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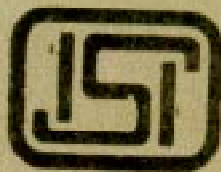
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IS : 8726 - 1978

*Indian Standard*  
SPECIFICATION FOR  
WIREBOUND WOODEN CRATES

UDC .621.798.126 : 674.6



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

Price Rs 5<sup>00</sup> Gr 8

June 1978

# *Indian Standard*

## SPECIFICATION FOR WIREBOUND WOODEN CRATES

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# *Indian Standard*

## SPECIFICATION FOR WIREBOUND WOODEN CRATES

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 28 February 1978, after the draft finalized by the Wood and Wood Products Containers Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

**0.2** As in the case of wirebound boxes, wirebound crates are used to reduce the lumber requirements and to facilitate ease of assembly of prefabricated sections. They are used for varied applications, for example, for the shipment of fruits, vegetables and other consumer items like china sanitaryware, and numerous heavy industrial products.

**0.3** Most of the principles and designs applicable to wooden boxes are also applicable to the crates. In addition, several other factors have to be considered for the design of wirebound wooden crates.

**0.4** In the preparation of this standard, assistance has been derived from JIS Z 1408-1960 'Wirebound crates', issued by the Japanese Industrial Standards Committee.

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### 1. SCOPE

**1.1** This standard covers the requirements for wirebound wooden crates.

### 2. TERMINOLOGY

**2.1** For the purpose of this standard, the following definitions in addition to those given in IS : 707-1976\* and IS : 6703-1972† shall apply.

**2.1.1** *Liner* — Liners are thin boards which prevent the slats from splitting and the fastenings from pulling through slats. Shearing of the slats is also prevented.

**2.1.2** *Slats* — Timber members at the ends of the crates which contribute primarily to resistance to stacking and distortion. They may also be designed for most effective coverage or simplicity of manufacture.

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\*Glossary of terms applicable to timber and timber products ( *second revision* ).

†Glossary of wooden packaging terms.

### 3. MATERIALS

**3.1 Wood** — The most suitable species of timber for wooden crates shall be from Groups I, II and III of IS : 6662-1972\*.

**3.1.1 Moisture Content** — The timber used for the manufacture of wire-bound wooden crates shall be seasoned to a moisture content not exceeding 15 percent and preferably around 10 percent.

**3.1.2 Decay** — Each piece of timber shall be sound and free from decay.

**3.1.3** The timber used shall not have any of the objectionable markings.

**3.1.4 Grain Divergence** — The divergence of grain shall not exceed 1 in 10 in cleats and liners, and 1 in 8 in slats.

**3.2 Nails** — Plane head nails of suitable length conforming to IS:723-1972† shall be used for the assembly of the boxes wherever necessary.

### 3.3 Wire

**3.3.1 Binding Wire** — Wire used for binding shall be of mild steel conforming to IS : 280-1972‡.

**3.3.2 Stapling Wire** — Wire for stapling shall be of mild steel drawn wire of diameter 1.6 mm.

### 4. TYPES

**4.1** Wirebound crates shall be constructed conforming to any of the styles shown in Fig. 1 and 2 depending upon requirements.

**4.1.1 Style A** — This type of crate is similar in construction to style *D* boxes (see IS : 8725-1978§), and except for partially open faces, has many variations to be used for the shipment of fruits, vegetables and for consumer items, such as vitreous china sanitaryware and a few types of heavy industrial products (see Fig. 1).

**4.1.2 Style B** — This type, which is upright crate, sometimes referred to wrap-around or hood crate, is shown in Fig. 2. This type is suitable for appliances, motors, transformers and other similar products. The item to be packed is either bolted to the base or blocked in place by structural members fastened to one or more intermediate cleats of the crate blank.

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\*Specification for timber species suitable for wooden packaging.

†Specification for steel countersunk head wire nails ( *first revision* ).

‡Specification for mild steel wire for general engineering purposes ( *second revision* ).

§Specification for wirebound wooden boxes.



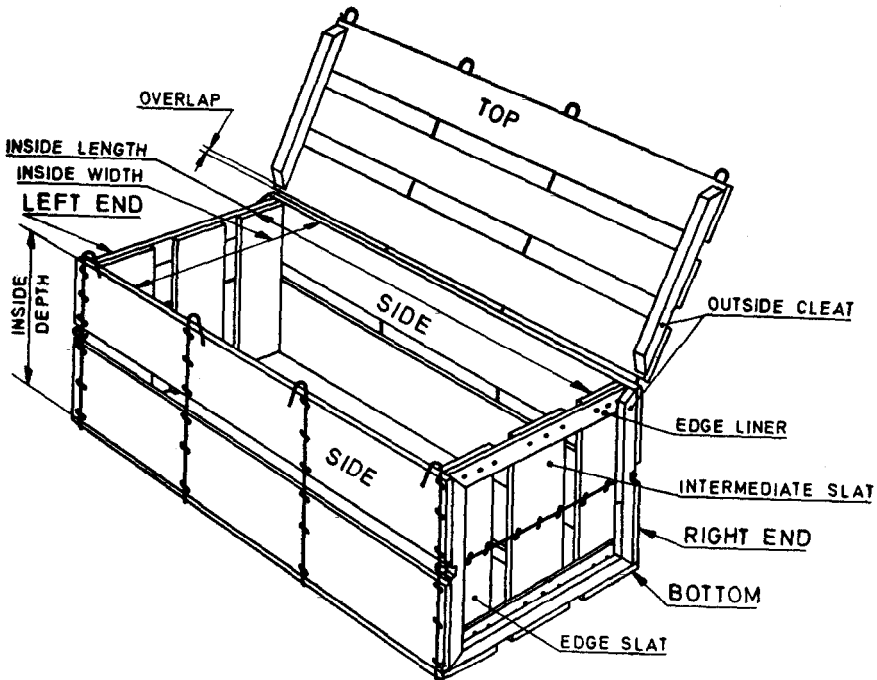


FIG. 1 STYLE A WIREBOUND CRATE

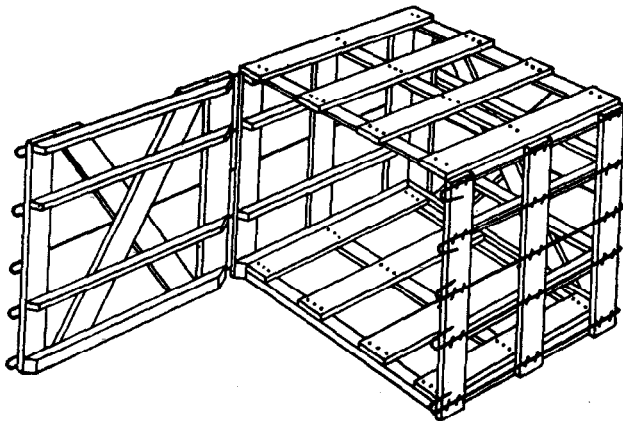


FIG. 2 STYLE B WIREBOUND CRATE

## 5. CONSTRUCTION

**5.1 Base** — The proper style of the base depends on the weight of the product, the method of fastening the product to, or resting it on, the base, the method of holding the box blank to the base, and any special material-handling consideration requiring a pallet or skid-base construction. It shall conform to any of the types shown in Fig. 3.

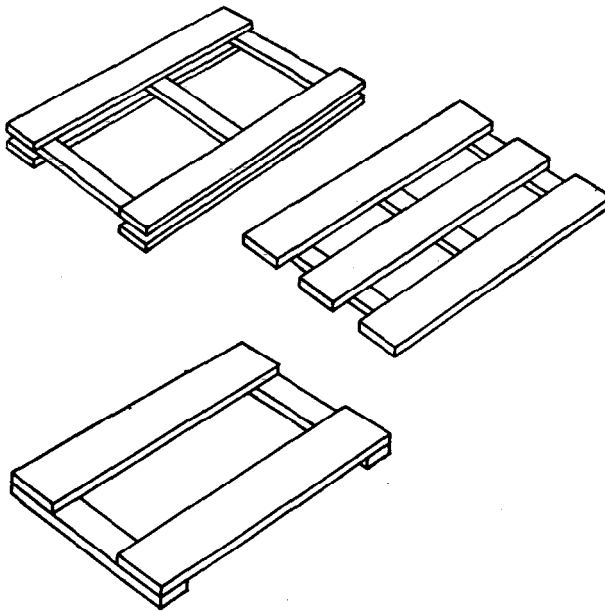


FIG. 3 TYPICAL BASES FOR STYLE B  
WIREBOUND CRATES

**5.1.1** Design of the base shall depend upon the weight of the product, the method of fastening the product to, or resting it on, the base, the method of holding the box blank to the base, and any special material-handling consideration requiring pallet or skid-base construction. In addition to the base illustrated in Fig. 3, diagonal slats may be incorporated into the design. All these crate diagonals may increase the resistance to base distortion by as much as 200 percent. Other considerations for the design of the base slats are species of wood used, the unsupported length, the number of weight bearing slats used and thickness of the slats.

**5.1.1.1** If the product is very heavy, it should be bolted through the slats and battens or skids, and the latter shall be properly positioned for this purpose.

**5.2 Tops** — The tops for the crates shall conform to any of the types shown in Fig. 4. This may be of staple or nail construction.

**5.2.1** In the case of tops, the diagonal may be incorporated into the top for resistance to crate distortion. To protect against stacking of heavy loads on top of the crate, the workmen walking on it, or other anticipated hazards, greater coverage shall be provided.

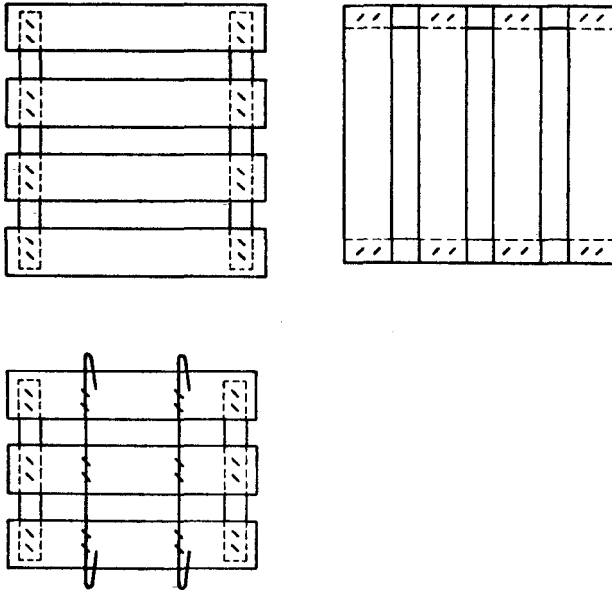


FIG. 4 TYPICAL TOPS OF STYLE B  
WIREBOUND CRATES

### 5.3 Slats

**5.3.1 Edge Slats** — Since the principal resistance of stacking is obtained from edge slats of the blank, the edge slats shall be made thicker and wider to increase stacking strength.

**5.3.2 Intermediate Slats** — These primarily provide the resistance to distortion and also for most effective coverage or simplicity of manufacture. To obtain effective slat arrangement, the slats shall be at or near a 45° angle which provides maximum resistance to distortion. The effectiveness of the diagonal shall depend on the ratio of width to length.

## **6. WORKMANSHIP AND FINISH**

**6.1** The boards, battens, liners, slats, etc, shall be of even thickness, rectangular section, trimmed square at the end, and reasonably smooth.

**6.2** The nail and clinching shall be along the grain of the timber.

## **7. PRESERVATIVE TREATMENT**

**7.1** The shooks shall be given preservative treatment as necessary and agreed to between the purchaser and the manufacturer. The treatment shall, in general, conform to IS : 401-1967\*.

## **8. DELIVERY**

**8.1** Unless otherwise specified by the purchaser, the crates shall be delivered in the form of shooks. They shall be tied in reasonable bundles capable of being handled by one man.

## **9. MARKING**

**9.1** Unless otherwise specified, each assembled case or a bundle of shooks shall be legibly and indelibly marked or stapled with the following information:

- a) Manufacturer's name or initials or trade-mark, if any;
- b) Year of manufacture; and
- c) Number and the size.

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\*Code of practice for preservation of timber ( *second revision* ).