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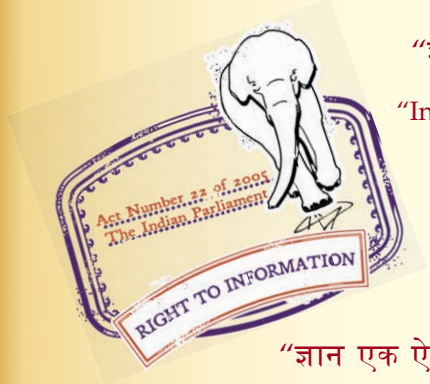
IS 5930 (1970): mortice latch (vertical type) [MED 33: Utensils, Cutlery and Domestic Hardware]



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IS : 5930 - 1970

Indian Standard

SPECIFICATION FOR MORTICE LATCH (VERTICAL TYPE)

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April 1971

Indian Standard

SPECIFICATION FOR MORTICE LATCH (VERTICAL TYPE)

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Indian Standard

SPECIFICATION FOR MORTICE LATCH (VERTICAL TYPE)

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 24 November 1970, after the draft finalized by the Builder's Hardware Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Mortice latches for bathroom and W. C. doors are being used in almost all modern buildings these days for their appearance and convenience in use.

0.3 This standard has been prepared to lay down the essential requirements for mortice latches. The latches can be operated both from inside and outside and are provided with a thumb turn knob fitted on the handle plate, in order to close the door from inside while the compartment is in use. Mortice latches are particularly useful for use on bathroom and W. C. doors. These can also be used on doors for private rooms, officer's chambers, etc.

0.4 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.

0.5 This standard is one of a series of Indian Standards on builder's hardware.

0.6 This standard contains clauses **2.2**, **7.2**, **8.1** and **9.1.1** which permit the purchaser to use his option for selection to suit his requirements. It also contains clause **4.1** which permits the manufacturer to change the shape and mechanism of mortice latch to suit a particular design.

0.7 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*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard lays down the requirements for mortice latches for use on doors, such as bathroom doors, W. C. doors and doors to private rooms.

2. SIZE

2.1 The sizes of the mortice latch for bathroom and W. C. doors shall be as follows:

65 mm. 75 mm and 100 mm

2.1.1 The size of the latches shall be denoted by the overall length of the body measured from the outside face of the fore end to the rear end (*see* Fig. 1). The measured length shall not vary by more than 3 mm from the length specified for the size.

2.2 Mortice latches of sizes other than those specified in 2.1 may be supplied by mutual agreement between the purchaser and the supplier.

3. MATERIAL

3.1 The material used for different component parts of the latches shall comply with the requirements given in Tables 1 and 2.

4. SHAPE

4.1 The shape, design and mechanism of mortice latch and its component parts indicated in Fig. 1 are illustrative only. The manufacturer may make mortice latches of any shape to suit his design.

5. DIMENSIONS

5.1 The leading dimensions of the mortice latches shall be normally as given in Fig. 1.

6. INTERCHANGEABILITY

6.1 The component parts of all latches of the same size and type shall be completely interchangeable. For the purpose of ascertaining the requirements, the sampling scheme indicated in 12 shall be followed.

7. MANUFACTURE

7.1 **Body** — The depth of the body shall not be more than 15 mm.

7.2 **Fore End** — The case plate itself may form the fore end. However, where so desired by the purchaser, in order to obtain a clean plate free from rivets and to assist in decorating the fore end a face plate may be provided. The fore end shall be firmly fitted to the body by suitable countersunk head machine screws conforming to IS : 1365-1968* or any other suitable device.

*Specification for slotted countersunk head and slotted raised countersunk head screws (dia range 1·6 to 20 mm) (*second revision*).

7.3 Locking Bolt — The locking bolt shall be of a single metal or a combination of metals recommended for this part in Table 1. The bolts shall be of section not less than 8 × 25 mm for all sizes of locks. When made out of steel, it shall be adequately protected against corrosion.

7.3.1 If made as two-piece construction, both parts shall be riveted together and soundly brazed all round the surface of contact. The mild steel parts shall be zinc plated in accordance with IS:1573-1960* and shall conform to Grade C (IS Designation Zn 5) of IS:1573-1960*.

7.4 Mechanism — The latch shall operate easily and freely from both the sides of door to which it is fitted. Locking arrangement from the inside shall also operate freely and easily. The bolt shall turn into the locking position when the thumb turn knob is turned through 90°.

7.5 Latch Spring — Each latch bolt shall be fitted with one spring which shall be of materials as specified in Table 1. The latch spring shall withstand the test as given in **7.5.1** without showing any sign of permanent set.

7.5.1 The latch spring shall be pressed so as to fully collapse and released. There shall be no indication of permanent set after repeating the above test for 12 times.

7.6 Guide Pin, Lever-Pivot Pin and Lever-Spring Fulcrum Pin — These shall be of mild steel in case of brass body and of stainless steel in case of aluminium alloy body. The pins may be cast as integral part of the body plate, or screwed and riveted.

7.7 Follower — It shall have a square hole at the centre to suit the spindle which operates the latch bolt. It shall be protected against corrosion when made from malleable iron.

7.8 Striking Plate — The striking plate shall have two rectangular slots to suit the locking bolt and the latch bolt. It shall also have two countersunk holes for fixing it to the door frame or shutter.

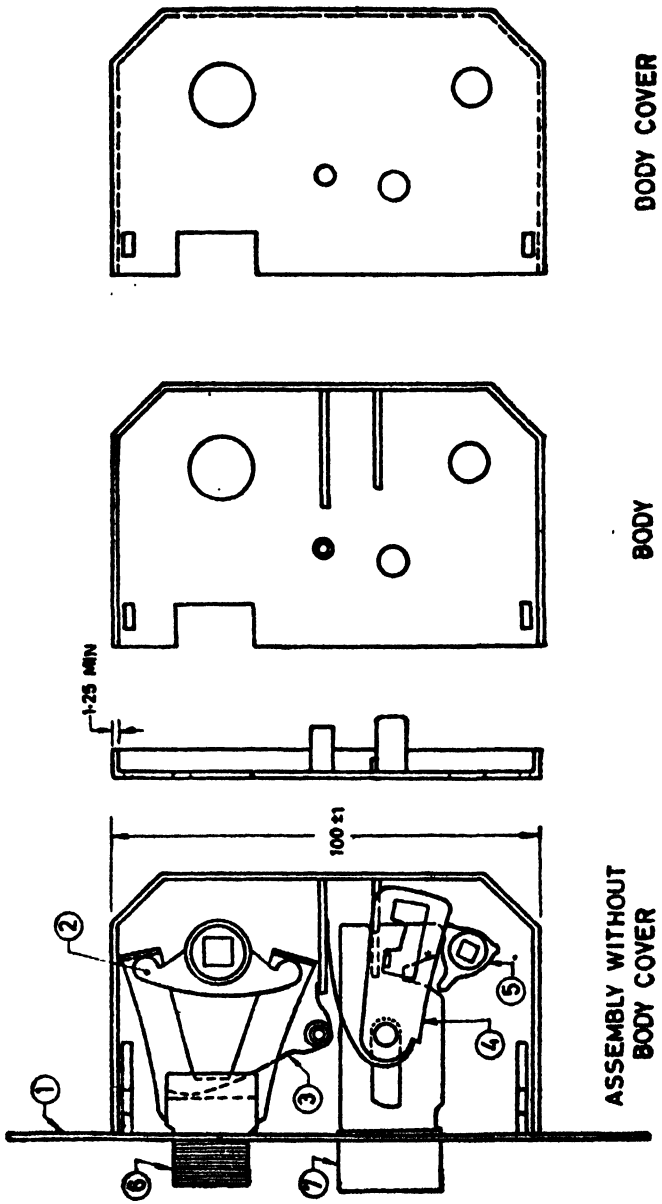
7.9 Lever Spring — The lever shall be fitted with one spring which shall comply with the materials specified in Table 1. The lever spring fitted into the lever shall withstand the following test without showing any signs of permanent set:

a) The lever spring shall be pressed down so as to touch the top edge of the lever and released. This shall be repeated six times.

b) The lever spring shall also stand a transverse load of 15 kg before the failure of the joint between the lever and the spring takes place.

NOTE — The lever shall be rigidly held flat and a point load of 15 kg applied to the spring gradually. The spring shall withstand the total load before the final failure of the joint between the lever and the lever spring occurs.

*Specification for zinc plating.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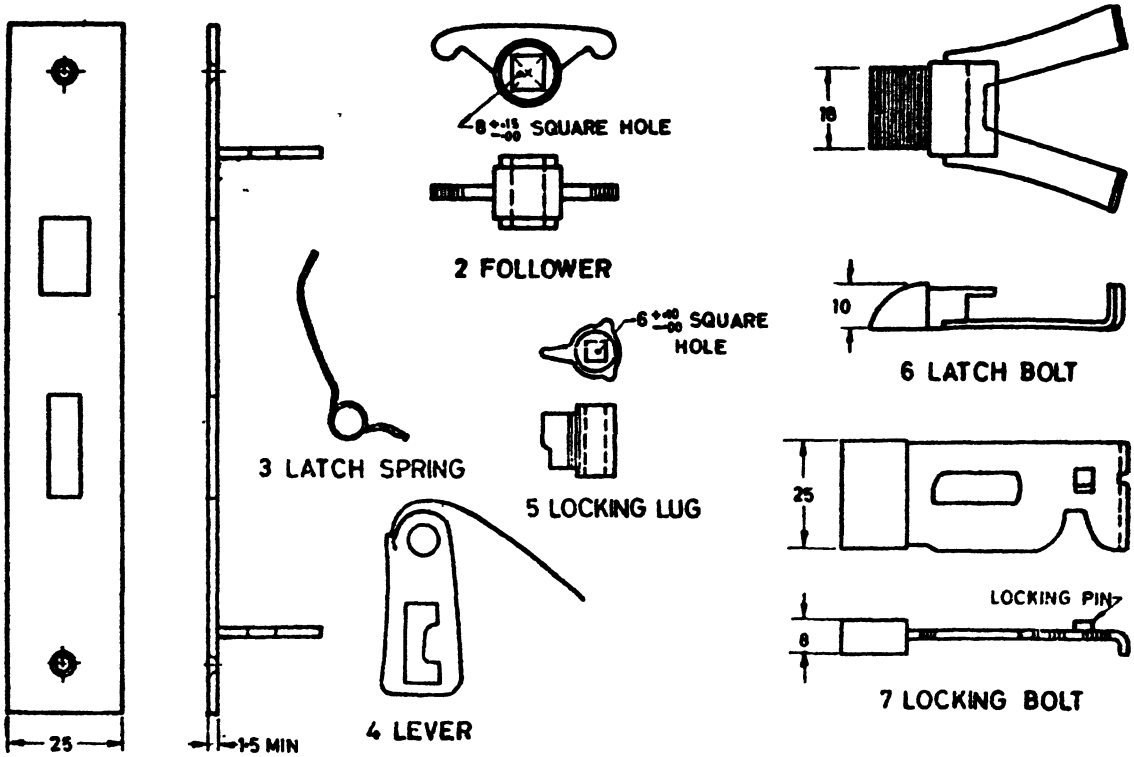

All dimensions in millimetres.

FIG. 1 TYPICAL DESIGN OF MORTICE LATCH (VERTICAL TYPE)

TABLE 1 MATERIALS FOR VARIOUS COMPONENT PARTS OF MORTICE LATCHES

(*Clauses* 3.1, 7.3, 7.5 and 7.9)

Sl No.	Components	Mild Steel	Malleable Iron	Cast Brass	Brass Sheet	Extruded Brass	Aluminium Alloy Pressure Die Castings	Aluminium Alloy Sheet	Leaded Tin Bronze	Zinc Base Alloy Die Casting	Phosphor Bronze	Steel Wire	Stainless Steel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
i)	Body	Yes	—	Yes	Yes	—	Yes	Yes	—	Yes	—	—	—
ii)	Body cover	Yes	—	Yes	Yes	—	Yes	Yes	—	Yes	—	—	—
iii)	Case plate	Yes	—	Yes	Yes	—	—	Yes	—	—	—	—	—
iv)	Follower	—	Yes	Yes	—	—	Yes	—	Yes	Yes	—	—	—
v)	Face plate	Yes	—	Yes	Yes	—	—	Yes	—	—	—	—	—
vi)	Striking plate	Yes	—	Yes	Yes	—	—	Yes	—	—	—	—	—
vii)	Lever	Yes	—	—	Yes	—	—	—	—	—	—	—	Yes
viii)	Locking bolt and latch bolt	Yes	—	—	—	Yes	—	—	—	—	—	—	—
ix)	Lever spring and latch spring	—	—	—	—	—	—	—	—	—	Yes	Yes	—

8. WORKMANSHIP AND FINISH

8.1 Brass body shall be finished smooth. Steel body shall be given a suitable protective coating, such as painting. Aluminium alloy body may be anodized to Grade B of IS : 1868-1968*. Face plate and striking plate shall be finished smooth and polished bright or satin. Where so desired by the purchaser, face plate and striking plate may also be chromium plated, anodized or oxidized.

9. TESTS

9.1 The finally assembled latch shall withstand the tests given in **9.1.1** to **9.1.3**.

9.1.1 The locking bolt shall be first locked in the forward position. A load as agreed to between the manufacturer and the purchaser shall be applied without shock in the direction perpendicular to securing face as well as on both the locking faces of protruding bolt in turn. Then the load shall be applied by means of a fixed steel board 3 mm thick by a rounded edge held in such a position that the centre line is approximately 3 mm from the fore end. A typical arrangement for the purpose of this test is shown in Fig. 2.

9.1.2 When the spindle with handle is inserted into hole in the follower and turned, the latch bolt shall draw smoothly into the lock body and shall be within one millimetre from the face of the fore end.

9.1.3 When the latch bolt is pressed into the lock body by pressure, the action shall be smooth and when fully pressed the latch bolt shall not project more than one millimetre from the face of the fore end.

10. MARKING

10.1 Each mortice latch shall be stamped with the following information:

a) Manufacturer's name or trade-mark,
b) Year of supply (if specified by the purchaser),
c) Size of mortice latch,
d) Number of levers, and
e) Country of origin.

10.1.1 The mortice latches may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this 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 during production. This system which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

*Specification for anodic coatings on aluminium (*first revision*).

TABLE 2 REQUIREMENTS FOR MATERIAL FOR MORTICE LATCHES

(*Clause* 3.1)

Sl No.	Material	Typical Example	Requirement of Material
(1)	(2)	(3)	(4)
i)	Mild steel	Grade 0 of IS : 1079-1968[1]	Finished components shall satisfy the following bend test: 'The component part when cold shall withstand, without developing cracks being doubled over either by pressure or by blows from hammer until the internal radius is equal to the thickness of diameter of the component part and the sides are parallel'
ii)	Malleable iron	Grade A or B of IS : 2108-1962[2]	—
iii)	Cast brass	Grade 3 g of IS : 292-1961[3]	Copper content shall be not less than 60 percent. Castings shall be free from blow holes, surface and other casting defects
iv)	Extruded brass	IS : 319-1968[4]	Copper contents shall not be less than 55 percent and tensile strength 35 kg/mm^2, *Min*
v)	Brass sheet	Grade BS 60 of IS : 410-1967[5]	The brass sheet shall meet the same bend test as specified for mild steel
vi)	Brass wire	IS : 2704-1964[6]	Copper contents shall not be less than 55 percent and tensile strength 35 kg/mm^2, *Min*
vii)	Phosphor bronze wire	PCUSN 4 of IS : 1385-1968[7]	The wire used for spring shall comply with the test below: 'The lever spring shall be fitted into the lever as specified under 7.5.1 and shall be pressed down so as to touch the top edge of the lever and released. This shall be repeated six times. At the end of the test the spring shall regain its original position'

viii)	Steel wire	Grade 2 of IS : 4454-1967[8]	The wire used for springs shall comply with the test given below: 'The lever spring shall be fitted into the lever as specified under 7.5.1 and shall be pressed down so as to touch the top edge of the lever and released. This shall be repeated six times. At the end of the test the spring shall regain its original position'
ix)	Leaded tin bronze	IS : 318-1962[9]	—
x)	Zinc base alloy die casting	IS : 742-1966[10]	—
xi)	Aluminium alloy castings	IS Designation A-5-M or A-5-M of IS : 617-1959[11]	—
xii)	Aluminium alloy sheet	IS Designation NS4 or HS 20 of IS : 737-1965[12]	—
xiii)	Stainless steel	—	—
xiv)	Aluminium alloy	IS : 740-1966[13]	—
xv)	Zinc plated steel	Grade C (IS Designation Zn 5) of IS : 1573-1960[14]	—

[1]Specification for hot rolled carbon steel sheet and strip (*second revision*).
[2]Specification for blackheart malleable iron castings.
[3]Specification for brass ingots and castings (*revised*).
[4]Specification for free-cutting brass rods and sections (*second revision*).
[5]Specification for rolled brass plate, sheet, strip and foil (*second revision*).
[6]Specification for brass wire for cold-headed and machined parts.
[7]Specification for phosphor bronze rods and bars, sheet and strip, and wire.
[8]Specification for steel wires for cold formed springs.
[9]Specification for leaded tin bronze ingots and castings (*revised*).
[10]Specification for zinc base alloy die castings (*first revision*).
[11]Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes (*revised*).
[12]Specification for wrought aluminium and aluminium alloys, sheet and strip (for general engineering purposes) (*revised*).
[13]Specification for wrought aluminium and aluminium alloys, rivet stock (for general engineering purposes) (*revised*).
[14]Specification for zinc plating.

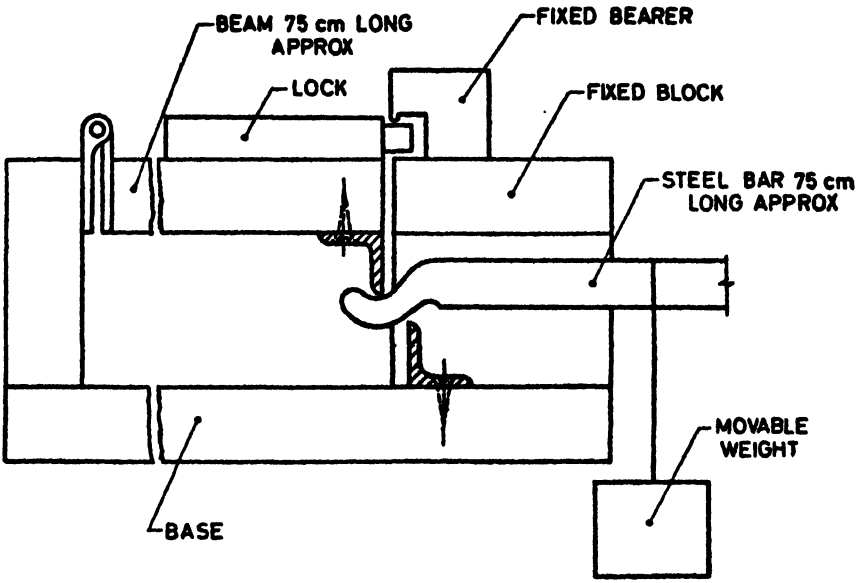

FIG. 2 STRENGTH TEST FOR LOCKING BOLT

11. PACKING

11.1 Each mortice latch shall be wrapped in a paper and packed in a cardboard box. Each cardboard box should be marked with the following information:

a) Manufacturer's name or trade-mark,
b) Type of latch,
c) Size of latch,
d) Quantity in the package, and
e) Country of origin.

12. SAMPLING AND CRITERIA FOR CONFORMITY

12.1 Sampling

12.1.1 In any consignment all the latches of the same size and type shall constitute a lot. This shall be ascertained by carrying out a general visual inspection of the consignment to check that the lot is of the same type and size and appears to be homogeneous in regard to origin, source of production, period of manufacture and any other visually ascertainable

characteristics. In case the consignment does not appear to be homogeneous, it should be segregated into separate groups, each group being homogeneous within itself and treated as a separate lot for the purpose of sampling.

12.1.2 Number of latches to be selected at random from a lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 3.

TABLE 3 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVE LATCHES

(*Clauses* 12.1.2 *and* 12.2.1)

LOT SIZE	SAMPLE SIZE	PERMISSIBLE NUMBER OF DEFECTIVES
(1)	(2)	(3)
Up to 200	15	0
201 ,, 300	20	1
301 ,, 500	30	2
501 ,, 800	40	2
801 and above	50	3

12.1.3 Latches for the sample shall be selected at random from at least 10 percent of the packages subject to a minimum of three packages, equal number of latches being selected from each such package.

12.2 Criteria for Conformity

12.2.1 The latches selected according to **12.1.3** shall be inspected for conformity to dimension, workmanship and finish, manufacturing details and testing for smooth working. The lot shall be considered as conforming to these requirements if the number of locks failing in any one or more of the requirements does not exceed the permissible number of defectives given in col 3 of Table 3.

INDIAN STANDARDS INSTITUTION

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002
Telephones : 331 01 31, 331 13 75 Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :	*Telephone*
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