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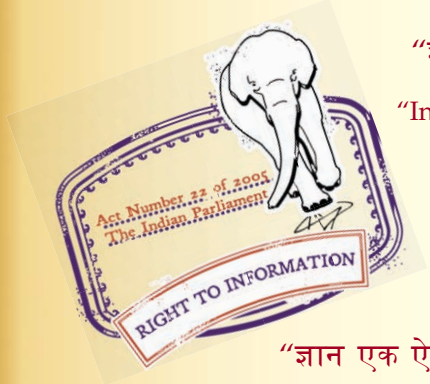
IS 7540 (1974): mortice dead locks [MED 33: Utensils, Cutlery and Domestic Hardware]



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IS : 7540 - 1974

Indian Standard

"पुनर्पुष्टि १९९६"
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SPECIFICATION FOR MORTICE DEAD LOCKS

UDC 683·336·96

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110001

June 1975

AMENDMENT NO. 1 JUNE 1979
TO
IS : 7540 - 1974 SPECIFICATION FOR MORTICE DEAD LOCKS

Alteration

(*Page* 4, *clause* **2.1.1**) — Substitute the following for the existing clause:

'**2.1.1** The size of the lock 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 be more than ± 3 mm from the length specified for the size.'

(BDC 15)

Printed at Simco Printing Press, Delhi, India

Indian Standard

SPECIFICATION FOR MORTICE DEAD LOCKS

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(*Continued on page* 2)

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Indian Standard

SPECIFICATION FOR MORTICE DEAD LOCKS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 13 December 1974, after the draft finalized by the Builder's Hardware Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Mortice dead locks have a single bolt which is shot and withdrawn by means of a key (from either side) providing reasonable degree of security. Being a lock for occasional rather than frequent use it is well suited for use alone, or as an additional lock for the doors of store rooms, cellars, warehouses, etc. This standard is being issued with a view to lay down the essential requirements of mortice dead locks for the guidance of manufacturers and users.

0.3 This standard contains clauses **2.2**, **5.1.1** and **7.1.2** which permit the purchaser to use his option for selection to suit his requirements and clauses **6.1** and **6.2** which require the purchaser to supply certain technical information at the time of placing orders.

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 practice in the field in this country.

0.5 This standard is one of a series of Indian Standards on builder's hardware. Other standards published so far in the series are given on page 14.

0.6 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.

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1. SCOPE

1.1 This standard lays down requirements for mortice dead locks.

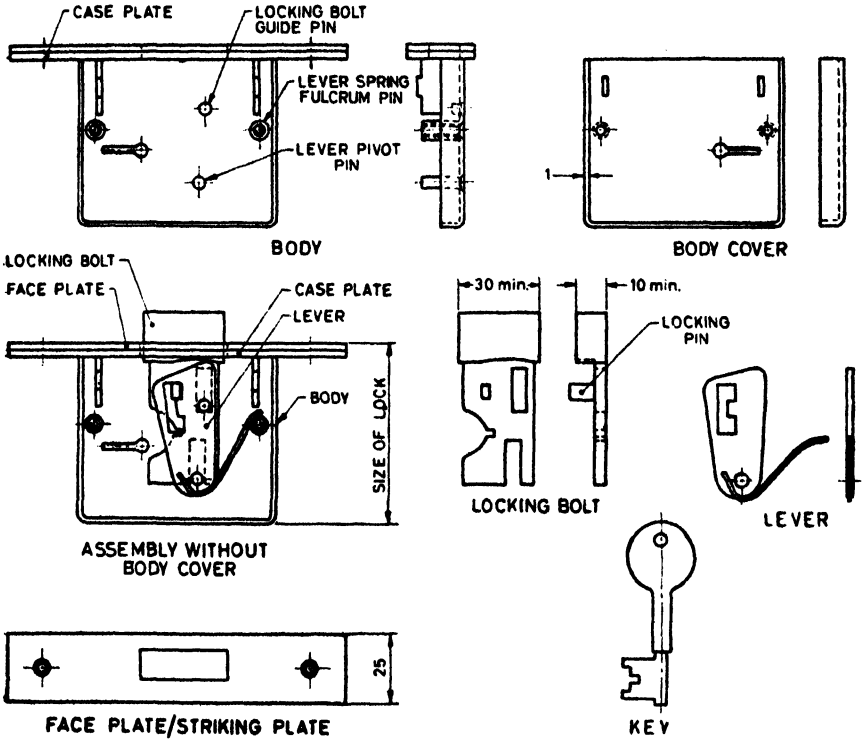
*Rules for rounding off numerical values (*revised*).

2. SIZE

2.1 The size of mortice dead locks shall be as follows:

45 mm, 65 mm and 75 mm.

2.1.1 The size of the lock shall be denoted by the length of face over the body in millimetres (*see* Fig. 1). The measured length shall not vary by more than ± 3 mm from the length specified for the size.



All dimensions in millimetres.

FIG. 1 TYPICAL DETAILS OF MORTICE DEAD LOCK

2.2 Mortice dead locks 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 Material used for different component parts of the dead locks shall comply with the requirements given in Table 1.

TABLE 1 REQUIREMENTS FOR MATERIALS FOR COMPONENT PARTS OF MORTICE DEAD LOCKS

(*Clauses* 3.1, 7.1.3 *and* 7.1.6)

Sl No.	Material	Component	Requirements for Materials	Typical Examples
(1)	(2)	(3)	(4)	(5)
i)	Mild steel	Body, body cover, case plate, key, face plate, and striking plate	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 twice the thickness or diameter of the component part and the sides are parallel. '	Grade O of IS : 1079-1968[1]
ii)	Malleable cast iron	Key	—	Grade A or B of IS : 2108-1962[2]
iii)	Cast brass	Body, body cover, case plate, face plate, striking plate, lock bolt and key	Copper content shall be not less than 60 percent, castings shall be free from blow holes, surface and other casting defects	Grade 3 of IS : 292-1961[3]
iv)	Brass sheet	Body, body cover, case plate, face plate, lever, striking plate and key	The brass sheet shall meet the same bend test as specified for mild steel	Cast brass cast from melting sheet cuttings and brass utensils may be used. Grade CuZn 40 of IS : 410-1967[4]
v)	Extruded brass	Locking bolt	Copper contents shall not be less than 55 percent and tensile strength 35 kg/mm^2, *Min*	IS : 319-1968[5]

(*Continued*)

TABLE 1 REQUIREMENTS FOR MATERIALS FOR COMPONENT PARTS OF MORTICE DEAD LOCKS — *Contd*

Sl No.	Material	Component	Requirements for Materials	Typical Examples
(1)	(2)	(3)	(4)	(5)
vi)	Aluminium alloy castings	Body and body cover	—	IS Designation A-5-M or A-6-M of IS : 617-1959[6]
vii)	Aluminium alloy sheets	Body, body cover, case plate, striking plate, lever and face plate	—	IS Designation NS4, HS 20 or HS 30 of IS : 737-1974[7]
viii)	Extruded aluminium alloy	Locking bolt	—	IS Designation HE 20-WP or HE 30-WP of IS : 733-1967[8]
ix)	Leaded tin bronze	Key	—	Grade 2 of IS : 318-1962[9]
x)	Zinc base alloy casting	Body, body cover, face plate, striking plate, locking bolt and key	—	IS : 742-1966[10]
xi)	Phosphor bronze	Lever spring	The wire used for springs shall comply with the test given below : 'The lever spring shall be fitted into the lever as specified under **7.1.6** 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.'	IS : 1385-1968[11]

xii)	Steel wire	Lever spring	The wire used for springs shall comply with the test given below : ' The lever spring shall be fitted into the lever as specified under **7.1.6** 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. '	Grade 1 and 2 of IS : 4454-1967[12]
xiii)	Stainless steel	Key	—	Grade 12Cr13, 20Cr13 or 30Cr13 of IS : 1570 (Part V)-1972[13]

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 rolled brass plate, sheet, strip and foil (*second revision*).

5 Specification for free-cutting brass rods and sections (*second revision*).

6 Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes (*revised*).

7 Specification for wrought aluminium and aluminium alloys, sheet and strip (for general engineering purposes) (*first revision*).

8 Specification for wrought aluminium and aluminium alloys, bars, rods, and sections (for general engineering purposes) (*first revision*).

9 Specification for loaded tin bronze ingots and castings (*first revision*).

10 Specification for zinc base alloy die castings (*first revision*).

11 Specification for phosphor bronze rods and bars, sheet and strip, and wire (*first revision*).

12 Specification for steel wires for cold formed springs.

13 Schedules for wrought steels: Part V Stainless and heat-resisting steels (*first revision*).

4. SHAPE

4.1 The shape, design and mechanism of mortice dead locks and its component parts indicated in Fig. 1 are illustrative only. The manufacturer may make mortice dead locks of other shapes to suit his design.

5. DIMENSIONS

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

5.1.1 It may be manufactured in other dimensions where so agreed to between the manufacturer and the purchaser.

6. NON-INTERCHANGEABILITY

6.1 Two Lever Locks — The mortice dead locks shall be manufactured to have non-interchangeable keys in a batch consisting of a minimum of 24 locks. In case a non-interchangeability in a higher number is required, it shall be so specified by the purchaser at the time of placing the order. A master-key may be supplied if required by the purchaser.

6.1.1 For the purpose of testing non-interchangeability, six locks from each batch of 24 locks shall be so selected that the wards of the keys differ from each other slightly. These locks shall then be tested for non-interchangeability. If key of any of the locks opens any other lock, amongst the six locks, the whole lot shall be rejected.

6.2 Locks with More Than Two Levers — The mortice dead locks shall be manufactured as to have non-interchangeable keys in a batch consisting of a minimum of 100 locks. In case, non-interchangeability in a higher number is required, it shall be so specified by the purchaser at the time of placing the order. A master-key may be supplied if required by the purchaser.

6.2.1 For the purpose of testing non-interchangeability, 12 locks from each batch of 100 locks shall be so selected that the wards of the key differ from each other slightly. These locks shall then be tested for non-interchangeability. If key of any of the locks opens any other lock amongst the 12 locks, the whole lot shall be rejected.

7. MANUFACTURE

7.1 Lock

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

7.1.2 *Fore End* — The case plate itself may form the fore end. However, where so desired by the purchaser, in order to obtain a clean finish 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 by any other suitable device.

7.1.3 *Locking Bolt* — The locking bolt shall be made out 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 10 × 30 mm for all sizes of locks. In case of bolts made by casting the thickness of the bolt at no point in section shall be less than 4 mm.

7.1.4 *Mechanism* — The locking mechanism shall be of ordinary lever type or any other type approved by the purchaser.

7.1.5 *Levers* — Ordinary lever mechanism (*see* Fig. 1) shall be provided with not less than two levers.

7.1.5.1 False (dummy) levers shall not be used.

7.1.6 *Lever Spring* — Each 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 tests without showing any sign 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, and

b) The lever spring shall also stand a transverse load of 15 kg before the failure of 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 at the free end of 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.

7.1.7 *Guide Pin, Lever Pivot Pin and Lever Spring Fulcrum Pin* — The pin shall be suitably coated when used in conjunction with aluminium alloy body.

7.1.8 *Keys* — Each lock shall be provided with two keys.

7.1.9 *Screws* — The body cover shall be fitted to the body by countersunk head machine screws (*see* IS : 1365-1968*). Screws shall be of mild steel and protected against corrosion, where necessary, however the screws may be of aluminium alloy in the case of aluminium alloy bodies.

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

7.2 Striking Plate — The striking plate shall have one rectangular slot to suit the locking bolt. It shall have two countersunk holes for fixing it to the door frame.

8. FINISH

8.1 Brass body shall be finished smooth and polished. Aluminium alloy body may be anodized if required by the purchaser. The anodic coating shall not be less than Grade AC 15 of IS : 1868-1968*. Face plate and the striking plate shall be polished, painted, plated or oxidized. Steel body shall be given a suitable protective coating.

8.1.1 All burrs and sharp edges shall be removed from the various components. Steel parts shall be pickled, scrubbed and rinsed to remove grease, rust, scale or any other foreign element and then given a protective treatment as per **8.1.2**.

8.1.2 Immediately after pickling, all the mild steel parts shall be given a phosphating treatment in accordance with IS : 3618-1966† or any other anticorrosive treatment followed by a coat of suitable paint.

9. TESTS

9.1 The finally assembled lock 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 of 40 kg or 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 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 a key is inserted in key hole from one side of the lock and turned to withdraw the locking bolt the action shall be smooth and without impediment. When the direction of turn is reversed to lock the locking bolt then also the action shall be smooth and without impediment. In the locked position the locking bolt shall project 12 mm from the face of the fore end, although one millimetre free movement is permissible. In the withdrawn position the locking bolt shall not project more than one millimetre from the face of the fore end. The locking bolt shall be worked by turning key in both the directions several times quickly, limiting the total number of turns to 50 000. The purpose of this test is to check up that the components do not move from their normal position to cause impediment to the smooth working of the mechanism. This test shall be repeated with the key inserted from the either side of the lock.

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

†Specification for phosphate treatment of iron and steel for protection against corrosion.

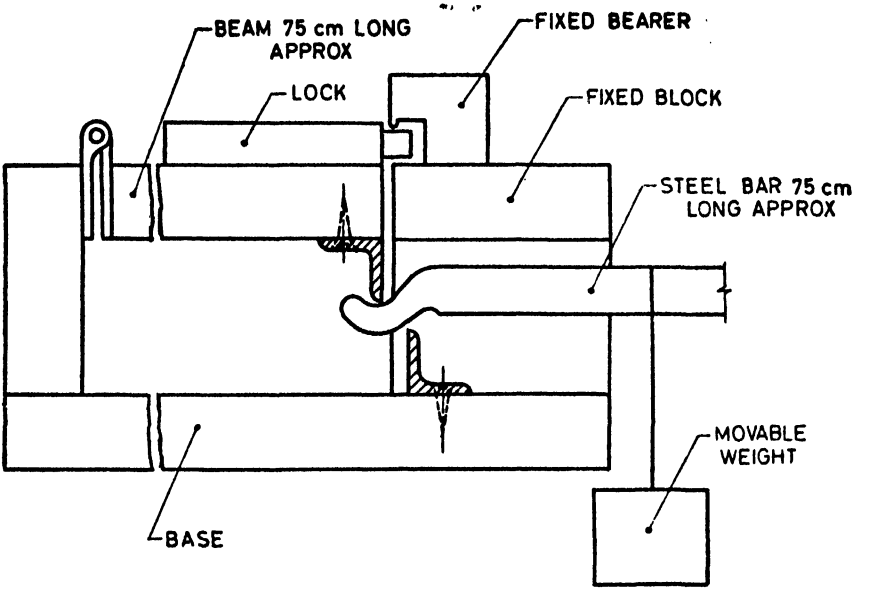


FIG. 2 STRENGTH TEST FOR LOCKING BOLT

9.1.3 When the key is turned to lock the locking bolt at the same time applying a reasonable pressure by finger on it, after completion of the key rotation the locking bolt shall be positively locked in the forward position. This test shall be repeated with the key inserted from the either side of the lock.

10. INSPECTION AND CERTIFICATE OF COMPLIANCE

10.1 The purchaser or his representative shall be permitted to inspect locks in open condition before purchasing, if he so desires.

10.2 Each manufacturer shall furnish, on request a certificate stating that the mortice dead locks comply with the requirements of this standard.

10.2.1 The manufacturer's certificate shall be implied, if the lock bears the ISI Certification Mark (*see* **11.1.1**).

11. MARKING

11.1 Each mortice dead lock 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 lock,

d) Number of levers, and

e) Country of origin.

11.1.1 The mortice dead lock 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. The ISI 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 ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. 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.

11.2 The keys shall be stamped on the head with the serial number of the lock.

12. PACKING

12.1 Each mortice dead lock together with its keys 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) Size of lock,

c) Quantity in the package,

d) Country of origin, and

e) Year of manufacture.

13. SAMPLING

13.1 Sampling and inspection of a consignment of locks shall be carried out in accordance with the provisions laid in Appendix A.

APPENDIX A

(*Clause* 13.1)

SAMPLING AND CRITERIA FOR CONFORMITY

A-1. LOT

A-1.1 In any consignment, all the mortice dead locks of the same type and size and manufactured from the same material shall be grouped together to constitute a lot.

A-1.2 Sample Size — The number of mortice dead locks to be selected from a lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 2.

TABLE 2 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVE MORTICE DEAD LOCKS

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

A-1.3 Mortice dead locks 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 mortice dead locks being selected from each such package.

A-1.4 Tests — All the mortice dead locks selected as in **A-1.2** shall be inspected for dimensional requirements (*see* Fig. 1) and finish and workmanship (*see* **8**) and for compliance with tests specified in **9**. Any mortice dead lock which fails to satisfy any one or more of the requirements for the characteristics shall be considered as defective mortice dead lock.

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ON

BUILDER'S HARDWARE

IS:

204-1974 Tower bolts (*third revision*)
205-1966 Non-ferrous metal butt hinges (*second revision*)
206-1973 Tee and strap hinges (*second revision*)
208-1974 Door handles (*third revision*)
281-1973 Mild steel sliding door bolts for use with padlocks (*second revision*)
362-1974 Parliament hinges (*third revision*)
363-1970 Hasps and staples (*second revision*)
364-1970 Fanlight catch (*second revision*)
452-1973 Door spring rat-tail type (*second revision*)
453-1973 Double-acting spring hinges (*second revision*)
729-1969 Drawer locks, cupboard locks and box locks (*second revision*)
1019-1974 Rim latches (*second revision*)
1341-1970 Steel butt hinges (*second revision*)
1495-1970 Mild steel dust-bins (*first revision*)
1823-1974 Floor door stoppers (*second revision*)
1837-1966 Fanlight pivots (*first revision*)
2209-1970 Mortice locks (vertical type) (*second revision*)
2681-1966 Non-ferrous metal sliding door bolts for use with padlocks (*first revision*)
3564-1970 Door closers (hydraulically regulated) (*first revision*)
3818-1971 Continuous (piano) hinges (*first revision*)
3828-1966 Ventilator chains
3843-1966 Steel backflap hinges
3847-1966 Mortice night latches
4621-1968 Indicating bolts for use in public baths and lavatories
4948-1974 Welded steel wire fabric for general use (*first revision*)
4992-1968 Door handles for mortice locks (vertical type)
5187-1972 Flush bolts (*first revision*)
5899-1970 Bath-room latches
5930-1970 Mortice latch (vertical type)
6315-1971 Floor springs (hydraulically regulated) for heavy doors
6318-1971 Plastic window stays and fasteners
6343-1971 Door closers (pneumatically regulated) for light doors weighing up to 40 kg
6602-1972 Ventilator pole
6607-1972 Rebated mortice locks (vertical type)
7196-1974 Hold fast
7197-1974 Double action floor springs (without oil check) for heavy doors

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