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IS 281 (2009): Mild Steel Sliding Door Bolts for Use With Padlocks -Specification [CED 15: Builder Hardware]



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(चौथा पुनरीक्षण)

Indian Standard
**MILD STEEL SLIDING DOOR BOLTS FOR USE WITH
PADLOCKS — SPECIFICATION**
(*Fourth Revision*)

ICS 77.140.20; 91.190

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Builder's Hardware Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first published in 1951 and subsequently revised in 1964, 1973 and 1991. The present revision has been undertaken to incorporate necessary modifications based on experience gained during the use of the standard. In this revision, sliding door bolt, clip or bolt type with single flap hasp has been incorporated. Further, the carriage bolt size has been incorporated in relevant figures.

This standard contains clauses **4.1.1, 7.3, 8.1 and 8.2** which permit the purchaser to use his option for selection to suit his requirements.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

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.

Indian Standard

MILD STEEL SLIDING DOOR BOLTS FOR USE WITH PADLOCKS — SPECIFICATION

(*Fourth Revision*)

1 SCOPE

This standard specifies the requirements regarding materials, dimensions, manufacture and finish of mild steel sliding door bolts commonly used in general building construction for locking doors, gates, etc, with padlocks.

2 REFERENCES

The standards listed below contain provisions which through reference in this text, constitute provisions of 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 indicated below:

IS No.	Title
210 : 1993	Grey iron castings — Specification (<i>fourth revision</i>)
280 : 2006	Mild steel wire for general engineering purposes (<i>fourth revision</i>)
451 : 1999	Technical supply conditions for wood screws (<i>third revision</i>)
513 : 1994	Cold rolled low carbon steel sheets and strips (<i>fourth revision</i>)
1068 : 1993	Electroplated coatings of nickel plus chromium and copper plus nickel plus chromium — Specification (<i>third revision</i>)
1079 : 1994	Hot rolled carbon steel sheets and strips — Specification (<i>fifth revision</i>)
1378 : 1987	Specification for oxidized-copper finishes (<i>third revision</i>)
2062 : 2006	Hot rolled low, medium and high tensile structural steel (<i>sixth revision</i>)

3 TYPE

Mild steel sliding door bolts shall be of the following two types:

- a) Type I : Plate type (*see* Fig. 1A and 1B)
- b) Type II : Clip or bolt type:
 - 1) Clip or bolt type with single flap hasp (*see* Fig. 2A), and

- 2) Clip or bolt type with double flap hasp (*see* Fig. 2B).

4 SIZES

4.1 Mild steel sliding door bolts shall be of the following sizes:

- a) Plate type sliding bolts — 150, 200, 250, 300, 375 and 450 mm; and
- b) Clip or bolt type sliding bolts — 200, 250, 300, 375 and 450 mm.

4.1.1 Sliding door bolts of sizes other than those specified in 4.1 may also be supplied by mutual agreement between the purchaser and the supplier but they shall conform generally to the provisions laid down in this standard.

5 MATERIALS

5.1 Mild Steel Sheets

5.1.1 Mild steel sheets and plates used in the manufacture of mild steel sliding door bolts shall conform to Grade O of IS 1079 or Grade D of IS 513 and shall satisfy the bend test given in 5.1.2.

5.1.2 Suitable test pieces when cold shall withstand without fracture, being doubled over, either by pressure or by blows from a hammer, until the internal diameter is equal to twice the thickness of the test piece and the sides become parallel.

5.2 Mild Steel Wire

5.2.1 The steel wire used in the manufacture of sliding door bolts shall have a tensile strength of 450 to 650 MPa, conforming to 1/4 H of IS 280 and shall satisfy the bend test as given in 5.2.2.

5.2.2 The wire shall withstand being bent through an angle of 90° round a former of diameter equal to twice its own diameter without breaking or splitting.

5.3 Mild Steel Rods

Mild steel rods used in the manufacture of sliding door bolts shall conform to Grade Fe 410 W of IS 2062.

6 DIMENSIONS AND TOLERANCES

The leading dimensions of the plate type sliding door

bolts and tolerances thereon shall conform to those given in Table 1 and Fig. 1A and Fig. 1B; and that of clip or bolt type sliding door bolts with single flap hasp and clip or bolt type sliding door bolts with double flap hasp shall conform to those given in Fig. 2A and Fig. 2B respectively, and to the following:

<i>Size of Sliding Bolts, Clip or Bolts Type (see Fig. 2A and 2B)</i>	<i>Length of Sliding Bolt A</i>
(1)	(2)
200	200 ± 2
250	250 ± 2
300	300 ± 2
375	375 ± 3
450	450 ± 3

7 MANUFACTURE

7.1 General

The sliding door bolts shall have smooth sliding action. All screw holes shall be countersunk to suit the countersunk-head wood screws of sizes specified in Table 1 and Fig. 2A and 2B. All sharp edges and corners shall be removed and finished smooth.

7.2 Sliding Door Bolts, Plate Type

Back plate, straps and hasp shall be made from mild steel sheets. Sliding bolt shall be made from round mild steel bar. Hasp shall be cut to shape, finished and securely riveted in the bolt. The plate for the staple shall have holes for the staple and countersunk at the back. Staple shall be firmly riveted. In case the staple rod is not undercut at the ends for the purposes of riveting, it shall be so constructed as to form a check on the upper side to prevent its sliding. Alternatively, staples shall be manufactured in one piece design out of mild steel sheet as shown in Fig. 1B, 2A and 2B. The screw holes on the staple shall be so positioned that they are completely covered by the hasp in the closed position. Square holes 8 mm in size for the purpose of fixing carriage bolts shall be provided on the plate.

7.3 Sliding Bolts, Clip or Bolt Type

Hasp, clips and staple shall be made from mild steel sheets. Sliding bolt shall be made from round mild steel bar. Hasp shall be of suitable shape and shall be firmly riveted in the bolt. Staple shall be fitted to the staple plate as specified in 7.2. Alternatively, staples shall be manufactured in one piece design out of mild steel sheet as shown in Fig. 2A and 2B. Sliding bolts shall be provided with cast iron bolts manufactured from Grade

FG 200 of IS 210 or mild steel clips, as specified by the purchaser. The fixing bolts, if used, shall have threaded ends and shall be provided with round washers and nuts of square or hexagon type. Sliding bolts of sizes up to and including 300 mm shall be provided with three fixing bolts or clips, and sliding bolts of 375 mm and 450 mm sizes with five fixing bolts or clips.

8 FINISH

8.1 Sliding Bolts, Plate Type

Back plate, straps and staple plate shall be stove enamelled black before assembling. Hasp and bolt shall be finished bright or copper oxidized in accordance with IS 1378 or shall be plated with nickel or chromium in accordance with IS 1068 as specified by the purchaser.

NOTE — When the sliding bolts is to be finished bright, a thin coating of rust preventive shall be given.

8.2 Sliding Bolts, Clip or Bolt Type

Hasp, bolt, staple and clips or fixing bolts shall be copper oxidized in accordance with IS 1378 or shall be plated with nickel or chromium in accordance with IS 1068 as specified by the purchaser.

9 MARKING

9.1 Each sliding door bolt shall be stamped, preferably on the hasp, with the manufacturer's name or trade-mark.

9.1.1 BIS Certification Marking

Sliding door bolt may also be marked with the Standard Mark.

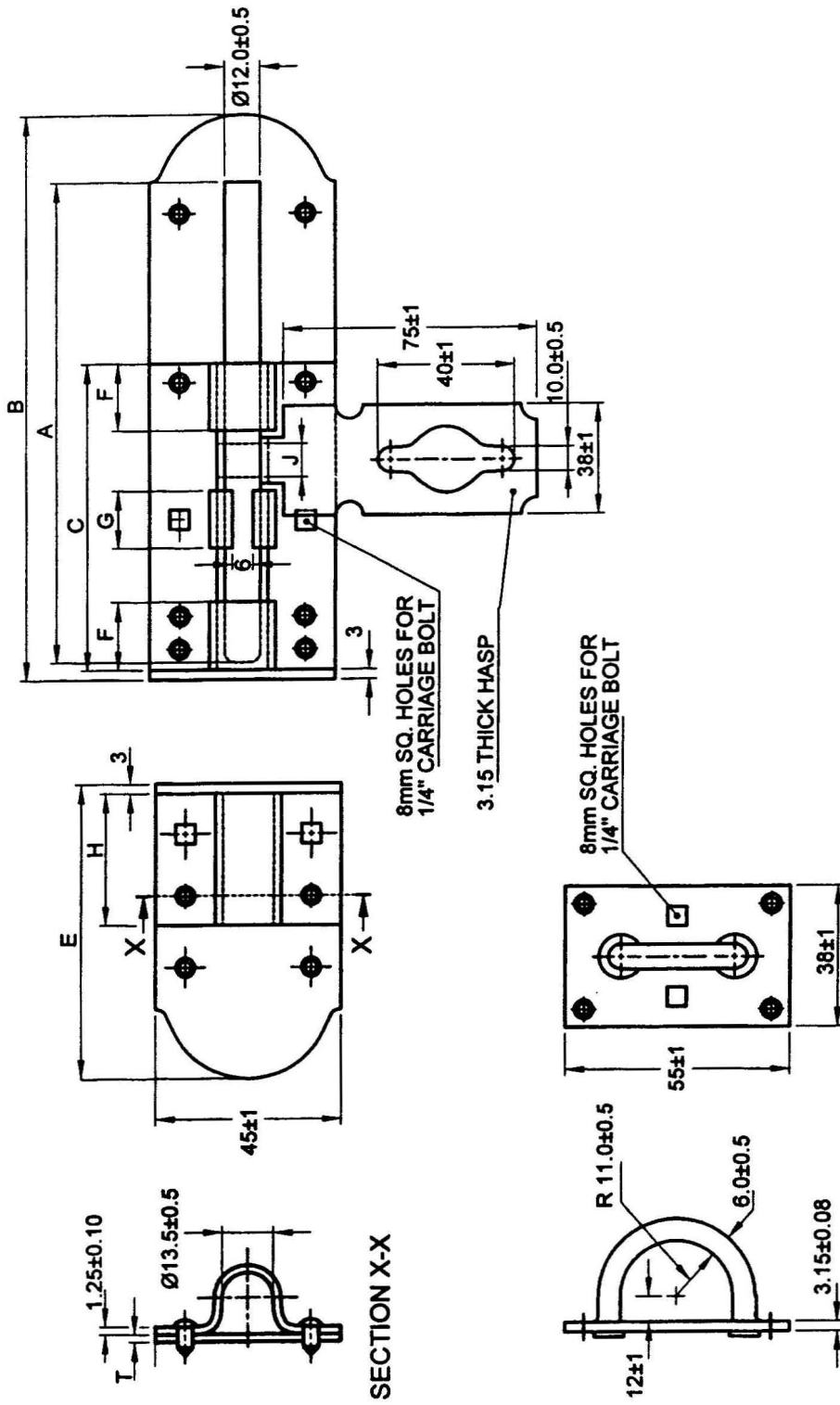
9.1.1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

10 PACKING

Sliding door bolts shall be wrapped in strong paper and shall be suitably packed in bundles or cardboard boxes. Each bundle or box shall bear a label showing the name of manufacturer or trade-mark, type, size and quantity of door bolts.

11 SAMPLING AND CRITERION FOR CONFORMITY

The scale of sampling and criteria for conformity shall be as given in Annex A.

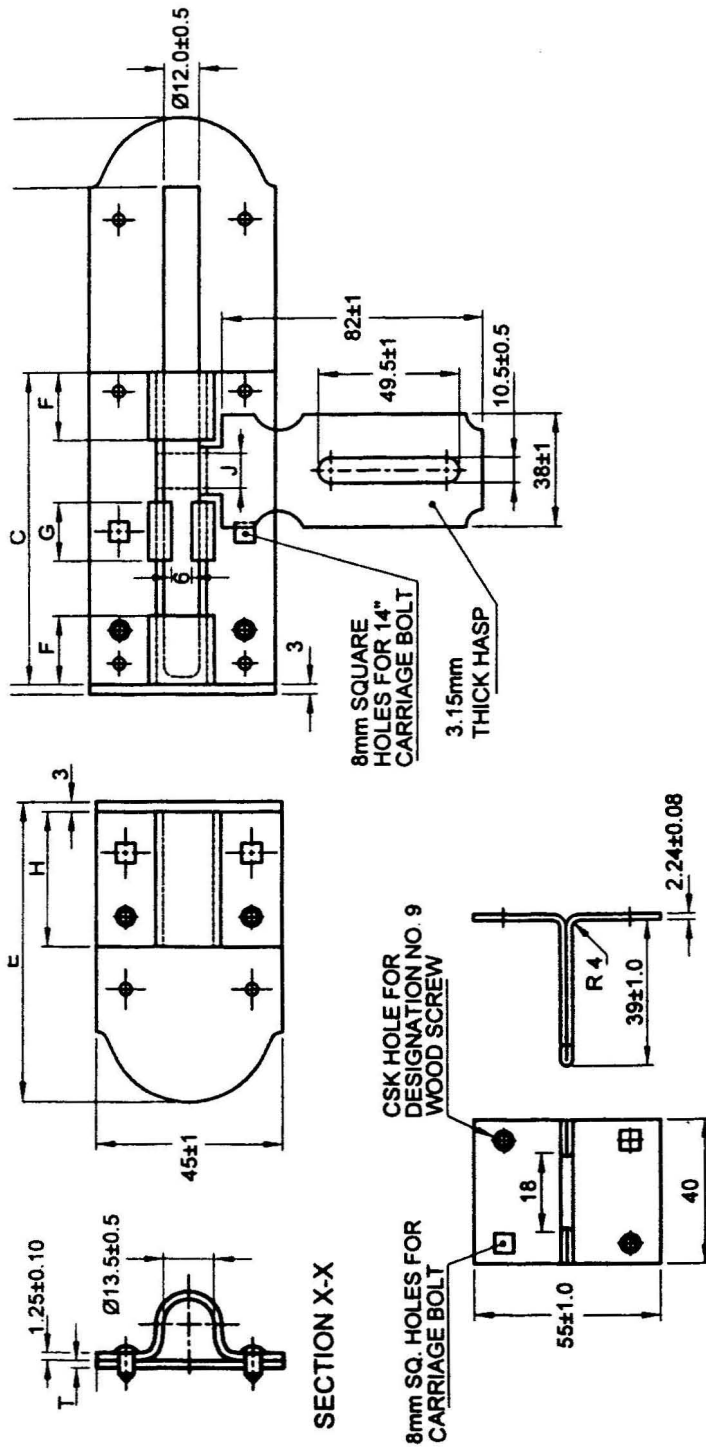


NOTE — Shapes of parts are only illustrative but the dimensions and the minimum requirements, where specified are binding.

1A With Typical Hasp Design

All dimensions in millimetres.

FIG. 1 MILD STEEL SLIDING DOOR BOLT, PLATE TYPE (Continued)

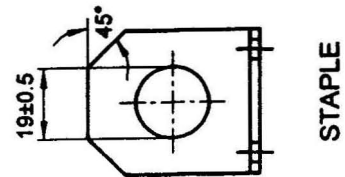


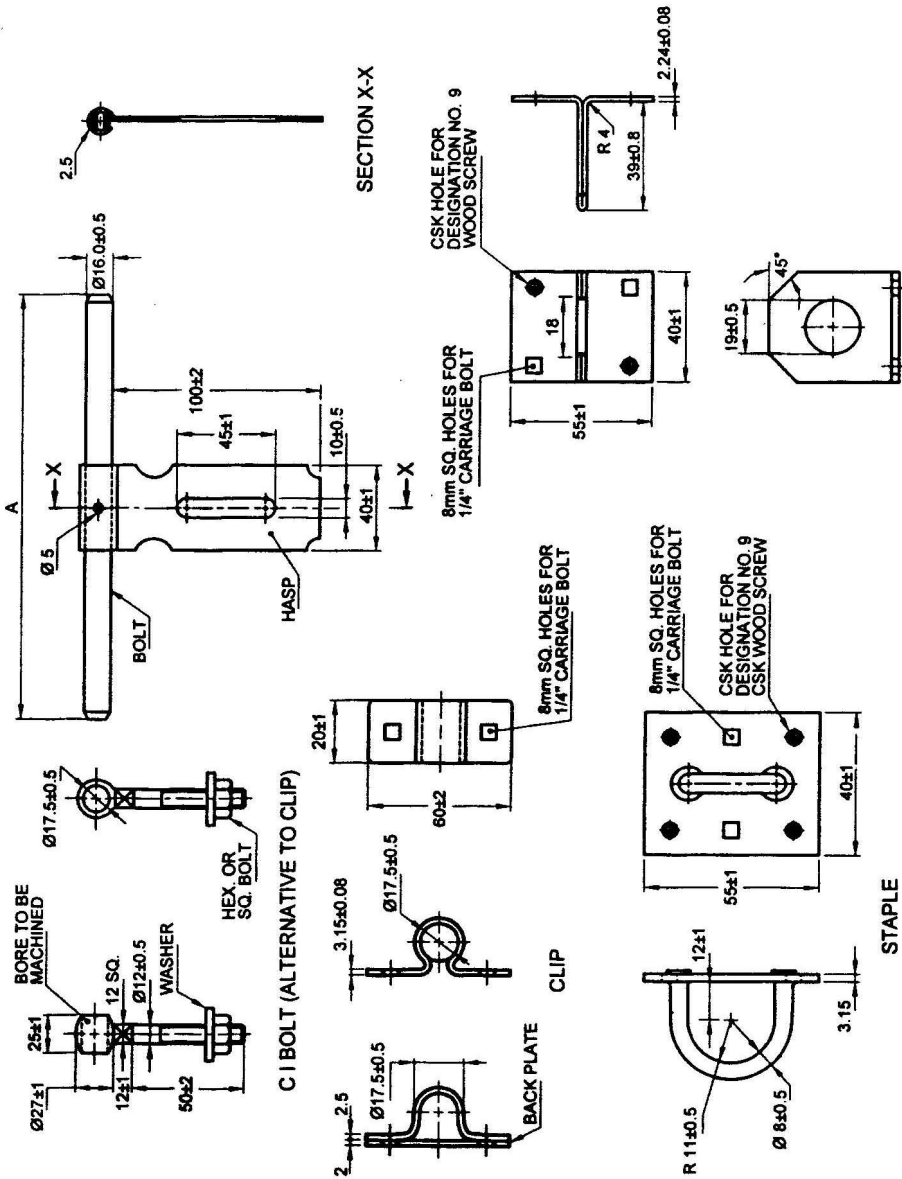
NOTE — Shapes of parts are only illustrative but the dimensions and the minimum requirements, where specified are binding.

1B With Alternate Hasp Design

All dimensions in millimetres.

FIG. 1 MILD STEEL SLIDING DOOR BOLT, PLATE TYPE





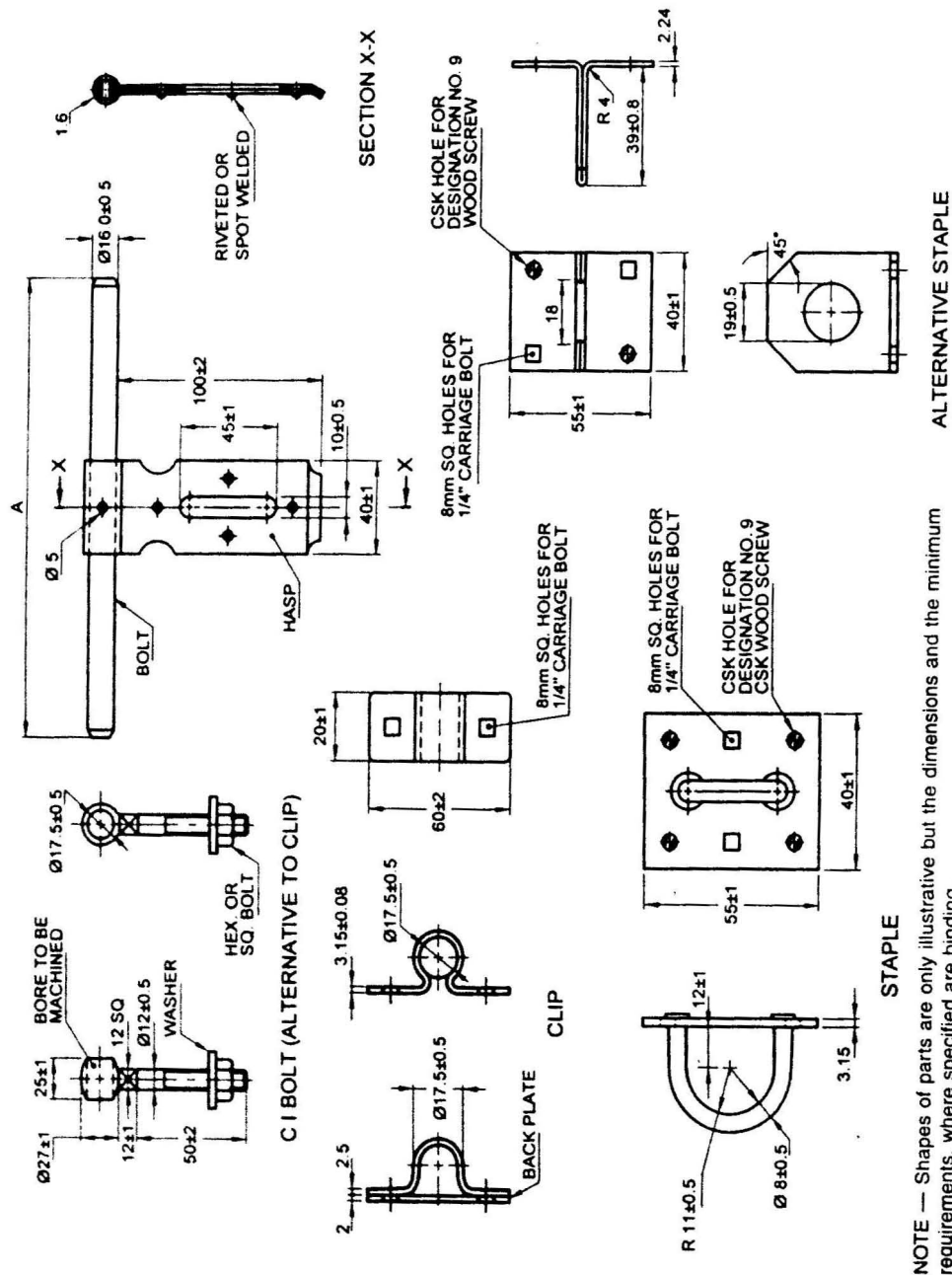
2A With Single Flap Hasp

NOTE — Shapes of parts are only illustrative but the dimensions and the minimum requirements, where specified are binding.

2A With Single Flap Hasp

All dimensions in millimetres.

FIG. 2 MILD STEEL SLIDING DOOR BOLT; CLIP OR BOLT TYPE (Continued)



All dimensions in millimetres.

2B With Double Flap Hasp

FIG. 2 MILD STEEL SLIDING DOOR BOLT; CLIP OR BOLT TYPE

Table 1 Dimensions of Mild Steel Sliding Door Bolts, Plate Type
(Clauses 6 and 7.1)

Sl No.	Size	Dimensions mm										Holes Drilled and Counter Sunk to Accommodate Wood Screw Designation No. (see IS 451)	No. of Rivets		No. of Screw Holes		No. of 8 m Square Holes for Carriage Bolts	
		A	B	C	E	F	G	H	J	T	Bolt Plate		Socket	Bolt	Socket	Staple	Plate and Socket	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
i)	150	150 ± 2	170 ± 3	110 ± 2	75 ± 2	25 ± 1	20 ± 1	34 ± 1	12	1.60 ± 0.10	9	4	2	4	2	4	4	2
ii)	200	200 ± 2	220 ± 3	135 ± 2	75 ± 2	32 ± 1	25 ± 1	34 ± 1	12	1.60 ± 0.10	9	4	2	6	2	4	4	2
iii)	250	250 ± 2	280 ± 3	180 ± 2	100 ± 2	32 ± 1	32 ± 1	64 ± 1	18	2.0 ± 0.10	9	4	4	6	4	4	4	2
iv)	300	300 ± 2	330 ± 3	200 ± 2	100 ± 2	38 ± 1	38 ± 1	64 ± 1	18	2.0 ± 0.10	9	6	4	6	4	4	4	2
v)	375	375 ± 3	405 ± 3	200 ± 2	100 ± 2	38 ± 1	38 ± 1	64 ± 1	18	2.0 ± 0.10	9	8	4	8	4	4	4	2
vi)	450	450 ± 3	480 ± 3	200 ± 2	100 ± 2	38 ± 1	38 ± 1	64 ± 1	18	2.0 ± 0.10	9	8	4	8	4	4	4	2

NOTE — For 375 mm and 450 mm sizes of bolt, one extra supporting clip, 31 ± 1 mm in length and made of 1.25 ± 0.10 mm thick mild steel sheet shall be provided

NOTE — For 375 mm and 450 mm sizes of bolt, one extra supporting clip, 31 ± 1 mm in length and made of 1.25 ± 0.10 mm thick mild steel sheet shall be provided

ANNEX A

(Clause 11)

SAMPLING AND CRITERION FOR CONFORMITY**A-1 LOT**

A-1.1 In any consignment, all the door bolts of the same type and size manufactured at the same time shall be grouped together to constitute a lot.

A-1.2 Lot Size and Sample Size

The number of door bolts to be selected from the lot shall depend on the size of the lot and shall be in accordance with col 2 and 3 of Table 2.

A-1.2.1 Door bolts for testing shall be selected at random from at least 10 percent of the packages subject to a minimum of three packages, equal number of door bolts being selected from each such package.

A-1.3 Tests

All the door bolts selected as in **A-1.2** shall be checked for dimensional requirements (*see 6*), defects in manufacture (*see 7*) and finish (*see 8*). Any door bolt which fails to satisfy any one or more of the requirements for the characteristics shall be considered as a defective door bolt.

A-2 CRITERION FOR CONFORMITY

A-2.1 The lot shall be considered as conforming to the

requirements of this standard, if the number of defective door bolts among those inspected does not exceed the corresponding number given in col 4 of Table 2, otherwise it shall be considered as not conforming to the requirements of the standard.

A-2.1.1 For conformity of the requirements of the material the manufacturer shall provide a certificate of compliance to the requirements of the corresponding Indian Standard (*see 5*).

Table 2 Scale of Sampling and Criterion for Acceptance
(Clauses A-1.2 and A-2.1)

Sl No.	Lot Size	Sample Size	Permissible No. of Defective Door Bolts
(1)	(2)	(3)	(4)
i)	Up to 200	15	0
ii)	201 - 300	20	1
iii)	301 - 500	30	2
iv)	501 - 800	40	2
v)	801 and above	55	3

NOTE — The sampling plan given here is such that lots with 1.5 percent or less defectives will be accepted most of the times.

ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Builder's Hardware Sectional Committee, CED 15

Organization	Representative(s)
In personal capacity (1421, Sector A, Pocket B & C, Vasant Kunj, New Delhi 110070)	SHRI B. MAJUMDAR (<i>Chairman</i>)
Allied Anodisers, Kolkata	SHRI SUSHIL TAWAR
Appex Association of DDA Colonies (Regd), Delhi	SHRI R. P. AGRAWAL SHRI R. R. SHARMA (<i>Alternate</i>)
Argent Industries, New Delhi	SHRI ANIL CHADHA SHRIMATI VANITA CHADHA (<i>Alternate</i>)
Builders Association of India, Jamshedpur	REPRESENTATIVE
Building Materials & Technology Promotion Council, New Delhi	SHRI B. ANIL KUMAR SHRI V. K. SETHI (<i>Alternate</i>)

Organization

Central Building Research Institute, Roorkee

Central Public Works Department, New Delhi

Construction Industries Development Council, New Delhi

D. P. Garg & Company, Noida

Delhi Development Authority, New Delhi

Engineer-in-Chief's Branch, New Delhi

Garnish Traders, New Delhi

Godrej & Boyce Manufacturing Co Limited, Mumbai

Hindalco Industries Limited, Distt Sonbhadra

Indian Aluminium Company Limited, New Delhi

Indian Institute of Architects, New Delhi

M.C. Mowjee & Co Pvt Limited, Kolkata

MECH (India) Industries, Delhi

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

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Amend No.	Date of Issue	Text Affected

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