

Indian Standard

SPECIFICATION FOR SLOTTED COUNTERSUNK HEAD BOLTS FOR STEEL STRUCTURES

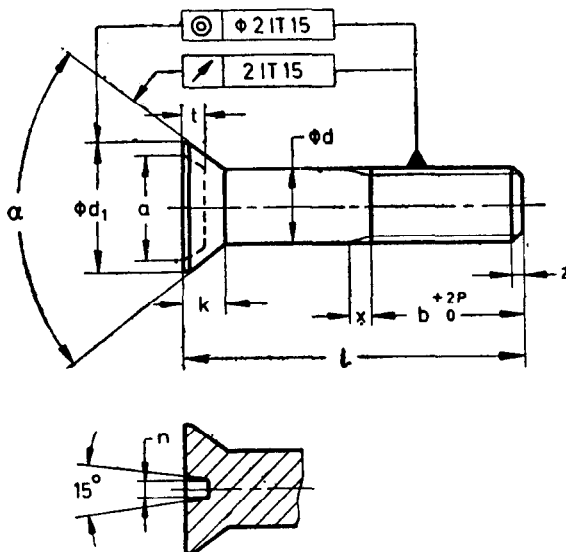
1. Scope — Covers the requirements of slotted countersunk head bolts for steel structures in the diameter range 10 to 24 mm.

2. Dimensions and Tolerances

2.1 As given in Table 1.

TABLE 1 DIMENSIONS FOR SLOTTED COUNTERSUNK HEAD BOLTS

All dimensions in millimetres.



P = pitch of the screw thread.

z according to IS : 1368-1967 'Dimensions for ends of bolts and screws (first revision)'.
 x according to IS : 1369-1975 'Dimensions for screw thread run-outs and undercuts (first revision)'.
 z according to IS : 1368-1967 'Dimensions for ends of bolts and screws (first revision)'.
 x according to IS : 1369-1975 'Dimensions for screw thread run-outs and undercuts (first revision)'.

Nominal Size	M10	M12	M16	M20	M22	M24
$d \text{ Nom (h15)*}$	10	12	16	20	22	24
$\alpha (+5^\circ)$	75°			60°		
$b \uparrow$	20	22	28	32	35	38
$b \ddagger$	25	28	35	40	45	50
$a \text{ Nom}$	14	16	22	25	27	29
$d_1 \text{ (h14)}$	17	21	28	32	35	38
$k (\approx \frac{1}{2}IT15)$	5.5	7	9	11.5	12	13
$n \text{ (H14)}$	2.5	3	4	5	5	5
$t \text{ Nom}$	3	4	4	4	5	6

*In addition to the tolerance of h15, the bolts are allowed to have the following tolerances on the shank diameter:

+IT15 for $d \leq 7 \text{ mm}$

+IT16 for $d > 7 \text{ mm}$

†For lengths above the stepped chain dotted line in Table 2.

‡For lengths below the stepped chain dotted line in Table 2.

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2.2 The preferred length size combinations of the bolts shall be as given in Table 2.

TABLE 2 PREFERRED LENGTH SIZE COMBINATIONS OF SLOTTED COUNTERSUNK HEAD BOLTS

All dimensions in millimetres.

l (js 17)	NOMINAL SIZE					
	M10	M12	M16	M20	M22	M24
20						
25						
30						
35						
40						
45						
50						
55						
60						
65						
70						
75						
80						
90						
100						
110						
120						
130						
140						
150						
160						

Note 1 — Preferred length size combinations are between the stepped bold lines.

Note 2 — Lengths above the dotted line are fully threaded.

Note 3 — For meaning of the stepped chain dotted line, see notes under Table 1.

3. Grade — Black grade (B) as specified in IS : 1367-1967 'Technical supply conditions for threaded fasteners (first revision)'.

4. Designation

4.1 Slotted countersunk head bolts shall be designated by the name, nominal size, length, number of this standard and symbol for mechanical property class.

Example:

A slotted countersunk head bolt of nominal size M16, length 70 mm and property class 8.8 shall be designated as:

Slotted Countersunk Head Bolt M16 × 70 IS : 8412-8.8.

4.2 When the bolts are required with nuts (see 7.1), they shall be designated as below:

Example:

A slotted countersunk head bolt of nominal size M16, length 70 mm with nut and property class 8.8 shall be designated as:

Slotted Countersunk Head Bolt M16 × 70N IS : 8412-8.8.

5. Mechanical Properties — Property classes 4.6 or 8.8 of IS : 1367-1967.

6. Sampling — Sampling and criteria of acceptance shall be in accordance with IS : 2614-1969 'Methods for sampling of fasteners (first revision)'.

7. General Requirements

7.1 Nuts used with slotted countersunk head bolts for steel structures shall conform to the requirements as specified in IS : 1363-1967 ' Specification for black hexagon bolts, nuts and lock nuts (dia 6 to 39 mm) and black hexagon screws (dia 6 to 24 mm) '.

7.2 In regard to requirements not covered in this standard the bolts shall conform to the requirements specified in IS : 1367-1967.

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

EXPLANATORY NOTE

In the preparation of this standard, considerable assistance has been derived from DIN 7969-1970 'Senkschrauben mit Schlitz, ohne Mutter, mit Sechskantmutter, für Stahlkonstruktionen' (Countersunk head bolts with slot without nut; with hexagon nut for steel structures), issued by Deutsches Institut für Normung.