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IS 8760 (1978): mortice sliding door locks, with lever mechanism [MED 33: Utensils, Cutlery and Domestic Hardware]



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IS : 8760 - 1978

Indian Standard

SPECIFICATION FOR
MORTICE SLIDING DOOR LOCKS
WITH LEVER MECHANISM

UDC 683.338.24



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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 1978

AMENDMENT NO. 1 AUGUST 1979
TO
IS:8760-1978 SPECIFICATION FOR MORTICE SLIDING
DOOR LOCKS WITH LEVER MECHANISM

Alteration

(Page 4, clause 3.1) - Substitute the following
for the existing clause:

'3.1 The size of mortice sliding door locks shall be
30 mm, 50 mm, 70 mm and 100 mm.'

(BDC 15)

Reprography Unit, ISI, New Delhi

Indian Standard

SPECIFICATION FOR MORTICE SLIDING DOOR LOCKS WITH LEVER MECHANISM

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(Continued on page 2)

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Indian Standard
**SPECIFICATION FOR
MORTICE SLIDING DOOR LOCKS
WITH LEVER MECHANISM**

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 27 February 1978, after the draft finalized by the Builders' Hardware Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Mortice sliding door locks are used for locking the sliding doors, such as gates which move in one vertical plane. The lock has a single bolt of curved shape (*see* Fig. 1) which when shot by means of a key (from either side) engages itself with the striking plate preventing thereby the opening of the door. This standard is being issued with a view to lay down the essential requirements of mortice sliding door locks for the guidance of manufacturers and users.

0.3 This standard contains clauses **3.2**, **5.4**, **7.1** and **9.2** which permit the purchaser to use his option for selection to suit his requirements and clauses **8.1** and **8.2** 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 practices in the field in this country.

0.5 This standard is one of a series of Indian Standards on builders' hardware. A list of standards published so far in the series is given on page 15.

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.

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

IS : 8760 - 1978

1. SCOPE

1.1 This standard lays down the requirements for mortice sliding door locks having lever mechanism.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Forend or Front — The part of a mortice lock through which the bolt or bolts protrude.

2.2 Rear End — The end of the lock opposite the forend.

3. SIZE

3.1 The size of the mortice sliding door lock shall be 70 mm and 100 mm.

3.1.1 The size of the lock shall be denoted by the over-all length of the body in millimetres measured from the outside face of the forend to rear end. The measured length shall not vary by more than 3 mm from the length specified for the size.

3.2 The locks of sizes other than that specified in **3.1** may be supplied by mutual agreement between the purchaser and the supplier.

4. SHAPE AND DESIGN

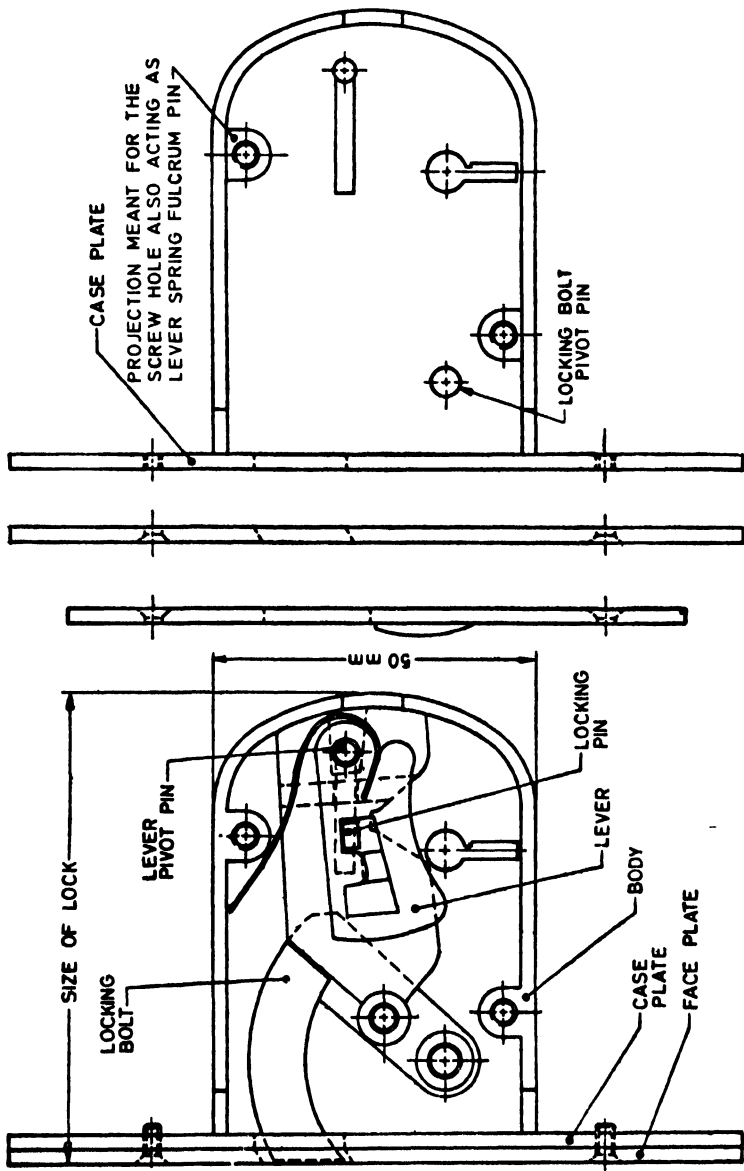
4.1 The shape and design of the lock and its component parts as indicated in Fig. 1 are illustrative only. The manufacturer may make mortice sliding door locks of any shape to suit his design. However, the lock shall be capable of being opened with the key from both sides.

5. CONSTRUCTION

5.1 The lock shall consist essentially of a body with case plate, body cover, locking bolt, levers, springs, striking plate and a plate for keeping the locking bolt in position. The minimum thickness of various parts shall be as given in Table 1.

5.2 Body — The clear depth of the body shall not be more than 15 mm. It shall have a keyhole and two holes drilled in suitable projections as shown in Fig. 1 for fixing the cover plate.

5.3 Body Cover Plate — The body cover plate shall have a slot cut in it for working the key. It shall have two holes drilled and countersunk at the front to facilitate assembling. It shall have a hole drilled to fit accurately the lever pivot pin.



ASSEMBLY WITHOUT
BODY COVER

FIG. 1 A TYPICAL ILLUSTRATION OF MORTICE SLIDING DOOR LOCK — Continued

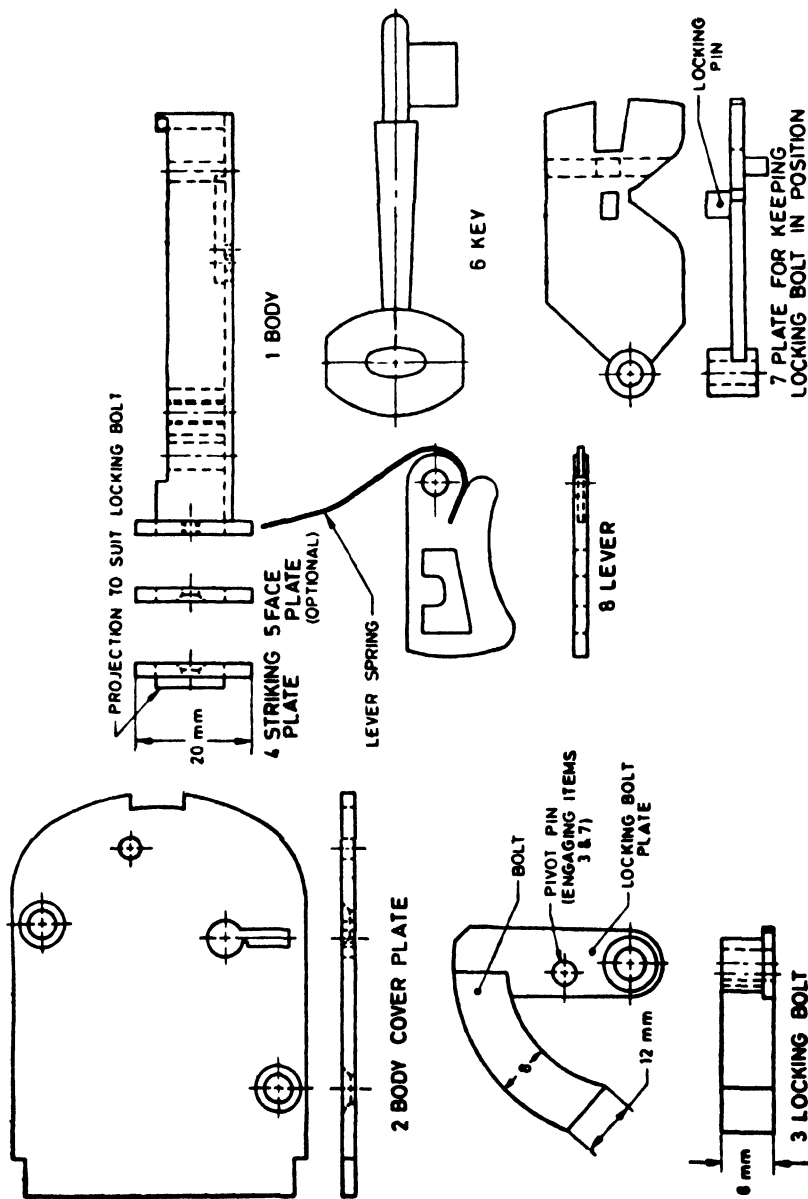


FIG. 1 A TYPICAL ILLUSTRATION OF MORTICE SLIDING DOOR LOCK

TABLE 1 THICKNESS OF COMPONENTS

(Clause 5.1)

SL No.	COMPONENT	MATERIAL	MINIMUM THICKNESS
(1)	(2)	(3)	(4)
			mm
i)	Body and body cover plate	Cast brass	2.5
		Aluminium alloy	2.5
		(pressure die casting)	
		Aluminium alloy sheet	1.5
		Zinc base alloy	2.5
		(pressure die casting)	
		Steel sheet	1.25
		Brass sheet	2.00
ii)	Case plate	Cast brass	2.5
		Steel sheet	1.25
iii)	Face plate and striking plate	Aluminium alloy sheet	2.5
		Steel sheet	1.25
iv)	Levers and plate for keeping locking bolt in position	Cast brass	2.5
		Mild steel	2.5
		Brass sheet	2.5
		Zinc base alloy	2.5
		(pressure die casting)	

5.4 Forend — The case plate itself may form the forend. However, where so desired by the purchaser in order to obtain a clear plate free from rivets and to assist in decorating the forend, a face plate may be provided. The forend shall be firmly fitted to the body by suitable countersunk head machine screws (see IS : 1365-1968*) or by any other suitable device.

5.5 Locking Bolt — The locking bolt shall be of section not less than 8 × 8 mm for all sizes of locks. When mild steel bolt is provided it shall be adequately protected against corrosion.

5.5.1 Locking bolt plate, if made as a separate part, shall be riveted with the locking bolt and soundly brazed all round the surface of contact. The mild steel parts shall be zinc plated according to IS designation FeZn 5 of IS : 1573-1970† or processed to give equal corrosion resistance.

5.6 Levers — Ordinary lever mechanism shall be provided with not less than two levers. The thickness of the lock shall depend on the number of levers. The levers shall be of uniform thickness and smooth on both faces so as to obtain parallelism.

*Specification for slotted countersunk head and slotted raised countersunk head screws (dia range 1.6 to 20 mm) (second revision).

†Specification for electroplated coatings for zinc on iron and steel (first revision).

5.6.1 False (dummy) levers shall not be used.

5.7 Lever Spring — Each lever shall be fitted with one flat or flattened wire spring which shall comply with the materials specified in Table 2. 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 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 lever spring occurs.

5.8 Locking Bolt Pivot Pin, Lever Pivot Pin and Lever Spring Fulcrum Pin — The pins may be cast integral or fitted to the body by passing through it and countersunk riveted at the back. The mild steel pins shall be suitably coated when used in conjunction with aluminium alloy body.

5.8.1 The function of the lever spring fulcrum pin may be served by the projection in the body meant for screw hole, for assembling the lock, as shown in Fig. 1.

5.9 Keys — Each lock shall be provided with two keys.

5.9.1 The key shall function smoothly and without any appreciable friction in the lock. The keys shall be suitably tied to the lock so that they are not lost or interchanged in transit. Malleable cast iron keys shall be protected against corrosion.

5.10 Striking Plate — The striking plate shall have one rectangular slot and a projection on the inner side of the plate with the curvature and thickness suiting the locking bolt as shown in Fig. 1. It shall have two countersunk holes for fixing it to the door frame or shutter.

5.11 Plate for Keeping the Locking Bolt in Position — The plate for keeping the locking bolt in position (*see* Fig. 1) shall have a locking pin either square or rectangular in section at the top. It shall have a guide cut to suit the lever pivot pin and a cut on its side for engaging the key. It shall also have a drilled hole to fit into the pivot pin engaging it with the locking bolt.

TABLE 2 MATERIALS FOR VARIOUS COMPONENT PARTS OF MORTICE SLIDING DOOR LOCKS
(Clauses 5.7 and 6.1)

Sl. No.	COMPONENTS	MILD STEEL	MALLE- ABLE IRON	CAST BRASS	BRASS SHEET	EXTRU- DED BRASS	ALUMI- NIUM ALLOY PRESS- URE DIE CAST- INGS	ALUMI- NIUM ALLOY SHEET	ZINC BASE ALLOY PRESS- URE DIE CAST- INGS	PHOS- PHOR BRO- NZE WIRE	SPRING STEEL WIRE	STAIN- LESS STEEL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
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)	Key	Yes	Yes	Yes	—	—	—	—	Yes	—	—	Yes
v)	Face plate	Yes	—	Yes	Yes	—	—	Yes	Yes	—	—	—
vi)	Striking plate	Yes	—	Yes	Yes	—	—	Yes	Yes	—	—	—
vii)	Lever	Yes	—	—	Yes	—	—	—	Yes	—	—	Yes
viii)	Locking bolt	—	—	—	—	Yes	—	—	Yes	—	—	—
ix)	Locking bolt plate	Yes	—	—	—	Yes	—	—	Yes	—	—	—
x)	Lever spring	—	—	—	—	—	—	—	—	Yes	Yes	—
xi)	Plate for keeping lock- ing bolt in position	Yes	—	—	Yes	—	—	—	—	—	—	Yes
xii)	Lever pivot pin/lever spring ful- crum pin/ locking bolt pivot pin	Yes	—	Yes	—	—	—	—	—	—	—	Yes

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

5.13 The components of the lock in the finally assembled position shall not be able to move relative to each other, without the application of key.

6. MATERIAL

6.1 Material used for different component parts of the lock shall comply with the requirements given in Tables 2 and 3.

7. DIMENSIONS

7.1 The loading dimensions of the mortice sliding door locks shall be normally as given in Fig. 1. It may be manufactured in other dimensions where so agreed to between the manufacturer and the purchaser.

8. NON-INTERCHANGEABILITY

8.1 Two Lever Locks — The mortice sliding door locks shall be manufactured to have non-interchangeable keys in a batch consisting of a minimum of 24 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.

8.1.1 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 lot shall be rejected.

8.2 Locks with More Than Two Levers — The mortice sliding door locks shall be manufactured so as to have non-interchangeability in a batch consisting of a minimum of 100 locks. In case, non-interchangeability in a large 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.

8.2.1 For the purpose of testing non-interchangeability, 12 locks from each batch of 100 locks shall be so selected that the wards of the 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 12 locks, the whole lot shall be rejected.

*Specification for slotted countersunk head and slotted raised countersunk head screws (dia range 1.6 to 20 mm) (*second revision*).

TABLE 3 REQUIREMENTS OF MATERIALS

(Clause 6.1)

SL No.	MATERIALS	SUITABLE GRADE IN INDIAN STANDARD
(1)	(2)	(3)
i)	Mild steel	Grade 0-1079 of IS : 1079-1973 ¹
ii)	Malleable iron	Grade A or B of IS : 2108-1962 ²
iii)	Cast brass	Grade 3 of IS : 292-1961 ³
iv)	Brass sheet	Grade CuZn 40 of IS : 410-1967 ⁴
v)	Extruded brass	IS : 319-1974 ⁵
vi)	Aluminium alloy pressure diecastings	IS Designation 5230 or 4600 of IS : 617-1975 ⁶
vii)	Aluminium alloy sheet	IS Designation 52000 or 65032 of IS : 737-1974 ⁷
viii)	Zinc base alloy die castings	IS : 742-1966 ⁸
ix)	Phosphor bronze wire	IS : 7608-1975 ⁹
x)	Spring steel wire	Grade 2 of IS : 4454 (Part I)-1975 ¹⁰
xi)	Stainless steel	Designation 04cr 13, 12cr 13, 20cr 13, 30 cr 13 of IS : 1570 (Part V)-1972 ¹¹
xii)	Zinc plating on steel	Class Fe Zn 5 of IS : 1573-1970 ¹²

¹Specification for hot rolled carbon steel, sheet and strip (*third revision*).²Specification for blackheart malleable iron castings.³Specification for brass ingots and castings (*revised*).⁴Specification for rolled brass plate sheet, strip and foil (*second revision*).⁵Specification for free-cutting brass bars rods and sections (*third revision*).⁶Specification for aluminium and aluminium alloy, ingots and castings for general engineering purposes (*second revision*).⁷Specification for wrought aluminium and aluminium alloys, sheet and strip (for general engineering purposes) (*second revision*).⁸Specification for zinc base alloy die castings (*first revision*).⁹Specification for phosphor bronze wires (for general engineering purposes)¹⁰Specification for steel wires for cold-formed springs: Part I Patented and cold drawn steel wire-unalloyed.¹¹Specification for schedules for wrought steels for general engineering purposes: Part V Stainless and heat-resisting steels (*first revision*).¹²Specification for electroplated coatings for zinc on iron and steel (*first revision*).

9. WORKMANSHIP AND FINISH

9.1 Each lock shall be free from defects likely to prevent correct fixing or to affect adversely reliability in use.

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9.2 Brass body shall be finished smooth. Steel body shall be given a suitable protective coating, such as painting. Aluminium alloy body may be anodized if required by the purchaser. The anodic coating shall not be inferior to grade AC 10 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.

10. TESTS

10.1 The finally assembled lock shall withstand the tests given in **10.1.1** to **10.1.3**.

10.1.1 The locking bolt shall be locked in the forward position and a dead load of 40 kg minimum or as agreed to between the manufacturer and the purchaser shall be applied without shock to each of the locking faces of the locking bolt. In each case the load shall be applied 3 mm from the lock forend. Figure 2 illustrates the typical method. The loads applied in this way shall neither damage nor distort the lock case, forend or bolt.

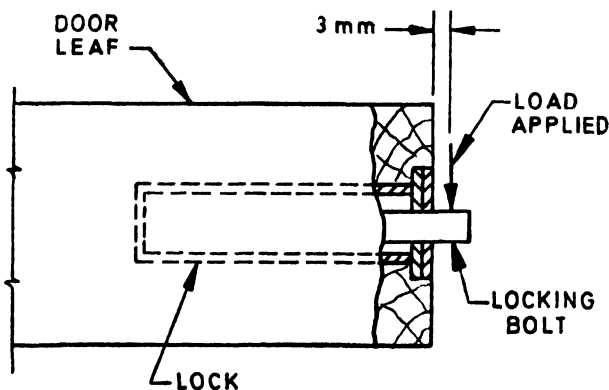


FIG. 2 TEST FOR STRENGTH OF LOCKING BOLT

10.1.2 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 any impediment. When the direction of turn is reversed to lock the locking bolt then also the action shall be smooth and without impediment.

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

In the withdrawn position the locking bolt shall not project more than 1 mm from the face of the forend. The locking bolt shall be worked by turning key in both the directions 50 000 times. At the end of the test, the lock shall continue to work smoothly. The test shall be repeated with the key inserted from the otherside of the lock.

NOTE — The clearance for levers while in the operating condition shall not exceed 0.25 mm.

10.1.3 When the key is turned to lock the locking bolt and 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 other side of the lock.

11. MARKING

11.1 Each mortice 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 mortice sliding door lock,
- d) Number of levers, and
- e) Country of origin.

11.1.1 The mortice sliding door 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 sliding door lock together with its keys shall be suitably wrapped in craft paper to avoid ingress of moisture during storage. The locks shall then be packed in a cardboard box. Each cardboard box shall be marked with the following information:

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

13. SAMPLING

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

A P P E N D I X A

SAMPLING AND CRITERIA FOR CONFORMITY

A-1. LOT

A-1.1 In any consignment all the locks of the same size and grade 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.

A-1.2 Number of locks 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 4.

TABLE 4 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVE 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 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 locks being selected from each such package.

A-2. CRITERIA FOR CONFORMITY

A-2.1 The locks selected according to **A-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 4.

INDIAN STANDARDS
ON
BUILDERS' HARDWARE

IS :

- 204-1974 Tower bolts (*third revision*)
- 205-1977 Non-ferrous metal butt hinges (*third revision*)
- 206-1973 Tee and strap hinges (*second revision*)
- 208-1972 Door handles (*second revision*)
- 281-1973 Mild steel sliding door bolts for use with padlocks (*second revision*)
- 362-1975 Parliament hinges (*third revision*)
- 363-1976 Hasps and staples (*third revision*)
- 364-1970 Fanlight catch (*second revision*)
- 452-1973 Door springs, 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*)
- 1341-1976 Steel butt hinges (*third revision*)
- 1495-1970 Mild steel dust-bins (*first revision*)
- 1823-1974 Floor door stoppers (*second revision*)
- 1837-1966 Fanlight pivots (*first revision*)
- 2209-1976 Mortice locks (vertical type) (*third revision*)
- 2681-1966 Non-ferrous metal sliding door bolts for use with padlocks (*first revision*)
- 3564-1975 Door closers (hydraulically regulated) (*second revision*)
- 3818-1971 Continuous (piano) hinges (*first revision*)
- 3828-1966 Ventilator chains
- 3843-1966 Steel backflap hinges
- 3847-1966 Mortice night latches
- 4621-1975 Indicating bolts for use in public baths and lavatories (*first revision*)
- 4948-1974 Welded steel wire fabric for general use (*first revision*)
- 4992-1975 Door handles for mortice locks (vertical type) (*first revision*)
- 5187-1972 Flush bolts (*first revision*)
- 5899-1970 Bathroom 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 poles
- 6607-1972 Rebated mortice locks (vertical type)
- 7197-1974 Double action floor springs (without oil check) for heavy doors
- 7198-1974 Hold fast
- 7534-1974 Mild steel locking bolts with holes for padlocks
- 7540-1974 Mortice dead locks

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	CONVERSION
Force	newton	N	1 N = 0.101 972 kgf
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

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