracks on rivets shall be in accordance with IS : 10102-1982.

9. Mode of Delivery — Rivets shall be packed and delivered as specified in IS : 10102-1982.

EXPLANATORY NOTE

This standard was first published in 1961. In the present revision the following major changes have been made:

a) The size range has been modified to 12 to 36 mm. The rivets in the present revision are meant for manufacture by hot forging only. Cold forged rivets up to size 16 mm are being covered separately in the revisions of IS : 2155 and IS : 2998.

b) Bend test and flattening test have been substituted by shear test and head soundness test which are more realistic.

c) The method of closing has been indicated.

d) The method of representation of tolerances for form and position has been updated.