IS 281 : 1991

(Reaffirmed 1996)

भारतीय मानक

पेडलाक के साथ उपयोग के लिए मृदु इस्पात के सरकवां दरवाजों के काबलें — विशिष्टि

(तीसरा पुनरीक्षण)

Indian Standard

MILD STEEL SLIDING DOOR BOLTS FOR USE WITH PADLOCKS — SPECIFICATION

(Third Revision)

UDC 683·311·2

BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

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Price Group 3

FOREWORD

This Indian Standard (Third 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 and 1990. In this revision, important changes in design of the staple have been incorporated. Further in this revision cold rolled low carbon steel sheets as per Grade D of IS 513 : 1986 has also been included apart from hot rolled carbon steel sheets and strips as per grade O of IS 1079 : 1988. Also general updating has been done in the standard.

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.

In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

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

(Third 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 Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 TYPE

Mild steel sliding door bolts shall be of two types, namely, plate type (*see* Fig. 1), and clip or bolt type (*see* Fig. 2).

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 3 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 : 1988 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 40 kgf/mm², *Min* conforming to $\frac{1}{4}$ H of IS 280 : 1978 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 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 of IS 226 : 1975.

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. 1 and of clip or bolt type sliding door bolts to those given in Fig. 2 and the following:

Size of Sliding Bolts, Clip or Bolts Type (*see* Fig. 2)	*Length of Sliding Bolt A*
mm	mm
200	200 ± 2
250	250 ± 2
300	300 ± 2
375	375 ± 3
450	450 ± 3

7 MANUFACTURE

7.1 General

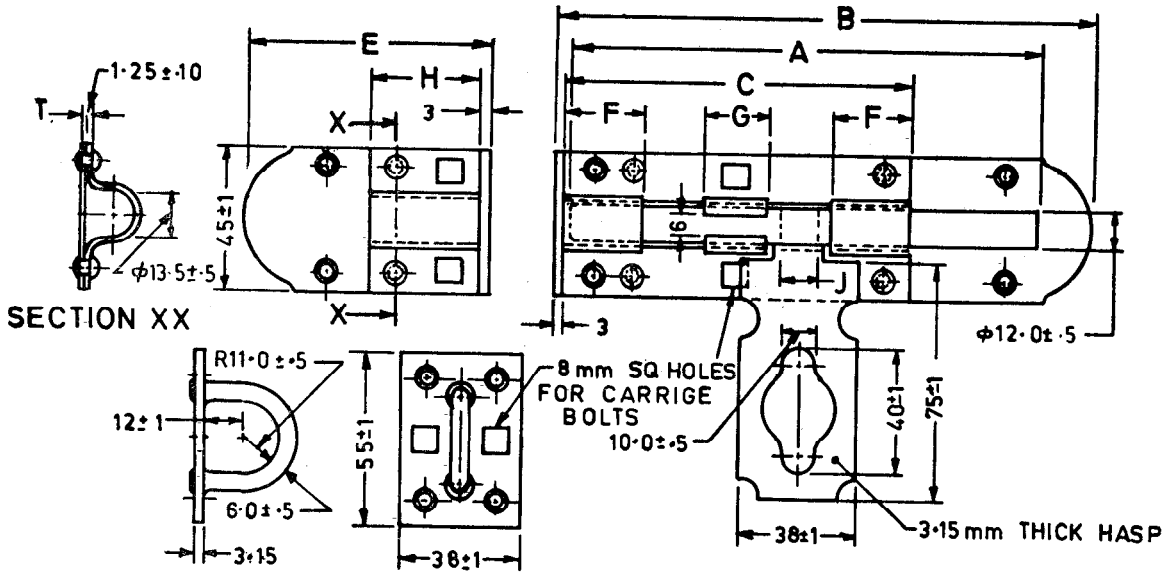
The sliding door bolts shall have smooth sliding action. All screw holes shall be

Table 1 Dimensions of Mild Steel Sliding Door Bolts, Plate Type

(*Clauses* 6 *and* 7.1; and *Fig.* 1)

Size	Dimensions									Holes Drilled and Countersunk to Accommodate Wood Screw Designation No. (*see* IS 451 : 1972)	No. of Rivets		No. of Screw Holes			No. of 8 mm Square Holes for Carriage Bolts	
	A	*B*	*C*	*E*	*F*	*G*	*H*	*J* *Min*	*T*		Bolt : Plate	Socket	Bolt	Socket	Staple	Plate and Socket	Staple
(1) mm	(2) mm	(3) mm	(4) mm	(5) mm	(6) mm	(7) mm	(8) mm	(9) mm	(10) mm	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
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
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
250	250 ± 2	280 ± 3	180 ± 2	100 ± 2	32 ± 1	32 ± 1	64 ± 1	18	2·00 ± 0·10	9	4	4	6	4	4	4	2
300	300 ± 2	330 ± 3	200 ± 2	100 ± 2	38 ± 1	38 ± 1	64 ± 1	18	2·00 ± 0·10	9	6	4	6	4	4	4	2
375	375 ± 3	405 ± 3	200 ± 2	100 ± 2	38 ± 1	38 ± 1	64 ± 1	18	2·00 ± 0·10	9	8	4	8	4	4	4	2
450	450 ± 3	480 ± 3	200 ± 2	100 ± 2	38 ± 1	38 ± 1	64 ± 1	18	2·00 ± 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 — Shapes of parts are only illustrative but the dimensions and the minimum requirements, where specified, are binding.

All dimensions in millimetres.

FIG. 1 MILD STEEL SLIDING DOOR BOLT, PLATE TYPE

countersunk to suit the countersunk-head wood screws of sizes specified in Table 1 and Fig. 2. 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. 2. 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. 2. Sliding bolts shall be provided with cast iron bolts manufactured from Grade Fe of 200 of IS 210 : 1978 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

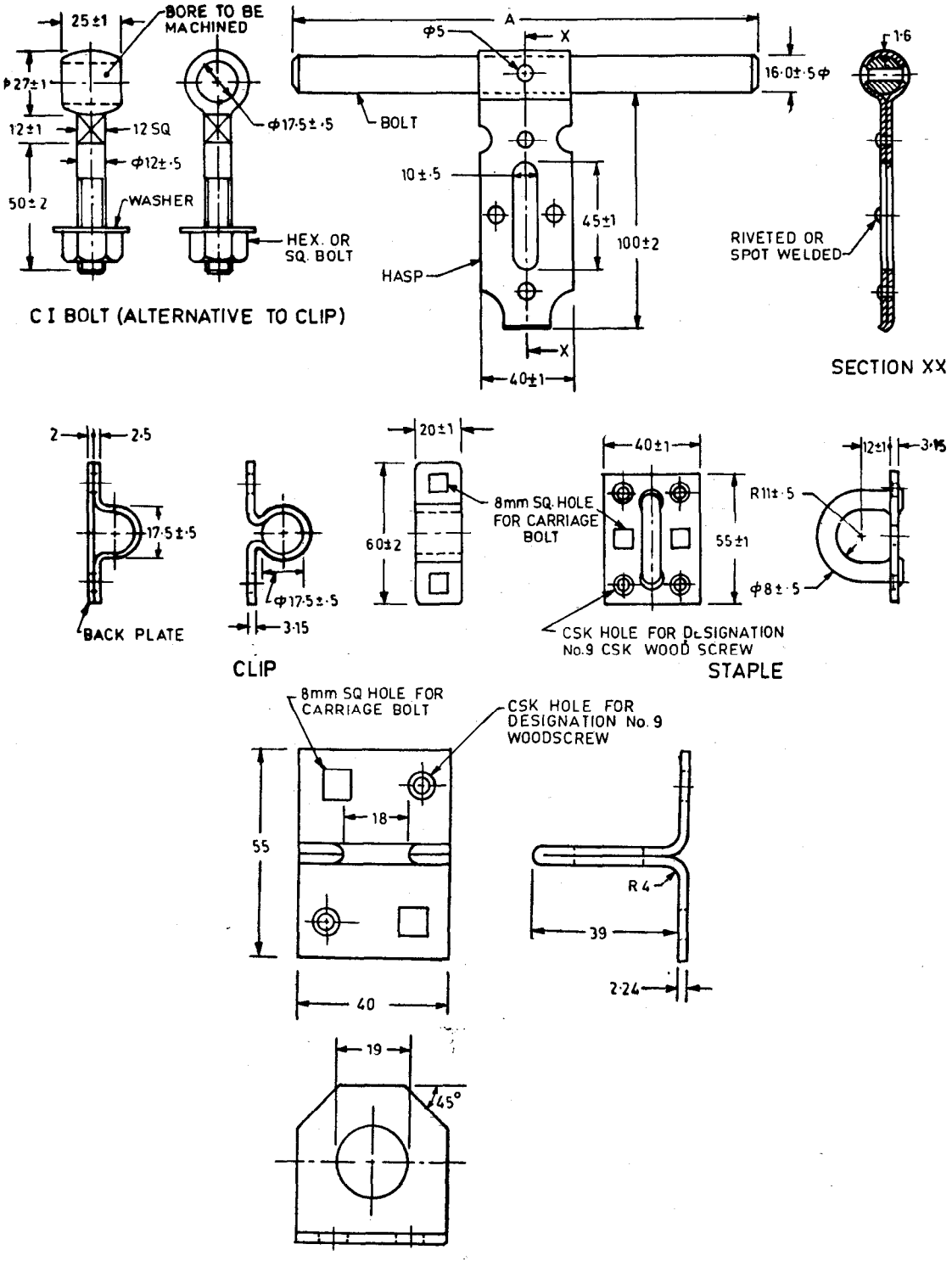
8.1 Sliding Bolts, Plate Type

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 : 1987 or shall be plated with nickel or chromium in accordance with IS 1068 : 1985 as specified by the purchaser.

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 : 1987 or shall be plated with nickel or chromium in accordance with IS 1068 : 1985 as specified by the purchaser.

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



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

All dimensions in millimetres.

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

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

10 PACKING

10.1 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 B.

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*	*IS No.*	*Title*
210 : 1978	Grey iron castings (*third revision*)	1068 : 1985	Electroplated coatings of nickle plus chromium and copper plus nickel plus chromium on iron and steel (*second revision*)
226 : 1975	Structural steel (standard quality) (*fifth revision*)		
280 : 1978	Mid steel wire for general engineering purposes (*third revision*)	1079 : 1988	Hot rolled carbon steel sheet and strip (*fourth revision*)
451 : 1972	Technical supply conditions for wood screws (*second revision*)	1378 : 1987	Oxidized-copper finishes (*third revision*)

ANNEX B

(*Clause* 11)

SAMPLING AND CRITERION FOR CONFORMITY

B-1 LOT

B-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.

B-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 1 and 2 of Table 2.

Table 2 Scale of Sampling and Criterion for Acceptance

(*Clauses* B-1.2 *and* B-2.1)

Lot Size	Sample Size	Permissible No. of Defective Door Bolts
(1)	(2)	(3)
Up to 200	15	0
201 to 300	20	1
301 to 500	30	2
501 to 800	40	2
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.

B-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.

B-1.3 Tests

All the door bolts selected as in **B-1.2** shall be checked for dimensional requirements (*see* **16**), defects in manufacture (*see* **17**) and finish (*see* **18**). Any door bolts which fails to satisfy any one or more of the requirements for the characteristics shall be considered as a defective door bolt.

B-2 CRITERION FOR CONFORMITY

B-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 3 of Table 2 otherwise it shall be considered as not conforming to the requirements of the standard.

B-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**).

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Revision of Indian Standards

Indian Standards are reviewed periodically and revised, when necessary and amendments, if any, are issued from time to time. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition. Comments on this Indian Standard may be sent to BIS giving the following reference:

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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AMENDMENT NO. 1 JULY 1992
TO
IS 281 : 1991 MILD STEEL SLIDING DOOR BOLTS FOR USE WITH PADLOCKS — SPECIFICATION

(Third Revision)

(*Page* 1, *clause* 5.1.1) — Substitute the following for the existing clause :

'5.1.1 Mild steel sheets and plates used in the manufacture of sliding door bolts shall conform to Grade D of IS 513 : 1986 or Grade O of IS 1079 : 1988 and shall satisfy the bend test given in 5.1.2.'

(*Page* 5, *Annex* A) — Insert the following :

'IS 513 :1986 Cold rolled low carbon steel sheets and strips (*third revision*).'

(CED 15)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 OCTOBER 1997
TO
IS 281 : 1991 MILD STEEL SLIDING DOOR BOLTS FOR USE WITH PADLOCKS — SPECIFICATION

(Third Revision)

(*Page* 1, *clause* **5.2.1**, *line* 3) — Substitute '450-650 MPa' *for* '40 kgf/mm^2, *Min*'.

(*Page* 1, *clause* **5.3**, *line* 3) — Substitute 'IS 2062 : 1992' *for* 'IS 226 : 1975'.

(*Page* 5, *Annex* A) — Substitute ' IS 2062:1992 Steel for general structural purposes (*fourth revision*)' *for* '226 : 1975 Structural steel (standard quality) (*fifth revision*)'.

(CED 15)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 APRIL 2001
TO
IS 281 : 1991 MILD STEEL SLIDING DOOR BOLTS FOR USE WITH PADLOCKS — SPECIFICATION

(Third Revision)

(*Page* 4, *Fig.* 2) — Substitute '3.15 ± 0.08' *for* '3.15', '2.24 ± 0.08' *for* '2.24', '39±1' *for* '39'; and '19±0.5' *for* '19'.

(CED 15)

Reprography Unit, BIS, New Delhi, India