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IS : 9131 - 1979

Indian Standard

SPECIFICATION FOR RIM LOCKS

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INDIAN STANDARDS INSTITUTION

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SPECIFICATION FOR RIM LOCKS

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Indian Standard

SPECIFICATION FOR RIM LOCKS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 24 February 1979, after the draft finalized by the Builder's Hardware Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Rim locks are being commonly fixed to single- and double-leaf doors in buildings. They consist of a locking bolt as well as a latch bolt. The locking bolt is shot and withdrawn by operating a key from either side. This standard is being issued with a view to laying down the essential requirements of rim locks for the guidance of manufacturers and users.

0.3 This standard contains clauses 5.2, 8.1 and 11.2 which permit the purchaser to use his option for selection to suit his requirements, and clause 10.1 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 coordination 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; other standards published so far in the series are given on fourth cover page.

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.

1. SCOPE

1.1 This standard lays down the requirements for materials, construction, dimensions and finish of rim locks of two types commonly fixed to single- and double-leaf doors in buildings.

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

2. HANDING OF RIM LOCKS

2.1 The handing of the rim locks shall be determined by the handing of the door on which it is fitted; the lock is termed 'left-hand' if it is fitted to left-hand door and 'right-hand' if it is fitted to right-hand door. For handing of doors, reference may be made to IS : 4043-1969*.

3. TERMINOLOGY

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

3.1 Forend — The part of a rim lock through which the bolt or bolts protrude.

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

4. TYPES

4.1 The rim locks shall be of the following two types:

- a) *Type 1* — left-hand or right-hand, and
- b) *Type 2* — reversible.

NOTE — A left-hand rim lock, Type 1, is illustrated in Fig. 1.

5. SIZES

5.1 The sizes of the rim lock shall be 100 mm and 150 mm.

5.1.1 The size of the rim lock shall be denoted by the length of the 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.

5.2 The locks of sizes other than those specified in 5.1 may be supplied by mutual agreement between the purchaser and the supplier.

6. SHAPE AND DESIGN

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

7. MATERIALS

7.1 Materials used for different component parts of the lock shall comply with the requirements given in Tables 1 and 2.

*Recommendations for symbolic designation of direction of closing and face of doors, windows and shutters.

TABLE 1 MATERIALS FOR VARIOUS COMPONENT PARTS OF RIM LOCKS

(Clause 7.1)

SL No.	COMPONENT	MILD STEEL	CAST IRON	MALLE- ABLE IRON	CAST BRASS	BRASS SHEET	EXTRU- DED BRASS	ALUMI- NIUM ALLOY PRESS- URE DIE CASTING	ALUMI- NIUM ALLOY SHEET	LEA- DED TIN BRO- NZE	ZINC BASE ALLOY PRESS- URE DIE CAST- ING	PHOS- PHOR BRON- ZE WIRE	SPRING STEEL WIRE	STAIN- LESS STEEL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
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	—	—	Yes	—	—	Yes
v)	Follower	—	—	Yes	Yes	—	—	Yes	—	Yes	Yes	—	—	—
vi)	Striking box	Yes	Yes	—	Yes	Yes	—	Yes	Yes	—	Yes	—	—	—
vii)	Lever	Yes	—	—	Yes	Yes	—	—	—	—	Yes	—	—	Yes
viii)	Locking bolt and latch bolt	—	—	—	—	—	Yes	—	—	—	Yes	—	—	—
ix)	Lever spring and latch spring	—	—	—	Yes	—	—	—	—	—	—	Yes	Yes	—
x)	Lever pivot pin locking bolt pivot pin	Yes	—	—	Yes	—	—	—	—	—	—	—	—	Yes
xi)	Locking bolt plate / latch bolt plate	—	Yes	—	—	—	Yes	—	—	—	Yes	—	—	—

TABLE 2 REQUIREMENTS FOR MATERIALS FOR RIM LOCKS

(Clause 7.1)

Sl. No.	MATERIAL	SUITABLE GRADES IN INDIAN STANDARD
(1)	(2)	(3)
i)	Mild steel	Grade 0-1079 of IS : 1079-1973 ¹
ii)	Cast iron	Grade 15 of IS : 210-1978 ²
iii)	Malleable iron	Grade A or B of IS : 2108-1977 ³
iv)	Cast brass	Grade 3 of IS : 292-1961 ⁴
v)	Brass sheet	Grade CuZn 40 of IS : 410-1977 ⁵
vi)	Extruded brass	IS : 319-1974 ⁶
vii)	Aluminium alloy pressure die castings	Designation 5230 or 4600 of IS : 617-1975 ⁷
viii)	Aluminium alloy sheet	Designation 52000 or 65032 of IS : 737-1974 ⁸
ix)	Leaded tin bronze	Grade 2 of IS : 318-1962 ⁹
x)	Zinc base alloy die castings	IS : 742-1966 ¹⁰
xi)	Phosphor bronze wire	IS : 7608-1975 ¹¹
xii)	Spring steel wire	Grade 2 of IS : 4454 (Part I)-1975 ¹²
xiii)	Stainless steel	Designation 04Cr 13, 20Cr 13, or 30Cr 13 of IS : 1570 (Part V)-1972 ¹³
xiv)	Zinc plating on steel	Class Fe Zn 5 of IS : 1573-1970 ¹⁴

¹Specification for hot-rolled carbon steel sheet and strip (*third revision*).²Specification for grey iron castings (*third revision*).³Specification for blackheart malleable iron castings (*first revision*).⁴Specification for brass ingots and castings (*revised*).⁵Specification for cold rolled brass sheet, strip and foil (*third revision*).⁶Specification for free-cutting brass bars, rods and sections (*third revision*).⁷Specification for aluminium and aluminium alloy, ingots and castings (for general engineering purposes) (*second revision*).⁸Specification for wrought aluminium and aluminium alloys, sheet and strip (for general engineering purposes) (*second revision*).⁹Specification for leaded tin bronze ingots and castings (*revised*).¹⁰Specification for zinc base alloy die castings (*first revision*).¹¹Specification for phosphor bronze wires (for general engineering purposes).¹²Specification for steel wires for cold formed springs: Part I Patented and cold drawn steel wires — unalloyed (*first revision*).¹³Schedules for wrought steels: Part V Stainless and heat-resisting steels (*first revision*).¹⁴Specification for electroplated coatings of zinc on iron and steel (*first revision*).

8. DIMENSIONS

8.1 The essential dimensions of the rim lock 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.

9. CONSTRUCTION

9.1 General — The lock shall consist essentially of a body with case plate, body cover, locking bolt, locking bolt plate, latch bolt, follower, levers, lever springs, latch spring and striking box. The minimum thickness of various parts shall be as given in Table 3.

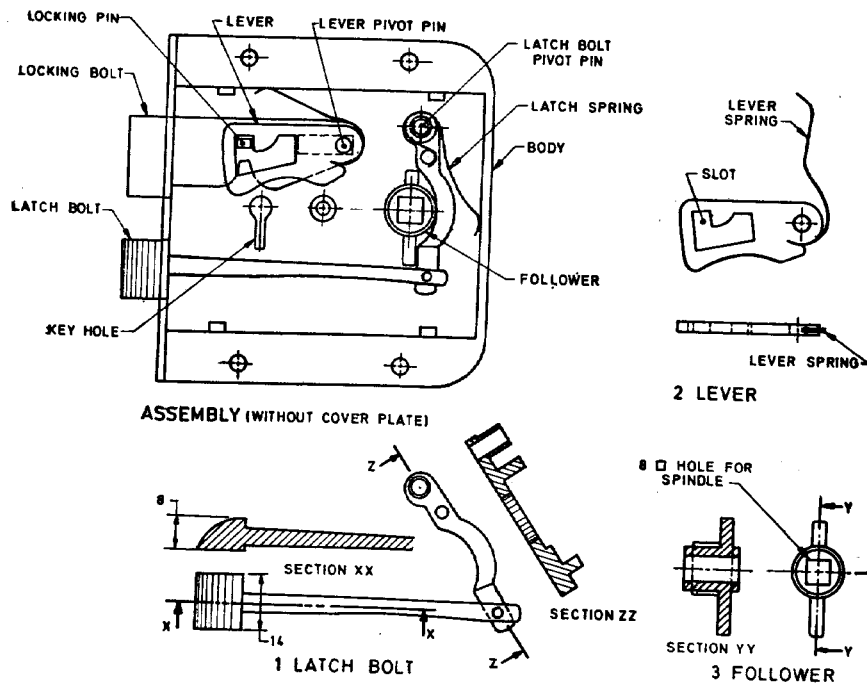
TABLE 3 THICKNESS OF COMPONENTS

SL No.	COMPONENT(S)	MATERIAL	MINIMUM THICKNESS
(1)	(2)	(3)	(4)
			mm
i)	Body and body cover plate	Cast brass	2.5
		Aluminium alloy pressure die casting	2.5
		Aluminium alloy sheet	1.5
		Zinc base alloy pressure die casting	2.5
		Steel sheet	1.25
		Brass sheet	2.00
ii)	Case plate	Cast brass	2.5
		Brass sheet	2.0
		Steel sheet	1.25
iii)	Striking box	Aluminium alloy sheet	2.5*
		Steel sheet	1.25*
		Brass sheet	2.50*
iv)	Levers	Cast brass	2.0
		Brass sheet	2.0
		Mild steel	2.0
		Zinc base alloy pressure die casting	2.0

*Indicated as *T* in Fig. 1.

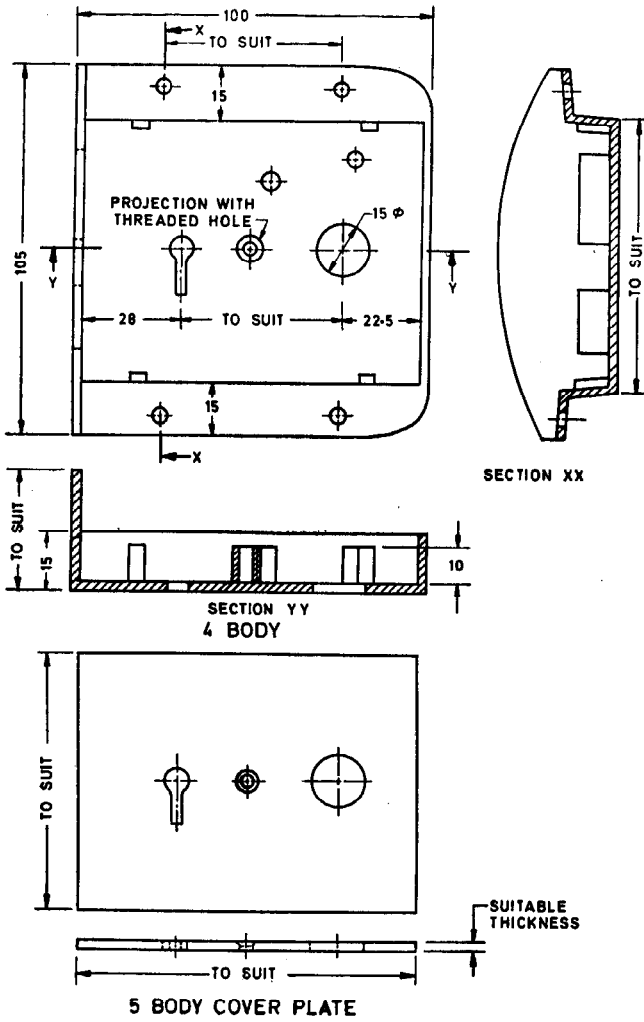
9.2 Lock

9.2.1 Body — The overall depth of the body shall be not more than 15 mm. The front portion of the body shall have a keyhole and a



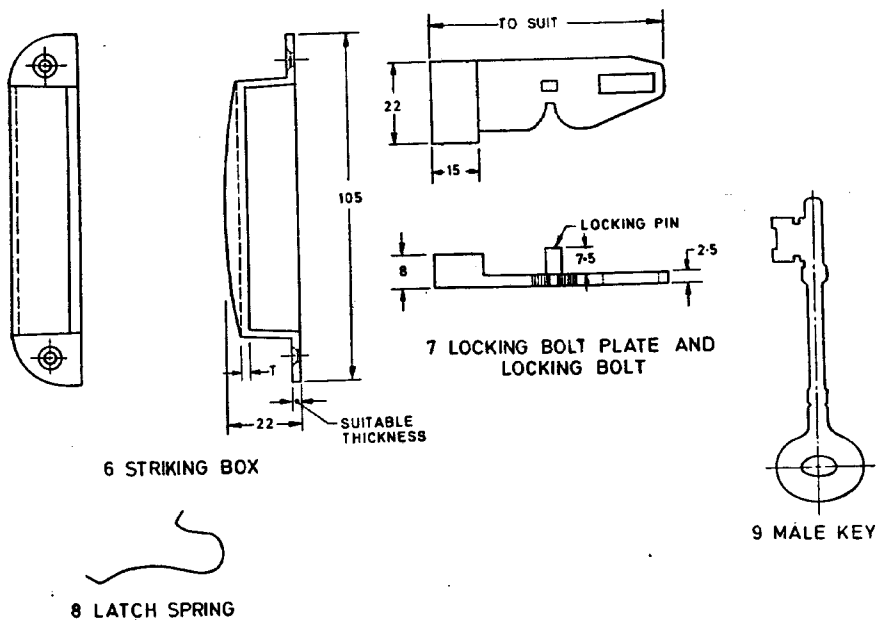
All dimensions in millimetres.

FIG. 1 TYPICAL RIM LOCK — *Contd*



All dimensions in millimetres.

FIG. 1 TYPICAL RIM LOCK — *Contd*



All dimensions in millimetres.

FIG. 1 TYPICAL RIM LOCK

circular hole for the follower. On the side plate there shall be rectangular slots to suit the latch and the locking bolts. The flanges of the body shall have a minimum of four countersunk holes for fixing the lock to the door shutter.

9.2.2 Body Cover Plate or Back Plate — The body cover plate or the back plate shall have a slot cut in it for working the key and a circular hole for the follower to fit in. Provision shall be made for its proper fixing to the body.

9.2.3 Locking Bolt — The locking bolt shall be of section not less than 8×22 mm for all sizes of locks. The minimum throw of the locking bolt shall be 12 ± 1 mm.

9.2.3.1 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.

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

9.2.5 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.

9.2.5.1 False (dummy) levers shall not be used.

9.2.6 Lever Spring — Each lever shall be fitted with one flat or flattened wire spring which shall comply with the materials specified in Tables 1 and 2. The lever spring fitted into the lever shall withstand the tests prescribed in 9.2.6.1 and 9.2.6.2. The spring shall not show any sign of permanent set after the tests.

9.2.6.1 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.

9.2.6.2 The lever spring shall withstand 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.

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

9.2.7.1 The function of the lever spring, fulcrum pin may be served by the body itself as shown in Fig. 1.

9.2.8 Keys — Each lock shall be provided with a minimum of two keys.

9.2.8.1 The keys 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.

9.3 Latch

9.3.1 Latch Bolt — The latch bolt shall be of section not less than 8×14 mm for all sizes of lock.

9.3.1.1 If made out of two pieces, both parts shall be riveted together and soundly brazed all round the surface of contact.

9.3.2 Follower — The follower shall be suitably moulded and machined. It shall have a 8-mm square hole at its centre to suit the spindle which operates the latch bolt. It shall be protected against corrosion when made from malleable iron.

9.3.3 Latch Spring — Each latch bolt shall be fitted with one flat or flattened wire spring which shall be of materials specified in Tables 1 and 2. The latch spring, when pressed down completely and then released, six times, shall not show any sign of permanent set.

9.3.3.1 For Type 2 locks, other wire or flat having similar properties to those specified in Tables 1 and 2 for the spring may also be used with the approval of the purchaser. It shall be wound round a suitable arrangement connecting the plate to the latch bolt such that the latch bolt is normally in the locking position.

9.4 Striking Box — Each rim lock shall be provided with a socket or striking box which shall be pressed from mild steel sheet or cast iron in the case of steel rim locks, cast brass or sheet brass in the case of brass rim locks, aluminium alloy casting or aluminium alloy sheet in the case of aluminium alloy rim locks, and zinc base alloy casting in the case of zinc base alloy locks. It shall have two countersunk holes for fixing it to the door shutter.

9.5 Screws

9.5.1 The body cover shall be fitted to the body by countersunk head machine screws conforming to IS : 1365-1968*. The screws shall be of

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

mild steel and protected against corrosion. However, the screws, may be of brass in the case of aluminium alloy bodies.

9.6 The components of the lock in the finally assembled position shall not be able to move relative to each other, without the application of the key, or the spindle and the handle.

10. NON-INTERCHANGEABILITY

10.1 The Lever Locks — The rim 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.

11. WORKMANSHIP AND FINISH

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

11.2 Brass rim locks shall have bright or satin finish, and aluminium locks anodized finish. The anodic coating shall be not less than Grade AC 15 of IS : 1868-1968*. The anodic film may be either transparent or dyed as specified by the purchaser. The steel locks shall be japanned, stove-enamelled black or copper oxidized as specified by the purchaser.

12. TESTS

12.1 The finally assembled lock shall withstand the tests given in 12.1.1 to 12.1.6.

12.1.1 The lock shall be screwed to the test block in the manner shown in Fig. 2. The locking bolt shall be locked in the forward position. A dead load of 40 kg, minimum, or as agreed to between the manufacturer and the purchaser, shall be applied first to the securing face of the latch bolt, and then to each of the locking faces of the locking bolt in turn. In each case the load shall be applied at 3 mm from the lock forend. The loads applied in this way shall neither damage nor distort the lockcase or the bolts.

12.1.2 When the spindle with handle is inserted into the hole in the follower and turned, the latch bolt shall draw smoothly into the lock body and shall be within 1 mm from the face of the forend.

12.1.3 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 1 mm from the face of the forend.

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

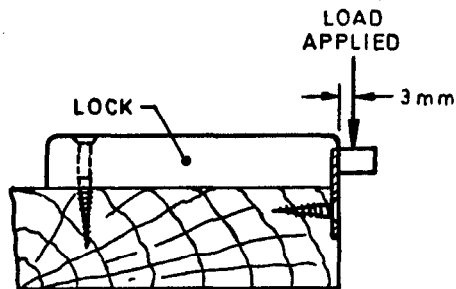


FIG. 2 TEST FOR STRENGTH OF LOCKING BOLT

12.1.4 The latch bolt shall be subjected to 50 000 operations either manually or by mechanical means. At the end of the test, the components should not show any undue movement from their normal position to cause impediment to the smooth working of the mechanism.

12.1.5 When a key is inserted in the 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. 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 other side of the lock.

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

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

13. MARKING

13.1 Each rim lock shall be stamped with the following information:

- a) Manufacturer's name or trade-mark,
- b) Year of supply (if required by the purchaser),
- c) Serial number of the lock,
- d) Number of levers, and
- e) Country of origin.

13.1.1 The rim 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.

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

14. PACKING

14.1 Each rim 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) Hand of lock, in the case of Type 1 lock;
- d) Size of lock;
- e) Quantity in the package; and
- f) Country of origin.

15. SAMPLING AND CRITERION FOR CONFORMITY

15.1 The method of sampling rim locks and the criterion for conformity shall be as given in Appendix A.

APPENDIX A

(Clause 15.1)

SAMPLING AND CRITERION FOR CONFORMITY

A-1. LOT

A-1.1 In any consignment, all the locks 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 lots for the purpose of sampling.

A-2. SCALE OF SAMPLING

A-2.1 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

(Clauses A-2.1 and A-4.1)

LOT SIZE	SAMPLE SIZE	PERMISSIBLE NUMBER OF DEFECTIVES
(1)	(2)	(3)
Up to 150	5	0
151 „ 300	20	1
301 „ 500	32	2
501 „ 1 000	50	3
1 001 and above	80	5

A-2.1.1 Locks for the sample shall be selected at random from at least 10 percent of the packages in a lot subject to a minimum of three packages, equal number of locks being selected from each such packages.

A-3. TESTS

A-3.1 The locks selected according to A-2.1 shall be checked for dimensions, construction, and workmanship and finish, and tested for smooth working. Any lock which fails to satisfy these requirements shall be considered as defective.

A-4. CRITERION FOR CONFORMITY

A-4.1 A lot shall be considered as conforming to the requirements of this standard if the number of defective locks among those tested does not exceed the corresponding number given in col 3 of Table 4.

INDIAN STANDARDS

ON

BUILDER'S HARDWARE

IS:

204 (Part I)-1978	Tower bolts, Part I Ferrrous metals (<i>fourth revision</i>)
204 (Part II)-1978	Tower bolts, Part II Non-ferrous metals (<i>fourth revision</i>)
205-1978	Non-ferrous metal butt hinges (<i>third revision</i>)
206-1973	Tee and strap hinges (<i>second revision</i>)
208-1979	Door handles (<i>third revision</i>)
281-1973	Mild steel sliding door bolts for use with padlocks (<i>second revision</i>)
362-1975	Parliament hinges (<i>third revision</i>)
363-1976	Hasps and staples (<i>third revision</i>)
453-1973	Double acting spring hinges (<i>second revision</i>)
729-1979	Drawer locks, cupboard locks and box locks (<i>third revision</i>)
1019-1974	Rim latches (<i>second revision</i>)
1341-1976	Steel butt hinges (<i>third revision</i>)
1823-1974	Floor door stoppers (<i>second revision</i>)
2209-1976	Mortice locks (vertical type) (<i>third revision</i>)
2681-1979	Non-ferrous metal sliding door bolts for use with padlocks (<i>second revision</i>)
3564-1975	Door closers (hydraulically regulated) (<i>second revision</i>)
3818-1971	Continuous (piano) hinges (<i>first revision</i>)
3843-1966	Steel back flap hinges
3847-1966	Mortice night latches
4621-1975	Indicating bolts for use in public baths and lavatories (<i>first revision</i>)
4992-1975	Door handles for mortice locks (vertical type) (<i>first revision</i>)
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
6607-1972	Rebated mortice locks (vertical type)
7197-1974	Double action floor springs (without oil check) for heavy doors
7534-1974	Mild steel locking bolts with holes for padlocks
7540-1974	Mortice dead locks
8756-1978	Ball catches for use in wooden almirah
8760-1978	Mortice sliding door locks with lever mechanism
9106-1979	Rising butt hinges

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