

इंटरनेट

मानक

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IS 6198 (1992): ledged, braced and battened timber door shutters [CED 11: Doors, Windows and Shutter]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

**पुस्तवानी बंधनयुक्त लकड़ी के पट्टे लगे दरवाजों के लिए
शटरों की — विशिष्टि**

(दूसरा पुनरीक्षण)

Indian Standard

**LEDGED, BRACED AND BATTENED TIMBER
DOOR SHUTTERS — SPECIFICATION**

(*Second Revision*)

UDC 69·028·3·011 : 674·03

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

January 1992

Price Group 3

AMENDMENT NO. 1 SEPTEMBER 2000
TO
IS 6198 : 1992 LEDGED, BRACED AND BATTENED
TIMBER DOOR SHUTTERS — SPECIFICATION

(Second Revision)

(*Second cover page, Foreword*) — Insert the following new **para** after the third **para**:

‘A scheme of labelling environment friendly products to be known as **ECO Mark** is being introduced at the instance of the Ministry of Environment and Forests (**MEF**), Government of India. The **ECO Mark** shall be administered by the Bureau of Indian Standards (**BIS**) under the **BIS** Act, 1986 as per the Resolution No. 71 dated 21 February 1991 published in the Gazette of the Government of India. For a product to be eligible for **ECO Mark**, it shall also carry the Standard Mark of the **BIS** besides meeting additional optional environment friendly requirements.’

(*Page 4, clause 10.1*) — Insert the following new clause after 10.1 and renumber the subsequent clauses:

11 REQUIREMENTS FOKECO MARK

11.1 Door shutters shall be manufactured from agricultural or industrial wastes or wood residues or wood from sources other than natural forests such as timber ‘from industrial and social forestry plantations, shade tree from tea and coffee estate etc. as specified in **IS 12896 : 1990** and such doors shutters shall conform to the requirements of quality and performance as specified in this standard as well as the requirements of **ECO Mark** for all the referred standards.

NOTES

1 The manufacturers shall provide documentary evidence by way of certificate. or declaration to Bureau of Indian Standards while applying for **ECO Mark**.

2 The manufacturers shall produce to **BIS** environmental consent clearance from the concerned State Pollution Control Board as per the provisions of the *Water (Prevention and Control of Pollution) Act, 1974* and *Air (Prevention and Control of Pollution) Act, 1981* alongwith the authorization, if required under the *Environment (Protection) Act, 1986*, while applying for **ECO Mark**.’

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Doors, Windows and Shutters Sectional Committee had been approved by the Civil Engineering Division Council.

Lodged, braced and battered timber door shutters are frequently used in places where appearance is not the main criteria for example for temporary sheds, warehouses, stores, low cost housing, etc. This standard was first published in 1971 and subsequently revised in 1983. The second revision of this standard incorporates timber species suitable for manufacture of door shutters into four classes that is class I to IV. The classification is based on various properties in order of preference. A list of timber species which are being imported in India for manufacture of door shutters has also been included (*see Annex A*).

Keeping in view the advantages of modular co-ordination, Indian Standards specify the dimensions of components in modular units. In line with this, the dimensions of shutters were also specified in modular units. However, it was repeatedly brought to the notice of the committee that there was sufficient demand for sizes other than modular sizes and that the manufacturers were meeting such demands at present. This had led to a situation where shutters satisfying the other requirements of the standard, but not the requirements regarding the dimensions were classified as not satisfying the requirements of the standard. This situation also came in the way of satisfying the consumer needs for other quality requirements by a third party inspection system. Therefore, with a view to encouraging production of timber shutters to the quality requirements specified in the standard, the Committee reviewed the relevant clauses of this standards and decided to relax the dimensional requirements in this second revision by permitting non-modular sizes in addition to the modular sizes specified in the standard at present. However, the relaxation has been made only in the height and width, the thickness remaining unchanged from the present provisions.

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

LEDGED, BRACED AND BATTENED TIMBER DOOR SHUTTERS — SPECIFICATION

(Second Revision)

1 SCOPE

This standard lays down requirements regarding material, sizes, construction, workmanship and finish of ledged, braced and battened timber door shutters.

2 REFERENCES

The Indian Standards listed in Annex B are necessary adjuncts to this standard.

3 NOMENCLATURE

The components of doors are illustrated in Fig. 1. Reference may also be made to IS 10428 : 1983 and IS 707 : 1976.

4 MATERIALS

4.1 Timber

4.1.1 Timber suitable for manufacture of door shutters shall be in accordance with IS 12896 : 1990. Each class of species stand in the same footing functionally (irrespective of cost). Timber used for ledges, braces and battens shall be of the same species. All the battens where they are of solid wood shall be of one species

which may or may not be of the same species as that of ledges and braces.

4.1.2 Moisture Content

The maximum permissible moisture content in timber shall be from 8 to 14 percent.

4.1.3 Seasoning and Treatment

All timbers shall be kiln-seasoned by a suitable process conforming to IS 1141 : 1973 before being planed to the required dimensions. Sapwood of durable species and heartwood and sepwood of non-durable species shall be treated with suitable preservative (except the water soluble leachable type) as specified in IS 401 : 1982. The finished components shall also be given suitable preservative treatment in places where these have been cut for joinery work.

4.1.4 Defects Prohibited

Timber shall be free from decay, fungal growth, boxed heart, pitch pockets or streaks on the exposed edges, borer holes, splits and cracks.

4.1.5 Defects Permitted

The timber shall be graded as First Grade and Second Grade on the basis of the permissible defects in the timber as given in Table 1. For both grades, knot should be avoided where it is

Table 1 Permissible Defects for Various Grades of Timbers
(Clause 4.1.5)

Sl No.	Defects	First Grade	Second Grade
(1)	(2)	(3)	(4)
i)	Cross-grain	Not steeper than 1 in 15	Not steeper than 1 in 10
ii)	Sound knots and live knots	a) Ledges and braces — Maximum 12.5 mm and not more than 1 knot/m b) Battens — Maximum 20 mm and not more than 2 knots/m ²	a) Ledges and braces — Maximum 25 mm and not more than 3 knots per stile and one knot per rail b) Battens — Maximum 20 mm and not more than 4 knots/m ²
iii)	Pitch pockets or streaks	None	Permissible except on exposed edges, provided that they are clean and filled up with suitable putty or filler. When pitch pockets or streaks are located on the exposed edges of the core, they shall be cut out and plugged with piece of wood of similar species with grain running in the same direction. The piece shall be well glued
iv)	Sapwood	Total not exceeding 5 mm wide and 150 mm long per metre	Total not exceeding 10 mm wide and 300 mm long per metre
v)	Pin holes	Permitted provided they are not in clusters	Permitted
vi)	Worm holes	None	Permitted provided they are not more than 10 mm in diameter and not more than one per metre and provided such worm holes are plugged with similar timber in such a manner that the plugging merges with the surrounding area both as to colour and grain

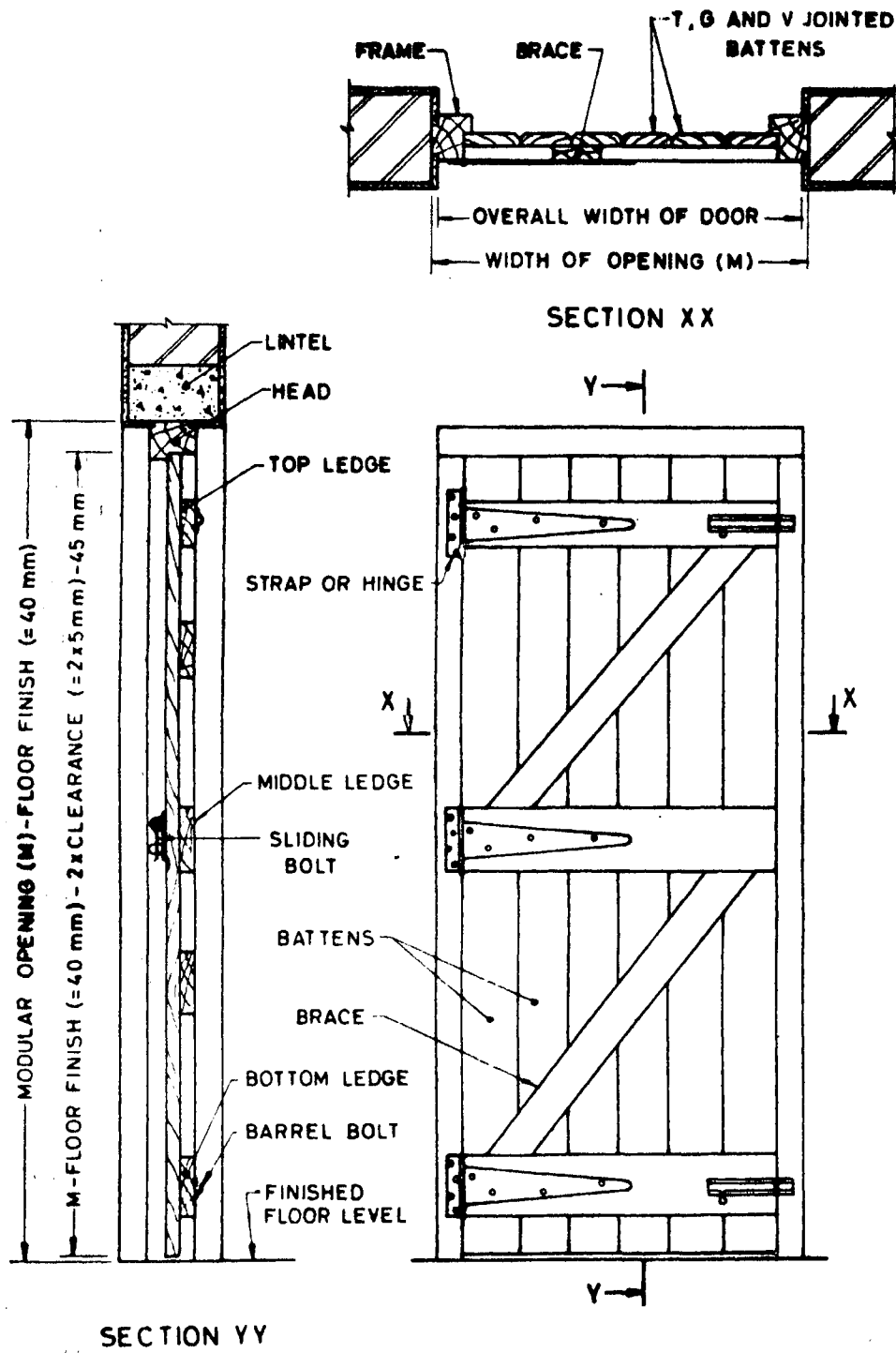


FIG. 1 LEDGED, BRACED AND BATTENED TIMBER DOOR SHUTTER

over or touching the place of joint. Surface checks of maximum width 0.25 mm and maximum depth of 10 mm may be permitted. (see also Table 2):

5 DESIGNATION OF DOOR SHUTTERS

5.1 Designation

Door shutter shall be designated by symbols denoting the width, type and height of door in succession in the following manner

- a) Width — It shall be indicated by the number of modules of 100 mm in the width of door opening.
- b) Type — It shall be indicated by the following letters:
 - D = Door
 - S = Single shutter
 - T = Double leaf shutter

Table 2 Dimensions of Door Shutters
(*Clauses 5.1 and 6.2*)

Designation	Width mm	Height mm
8 DS 20	700	1 905 (1 945)
8 DS 21	700	2 005 (2 045)
9 DS 20	800	1 905 (1 945)
9 DS 21	800	2 005 (2 045)
10 DS 20	900	1 905 (1 945)
10 DS 21	900	2 005 (2 045)
12 DT 20	1 100 ¹⁾	1 905 (1 945)
12 DT 21	1 100 ¹⁾	2 005 (2 045)

¹⁾ Combined width of double leaf shutters in closed position.

NOTE — In arriving at the standard widths and heights for doors, an allowance of 60 mm has been made for timber door frames (*see* IS 4021 : 1983 and IS 4351 : 1976), 40 mm for floor finish and 5 mm for clearance all round, between door opening and door frame and 15 mm for rebate all round for the shutter into the frame. In case the modular height is taken from the finished floor level, the height of the door shall be the one given in the bracket. In case of double shutters, the rebate and clearance between the shutters shall be as given in 7.3.

c) Height — It shall be indicated by the number of modules of 100 mm in the height of door opening.

Example:

8 DS 21 would mean a shutter suitable for a single shutter door of 8 module width and 21 module height.

6 DIMENSIONS AND SIZES OF DOOR SHUTTERS

6.1 Dimensions of Components and Tolerances

The finished dimensions and tolerances of different components of door shutters shall be as given in Table 3.

Table 3 Dimensions and Tolerances of Components of Door Shutters

Description	Width mm	Thickness mm
Top and bottom ledges	150 ± 1.5	25 ± 1.5
Middle ledge	200 ± 1.5	25 ± 1.5
Braces	110 to 125	25 ± 1.5
Battens	140 to 160 (depending upon the width of the shutter)	25 ± 1.5

NOTE — All the battens in a door shutter shall be of uniform width.

6.2 Sizes of Shutters and Tolerances

Sizes of the door shutters shall generally conform to the modular sizes specified in Table 2 (*see also* Fig. 1). Sizes other than modular sizes, as agreed to between the manufacturer and the purchaser, may also be permitted.

6.2.1 Tolerances

Tolerances on sizes of door shutters shall be ±3 mm.

7 CONSTRUCTION AND WORKMANSHIP

7.1 General

7.1.1 The timber shall be cut to required sizes well in advance of the commencement of fabrication and stacked at the site of work or the workshop, where fabrication might be carried out in a suitable manner for further seasoning (*see* IS 1141 : 1973) as specified in 4.1.3.

7.1.2 All wood work shall be neatly and truly finished to the exact dimensions required and other joints shall be fitted truly without wedging or filling. The following principles shall be observed in forming joints:

- Cut the joints and arrange the fastenings in such a way so as to weaken the pieces of timber they connect as little as possible;
- Place each abutting surface in a joint, as nearly as possible, perpendicular to the pressure it has to transmit; and
- Form and fit accurately every pair of surfaces that come in contact.

7.1.3 All members of the door shutters shall be straight and shall have smooth, well-planed faces at right angles to each other. The permissible bow or warp in the shutter shall be ±2 mm. The right angle for the shutters shall be checked by measuring the two diagonals from one extreme corner to the opposite one and the difference between the two diagonals shall be within 3 mm.

7.2 Joiner's Work

7.2.1 All joiner's work shall be cut and framed together immediately after final seasoning.

7.2.2 All exposed faces of joinery shall be wrought.

7.2.3 Butt joints between battens shall be gross tongued or tongued and grooved, the tongues to be cut at right angles to the grains of wood.

7.2.4 All mouldings shall be clean and accurately finished.

7.2.5 The edges and ends of ledges, and edges of braces shall be chamfered before fixing. All battens shall be fixed to the ledges, two screws for each ledge. Battens and braces shall also be screwed to each other. The braces shall incline upwards from the hanging edge. Length of the screw shall be shorter by 3 mm to the combined thickness of batten and ledge or batten and brace. The point of screw shall not penetrate the wood completely and project even slightly on the other side.

7.3 Rebating

7.3.1 In the case of double leaved shutters, the meeting of the stiles shall be rebated 8 mm to 10 mm or fillet may be used. The rebatting may be either splayed or square type as shown in Fig. 2.

8 FINISH

8.1 All battens of the shutter shall be sanded and finished smooth.

8.2 Defective knots, where permitted in surfaces exposed to view, shall be completely bored or cut out and tightly plugged with a cross-gained plug (round or dovetailed) of similar species of timber and shall be properly glued in.

8.3 All the surfaces of door shutters which are required to be painted or polished or varnished ultimately shall be covered initially before delivery by protective coat of primer polish or varnish as specified in IS 2338 (Parts 1 and 2) : 1967.

9 TYPE TESTS

9.1 Following type tests shall be carried out according to IS 13034 : 1990 with every change of design:

- a) Slamming test,
- b) Shock resistance test,
- c) Edge loading test,
- d) Resistance to bukling test.

9.2 The manufacturer shall, at the request of the purchaser, give free of charge the test certificate for the test conducted as given in 9.1.

10 SAMPLING AND CRITERIA FOR CONFORMITY

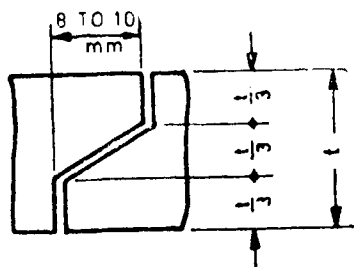
10.1 The sampling and criteria for conformity for ledged, braced and battened timber door shutters shall be as given in Annex C.

11 MARKING

11.1 Each door shutter shall be hammer marked on the exposed edge of a ledge or batten with the following information:

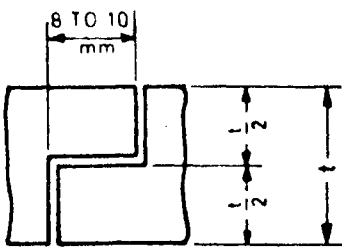
- a) Indication of the source of manufacture:
- b) Whether the size of the shutter is 'Modular' or 'Non-modular';
- c) Designation (showing width and height in modules) with type as specified; or the actual size (width and height in case of non-modular sizes) along with appropriate symbols for designation of door shutter as specified in 5.1(b); and
- d) Class and Grade of timber used for ledges, braces and battens (see Annex A and 4.1.5).

11.1.1 The shutter may also be marked with the Standard Mark.



t = THICKNESS OF SHUTTER

2A Splayed Type



t = THICKNESS OF SHUTTER

2B Square Type

FIG. 2 MEETING OF STILES FOR DOUBLE LEAVED SHUTTERS

ANNEX A

(Foreword)

LIST OF TIMBER SPECIES BEING IMPORTED IN INDIA SUITABLE FOR DOORS, WINDOWS AND VENTILATORS

Sl No.	Standard Trade Name	Botanical Name	Country from Where Imported [Africa (A) Malaysian Species (M) Papau New Guinea (PNG)]
(1)	(2)	(3)	(4)
1.	Alan Batu or Bunga	<i>Shorea albida</i>	M
2.	Amoora	<i>Ammore eucullata</i>	PNG
3.	Bintangor	<i>Calophyllum</i> spp.	M
4.	Boxwood	<i>Xonthophyllum X Papuanum</i>	PNG
5.	Cedar Java	<i>Bischofia B Javanica</i>	PNG
6.	Dark Red Meranti	<i>Shorea</i> spp.	M
7.	Durian	<i>Bombacaceae</i> spp	M
8.	Kapur	<i>Dryobalanops</i> spp	M
9.	Keruing	<i>Dipterocarpus</i> spp	M
10.	Kwila	<i>Intasia Bijuga</i>	M
11.	Light Red Meranti	<i>Shorea</i> spp	PNG
12.	Merawan	<i>Hopea</i> spp	M
13.	Merbau	<i>Intsia Palemanica</i>	M
14.	Nyatoh	<i>Ganua</i> spp, <i>Madhuca</i> spp, <i>Palaquium</i> spp, <i>payena</i> spp, <i>Planchonella</i> spp	M
15.	Resak	<i>Upuna</i> spp, <i>Berneensia</i> spp, <i>Votica</i> spp	M
16.	Selangan Batu (Balau)	<i>Shorea</i> spp	M
17.	Terminalia (Red Brown Group)	<i>Terminalia canalicalata</i>	PNG
18.	Vitex	<i>Vitex cofassu s</i>	PNG
19.	Yellow Meranti	<i>Shorea</i> spp	M
20.	Red Baqlau	<i>Shorea</i> spp	M
21.	Afromosia or kokruda	<i>Afromosia angolensis</i>	A
22.	Afara or limba (Terminalia Superba)	—	A
23.	Afzelia	—	A
24.	Utile	<i>Entandophragma utile</i>	A
25.	Iroke	<i>Mitragyna stipulosa</i>	A
26.	Abura	<i>Entandophragma cylindrtum</i>	A
27.	Sapela		A

NOTE — The imported timber is normally marketed under one trade name which may comprises of various species under that trade name and it may be difficult to differentiate them. It is recommended that the values of properties which are the lowest for the species under that trade name may be adopted. Botanical names indicated are the predominant one under that trade name.

ANNEX B

(Claecse 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
401 : 1982	Code of practice for preservation of timber (<i>third revision</i>)	2338 (Part 1) : 1967	Code of practice for finishing of wood and wood-based materials: Part 1 Operations and workmanship
707 : 1976	Glossary of terms applicable to timber technology and utilization	2338 (Part 2) : 1967	Code of practice for finishing of wood and wood-based materials: Part 2 Schedules
1141 : 1973	Code of practice for seasoning of timber (<i>first revision</i>)		

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
4021 : 1983	Specification for timber, door, window and ventilator frames (<i>second revision</i>)	10428 : 1983	Glossary of terms relating to doors
4351 : 1976	Specification for steel door frames (<i>first revision</i>)	12896 : 1990	Classification of Indian timbers for door and window shutters and frames
4913 : 1968	Code of practice for selection, installation and maintenance of timber doors and windows	13034 : 1990	Methods of tests for timber panelled and glazed door shutters — Type tests

ANNEX C

(*Clause 10.1*)

SAMPLING AND CRITERIA FOR CONFORMITY

C-1 TYPE TESTS

C-1.1 The manufacturer may get the type test done on at least three samples by the standard methods of test specified in 9.1.

C-2 LOT

C-2.1 In any consignment, all the shutters of the same type, class and grade and manufactured under similar conditions of production shall be grouped together to constitute a lot.

C-2.2 Samples shall be selected and inspected separately for each lot for determining its conformity or otherwise to the requirements of the specification

C-3 SIZE OF THE LOT

C-3.1 The number of shutters to be selected for inspection from a lot shall depend upon the size of the lot and shall be in accordance with Col 1 and 2 of Table 4.

C-3.2 The shutters in the sample from the lot shall be selected at random. For random selection, methods as given in IS 4913 : 1968 shall be followed.

C-4 NUMBER OF TESTS

C-4.1 The shutters selected as in C-3.1 shall be inspected for dimensions and tolerances (*see 6.1*,

6.2 and 6.2.1), sizes and types (*see 6.2*), construction and workmanship (*see 7*), finish (*see 8*).

Table 4 Sample Size and Criteria for Conformity

(*Clauses C-3.1 and C-5.1*)

Lot Size	Sample Size	Permissible No. of Defectives
(1)	(2)	(3)
26 to 50	5	0
51 to 100	8	0
101 to 150	13	1
151 to 300	20	2
301 to 500	32	3
501 to 1 000	50	5
1 001 and above	80	7

NOTE — For lots containing 25 or less number of shutters, sampling shall be agreed to be between the purchaser and the supplier.

C-5 CRITERIA FOR CONFORMITY

C-5.1 Any shutter failing in any one or more of the requirements inspected for in C-4.1 shall be considered as defective. A lot shall be considered as having satisfied the requirements of the standard if the number of defective shutters in the sample does not exceed the corresponding permissible number of defectives given in col 3 of Table 4.

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.

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