

Australian/New Zealand Standard[®]

**Timber drums for insulated electric
cables and bare conductors**

AS/NZS 2857:1996

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL/3, Electric Wire and Cables. It was approved on behalf of the Council of Standards Australia on 25 March 1996 and on behalf of the Council of Standards New Zealand on 15 May 1996. It was published on 5 August 1996.

The following interests are represented on Committee EL/3:

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This Standard was issued in draft form for comment as DR 95257.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/3 on Electric Wires and Cables to supersede AS 2857—1986 and NZS/AS 2857—1986, *Timber drums for insulated electric cables and bare conductors*.

The objective of this Standard is to specify the construction, dimensions and standard sizes of timber drums for insulated electric cables, bare conductors and other products, and that of the revision is to update the document and further rationalize the standard drum sizes.

This Standard differs from the 1986 edition as follows:

- (a) The terminology has been changed to segmented, recessed and plywood drums.
- (b) The method of designation has been revised.
- (c) The drum mass capacities have been added to construction tables for plywood drums.
- (d) A Purchasing Guidelines Appendix has been added.
- (e) Drum construction tables have been rationalized.
- (f) It is published as a Joint Australian/New Zealand Standard.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

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Originated in Australia as AS C365.1 — 1969.
 Previous edition in Australia AS 2857— 1986.
 Previous edition in New Zealand NZS/AS 2857 — 1986.
 Jointly revised and designated AS/NZS 2857:1996.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Timber drums for insulated electric cables and bare conductors**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies requirements for timber drums up to 5 t capacity for the transport and storage of insulated electric cable, bare conductor and other products for which the drums are suitable.

The Standard includes nomenclature and dimensions of a preferred range of drums, together with details of materials, construction and marking requirements, and special requirements for the protection of cables.

NOTE: Dependent upon cable type, transportation and installation conditions, drums of lighter or more robust construction or differing design may be required. In these circumstances advice should be sought from the cable manufacturer.

1.2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

1111 ISO metric hexagon commercial bolts and screws

1112 ISO metric hexagon nuts, including thin nuts, slotted nuts and castle nuts

2334 Steel nails—Metric series

AS/NZS

2269 Plywood—Structural

1.3 DESIGNATION Drums shall be designated by a reference number as indicated in Tables 3.1, 4.1 and 5.1. The designation shall be made up as follows:

(a) *1st character* This character nominally describes the construction of the drum, as shown in the following:

(i) For drums with barrel-end supports S

(ii) For drums with recessed flanges R

(iii) For drums with plywood flanges P

(b) *2nd character* This character indicates the number of drums that can be fitted side by side (with a small space between them) on both transport modes of flat top trucks and shipping containers (overall width considered is 2330 mm).

Examples as follows:

(i) Where 5 drums fit side by side 5

(ii) Where 2 drums fit side by side 2

(c) *3rd character* This character is to convey relative volume capacity of the drum, beginning at 'A' for smallest, to 'Z' for largest. Each drum type contains a rationalized number of sizes, so that not all of the alphabet is required.

(d) *4th character* (where required) This character (T) is to indicate additional flange thickness for strength.

1.4 DEFINITIONS For the purpose of this Standard, the definitions below apply.

1.4.1 Cable—product which may be wound on the drums specified in this Standard.

1.4.2 Cable inner-end access—opening through the flange, adjacent to the barrel, to expose and facilitate securing of that end of the cable first laid on the barrel.

1.4.3 Protective external lagging—component which is additional to the basic drum construction, for the purpose of providing protection against mechanical damage of the outer layers of the cable on the drum.

1.4.4 Barrel lagging—material used for the construction of the drum barrel.

1.5 TERMINOLOGY The terminology and typical construction of drums is illustrated in the following figures:

- (a) Segmented drums (with barrel-end supports) Figure 3.1.
- (b) Recessed drums (with recessed flanges) Figure 4.1.
- (c) Plywood drums (with plywood flanges) Figure 5.1.

SECTION 2 GENERAL REQUIREMENTS

2.1 GENERAL

2.1.1 Compliance Drums shall comply with the requirements of this Section and with Sections 3, 4 or 5, as appropriate.

2.1.2 Capacity of drums (mass) The recommended maximum capacity of the largest segmented drums is 5 t and for recessed drums is 2 t. Smaller drums may have lesser capacities.

The recommended maximum capacity for plywood drums is given in Table 5.1.

2.1.3 Capacity of drums (cable length) Guidance is given on the selection of a drum to suit a particular length of cable and the determination of the capacity of a particular size of drum with respect to a specific diameter of cable.

NOTE: See Appendix A.

2.2 TIMBER Timbers for drums shall be industrial grade pinus, sound and free from defects that could materially weaken or adversely affect the component parts of the drum or have a detrimental effect on the cable.

Specific timbers or moisture content or preservative treatment may be requested.

NOTE: See Appendix B.

2.3 FLANGES

2.3.1 Construction Flanges shall be constructed from two or three layers of timber. Each layer shall be constructed so that the centre-line of the central flange board passes through the flange diameter. Where two layers are used, they shall be assembled in such a manner that their grain direction is approximately 90 degrees to each other. Where three layers are used they shall be assembled in such a manner that the grain direction of the second and third layers is at an angle of approximately 60 degrees and 120 degrees respectively to that of the first layer.

Where the thickness of timber used for each layer is different, the thicker timber shall be used for the outside layer.

The flanges shall be assembled with the boards closely butted to give maximum support to adjacent boards.

Minimum flange board widths shall be related to flange diameter as follows:

- (a) Up to and including 1200 mm 100 mm.
- (b) Exceeding 1200 mm 150 mm.

The minimum width of any part-board shall be not less than one-third of the above widths.

2.3.2 Fastening Flange layers shall be fastened with flat head nails complying with the requirements of AS 2334 which shall be of sufficient length to provide an effective clinch but in no case less than 10 mm. The heads of such nails shall be located on the internal face of the flange.

Nails shall be positioned concentrically with the flange on pitch circles separated by a radial distance not exceeding 150 mm beyond the confines of the drum barrel or 200 mm within the confines of the drum barrel and avoiding the cable end slot, barrel bolts, and the like.

The outer circle of nails shall be not less than 25 mm and not more than 50 mm from the perimeter. At least two nails shall be driven through each board, on the pitch circle arc passing across or along a board, with a typical spacing of between 30 mm and 80 mm.

When a nail is driven so as to coincide with the butt of any two flange boards of any face layer or so close to the edge of any face board as to cause splitting of such board, it shall be supplemented by an additional adjacent nail located so as to effectively secure the boards. Nails clinched in the butt between two boards shall be removed.

The heads of nails shall be punched below the surface on the inside of the flange. The depth of such punched nail heads shall be not more than 15 percent of the thickness of the inner layer. Such punching of nail heads shall not reduce the effectiveness of the nail clinch. The clinches shall be so driven that the points of the nails are below the surface.

The internal faces of flanges shall provide a surface free from any irregularities and the like capable of damaging the cable. The finish of the external timber faces of the flanges shall not present an undue safety hazard.

2.4 CABLE INNER-END ACCESS Drums shall be provided with a cable inner-end access in at least one flange and having dimensions as specified in Sections 3, 4 or 5, as appropriate, and in one of the following forms:

- (a) Chamfered hole without a slot.
- (b) Chamfered hole in conjunction with a curved slot—which follows the circumference of the barrel.
- (c) Chamfered hole in conjunction with a straight slot—tangential to the barrel.

In each case, the circumference of the entry hole shall rest on the barrel and the hole shall be angled through the flange so as to avoid undue bending of the cable.

The slot, where used, shall be in the form of a recess in the outer layer of a two-layer flange or in the middle and the outer layers of a three-layer flange.

The hole shall be located at one end of the slot to allow the passage of the inner cable end for location within the slot.

2.5 SPINDLE HOLES

2.5.1 General Spindle holes in flanges and in barrel supports (if any) and in spindle plates (if any), shall be concentric with the barrel.

2.5.2 Segmented drums Flanges of segmented drums, as shown in Figure 3.1, shall be fitted with low carbon (mild) steel plates, as detailed in Table 3.1, on the external faces and these plates shall be secured to the flange with a minimum of four mild steel bolts of not less than 12 mm diameter. Suitable washers shall be located against the inside face of the flange, except in the case of coach-head bolts having square necks and a bolt diameter of 16 mm or greater.

2.5.3 Recessed drums Flanges of recessed drums exceeding 1400 mm diameter, as shown in Figure 4.1, shall be fitted with low carbon (mild) steel pipe or tube inserts in the spindle holes. The internal pipe diameter shall be the same as the spindle hole measurements stated in Table 4.1. The insert lugs shall be positioned between the inner and outer flange board layers and nailed to one of the layers.

2.6 DRIVE-PIN HOLES A drive-pin hole shall be drilled in each flange. The hole diameter shall be in accordance with Sections 3, 4 or 5 as appropriate. Each hole shall be on a pitch circle radius which is 35 ± 5 mm less than the inside radius of the barrel, with a maximum pitch circle radius of 350 mm. In the case of segmented drums, the drive-pin hole shall not be drilled into any spreader.