Wooden Cable Drum

1. Description: Wooden Cable Drum -004 for **3KM** 24/48F Cable
2. Quantity: 667 Nos
3. The material should comply the TEC GR No. G/CBD-01/02.NOV24(RA MARCH 2004)
4. Dimension:1500x675x700MM(Flange Dia*Barrel Dia*Barrel Width)
5. The Bidder shall submit a sample to the user i.e. ITI Limited, Raebareli before bulk supply.
6. Delivery Location: ITI Limited, Raebareli
7. Billing Address: ITI Limited, Bangalore
8. Delivery terms: 25% within 30 days from the date of purchase order. Remaining quantity supply details will be intimate later.
9. The wooden drum shall be of enough strength to hold 3KM cable.

ISO 9001:2008

GENERIC REQUIREMENT

Wooden Cable Drum for Telecom Cables

G/CBD-01/ 02.NOV 94 (RA MAR 2004)

Release 02

TELECOMMUNICATION ENGINEERING CENTRE
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EXTERNAL PLANT
ISSUE II - NOVEMBER 94

WOODEN CABLE DRUM FOR TELECOM CABLES

GENERIC REQUIREMENTS
NO. G/CBD-01/02.NOV.94

TEC

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GOVERNMENT OF INDIA
DEPARTMENT OF TELECOMMUNICATIONS
TELECOM ENGINEERING CENTRE

SPECIFICATION FOR WOODEN CABLE DRUM FOR TELECOM CABLES

TEC SPEC. NO.G/CBD-01/02. NOV 94
NOVEMBER 1994

(This specification is a revised issue of the ITD Spec. No. S/WT- 108D dated 21.12.1981 - renumbered as G/CBD-01/01, and incorporates all the amendments. The fixed number of the specification is G/CBD-01. The first issue is numbered as G/CBD-01/01. The last two-digit number is advanced numerically at each revision)

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TEC

1. 0 **SCOPE:-**

1.1 This specification details the general requirements to be met by the wooden drum used for supply, transport and storage of telecom cables.

2.0 **GENERAL:-**

2.1 This specifications deals with the technical requirements and does not include all the provisions of a contract.

2.2 This specification requires reference to the latest issues of the following standard specifications.

IS: 401 - Code of practice for preservation of timber.

IS: 707 - Glossary of terms applicable to timber technology and utilisation.

IS, 723 - Steel countersunk head wire nails.

IS: 1363 - Hexagon head bolts, screws and nuts of product grade C.

IS: 1708 - Method of testing of small clear specimens of timber.

IS: 5373 - Square washers for wood fastenings.

3.0 **WOOD:-**

3.1 All wooden components shall be manufactured throughout from well seasoned soft wood. The moisture content of timber shall not exceed 20%

when determined as per IS:1708.

3.2 The following species of timber are considered suitable for the purpose of manufacture of cable drums:

i) Abis. pindrew (Fir)
ii Pinus Longifolia (Chir)
iii) Picea smithiana (Spruce)
iv)Pinus Wallichiana (Kali)
v) Pinus Kosiya (Khasi Pine)
vi) Mangifera Indica (Mango)

3.3 Other soft wood not mentioned in clause 3.2 may be considered subject to mutual agreement, provided the wood satisfies the general requirements of the Specification.

3.4 The wood shall be sound and free from defects that materially weaken the components, expose the cable to damage or interfere with nailing. The wood shall be free from knots which exceed one third of the width of the piece, and reasonably free from cross grain. Excessive splitting during nailing shall result in rejection.

3.5 The negative tolerance on the thickness of lamination of the cable drum flanges shall be 2.0 mm per 25 mm of thickness. The positive tolerance is unlimited, but the thickness of the board of each ply of flange or of other component parts shall be reasonably uniform throughout.

3.6 The wooden members used in the manufacture of cable drums shall be prepared and treated with good preservatives in conformity with the practice recommended in IS:401 (Table 2 under group service condition 5).

3.7 However, the preservative used shall have no deleterious effect on the materials of the cable and shall not be hazardous to health of the staff, handling drums.

4.0 **CONSTRUCTION OF DRUM:-**

4.1 Features and Dimensions: Detailed constructional features and dimensions shall generally be in accordance with the attached Table and Drawing No.1.

4.2 Assembly of flanges:- The flange shall be constructed either by two or three plies of wood. Where two plies are used, they shall be placed at right angles. In case of three plies, they shall be placed so that the plies are at 60^0 and 120^0 respectively to the first ply.

4.2.1 If necessary, the flange may be further strengthened by 6 to 8 segmental boards of suitable dimensions along the periphery of the flanges.

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4.2.2 Flange plies shall be fastened with wire nails which shall have sufficient length for clinching. The head of the nail shall be counter-sunk from the inner side and shall be clinched on the outer side of the flange. The nails shall be positioned in concentric rings at not more than 150 mm intervals from the outer perimeter upto perimeter of the barrel disc. However, the outermost ring shall be not less than 25 mm and not more than 50 mm from the periphery of the flange. Adequate number of nails shall be provided from view point of stability of the flange assembly. The wire nails shall generally conform to IS:723.

4.2.3 **Yellow painting-** Both the outer sides of the flanges of the cable drum shall be painted yellow to facilitate clear markings such as size/gauge of cables, supplier's name and place, details about length, rolling mark etc.

4.3 **Cable end guide:-** Suitable cable end guide on inner side of the drum flange shall be provided for leading inner end of the cables. The thickness of the guide shall be such that the cable can rest on the guide without slipping. The surfaces of the guide planks shall be chamferred properly in order to avoid damage to the cable surface. One of the flanges of the cable drum shall have the end guide.

4.4 **Spindle Hole-** A round spindle hole of 80 mm dia shall be cut through the centre of the flange. Care shall be taken to ensure that the hole in the flange assembly and drum barrel support is coincident. Drums of over 1000 mm dia shall be provided with drum spindle plates of a size in accordance with the Table. Each plate shall be fixed to the flange with four bolts of designation as shown in the Table.

4.4.1 **Drive Hole:-** A drive hole of suitable diameter at a distance of 300 mm or less from the centre of the flange shall be provided to facilitate transmission of motion on take-up assembly.

4.5 **Drum Barrel and End Support-**

4.5.1 **End Support:-** The barrel end support shall be of disc type made up with single ply boards. In case of two ply flanges, the disk is at 90^0 to the inner ply of the flanges. In case of three ply flanges, the discs shall be at 60^0 to the inner ply of the flanges.

4.5.2 **Centre Support:-** A support shall be provided at the centre of the barrel for drums of over 900 mm width between flanges. The centre support shall be of two plies. The thickness shall be at least the same as that of the end support. The barrel lagging shall also be nailed on it.

4.5.3 **Cross Struts:-** For all drums where the width between flanges exceeds 600 mm the barrel shall be further strengthened by cross struts.

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4.5.4 **Barrel Bolts-** The flanges shall be securely clamped together by the number of barrel specified in Table. The barrel bolts shall be equally spaced and arranged on the maximum pitch diameter practicable.

4.5.4.1 A suitable number of drainage holes shall be drilled through each flange and barrel support. They shall be spaced as equidistant as possible and positioned as close as possible to the underside of the barrel lagging.

4.5.5 **Barrel Lagging:-** The barrel lagging shall be closely fitted and shall have a smooth external surface. Each lagging piece shall be secured to the drum barrel support by nails which shall be counter-sunk. Thickness of the barrel lagging shall not be less than 20 mm in case of flange upto 1350 mm and 30 mm in case of flange diameter more than 1350 mm.

4.5.6 **Barrel Diameter**:- The minimum barrel diameter shall not be less than 14 D + 150 mm where D is the final diameter of cable in mm. The barrel diameter shall not be less than 40% of the flange diameter.

4.5.7 **Width between flanges:-** The width between the flanges shall not be less than 33% and not more than 66% of the flanges diameter.

5.0 **HARDWARE:-**

5.1 Dimensions and number of barrel bolts, spindle plates shall be in accordance with the Table. For quality and explanation of designations of bolts, nuts and washers, reference should be made to IS:1363 & IS:5373 as far as applicable. The spindle plate shall be of mild steel and shall not be pitted.

6.0 **SECURING OF CABLE ENDS:-**

6.1 The ends of the cable shall be secured to the drum by jute yarns/cordages so that the cable does not get loosened while in transit or storage. The total breaking strength of the jute/cordage shall be 30 kg.

6.2 **Internal Distance Place:-** When the clearance between the top layer of the cable wound on a drum and circum batten is less than 50 mm, internal distance pieces wrapped with hesian or other suitable material should be provided.

7.0 **PACKING OF THE DRUM:**

7.1 **Circum Battens:-** The circumference battens shall be spaced as closely as possible to enclose the cable space completely. The length of the battens shall be such as to provide reasonably close fitting with the outer face of the flanges. Minimum thickness of the battens shall be 25 mm for flanges up to 1350 mm diameter and 38 mm for flanges of larger diameter. The circum

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battens shall be securely nailed to the flange edges. The length of the nails shall not be less than twice the thickness of the battens.

7.2 **Metal Reinforcement:-** After circumference battens have been nailed in position, a continuous band of steel tape shall be fixed to the circum battens. The steel tape shall be positioned over the centre of each flange and secured by nails. The nominal size of the steel tape shall be 25 mm X 0.75 mm for drums of over 1350 mm and 25 mm X 0.50 mm for drums of 1350 mm dia and below.

7.3 **Strengthening of packed drum:-** The· protruding portions of the barrel bolts having threads, after tightening of the nuts, shall be mechanically damaged to prevent the movement of the nuts.

8.0 **WORKMANSHIP AND FINISH:-**

8.1 The workmanship of the drum shall conform to the best trade practice.

9.0 **TESTS:-**

9.1 The drum shall be visually examined for absence of broken flanges, missing circum battens, excessive gaps between the boards of the flanges, loosely fitted barrel bolts, wide cracks on wood work.

9.2 Sample of drums may be tested for dimensions of component parts.

10.0 **TEST CERTIFICATE:-**

10.1 The manufacturer or supplier shall, when so required by the purchaser or the testing authority, supply a test certificate granted by a recognised test laboratory giving the results of the chemical, physical and other tests batchwise, indicating that the materials used in the manufacture of the drums comply with the requirements of the specification.

11.0 **MARKING:-**

11.1 Each flange shall be stenciled in a contrasting colour to opposite ends of the drum with the words 'ROLL THIS WAY' and shall be underlined by a direction arrow. The arrow shall point in the direction opposite to the direction in which the outer end of the cables emerges. The size of the lettering and the thickness of the arrow shall be as follows:-

On drums upto 600 mm diameter	37 mm
On drums over 600 and up to 1200 diameter	50 mm
On drums of 1200 mm diameter and over	75 mm

11.2 Other markings shall be clearly stenciled or otherwise marked in accordance

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with the marking instructions given in the cable specifications. Each drum shall bear a distinguishing number neatly cut at least on one flange. The figures shall be 50 mm in height for drums upto and including 900 mm in flange diameter and 75 mm for larger drums.

TABLE

CABLE DRUM AHD DESIGH DETAILS

Sl. No	Flange dia.mm	thickness minimum		Barrel Bolts & Nuts (IS: 13631)		Minimum Washer Size	Spindle Plate	Speindle Hoie Dia	Dimension of bolts & nuts fixing
		Flange (mm)	Barrel Supports (mm)	Desig Nation Min Size		Barrel Bolts washer size (mm) 1 x b x t OR Oxt generally as per: (IS:5373)	Size (mm)	(mm)	the spindle plate (IS: 1383)
(A)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j) (k)
I.	Upto 450mm	38	25	M12	3	50 x 50 x 5 50 dia x 5	Normally No plate	80	-----
2.	From 451 upto 1000 mm	38	25	M12	3			80	--------
3.	From 1001 upto 13SO mm	50	32	M16	6		200 x 200 x 5	80	M12 40 x 40 x 4
4-	From 1351 upto 1700 mm	64	32	M20	6	60 x 60 x 5 60 dia x 5	200 x 200 x 5	80	M12 50 x 50 x 5
5.	From 1701 upto 2050 mm	64	50	M20	6		200 x 200 x 5	80	M12 50 x 50 x 5
6.	From 2051 upto 2300 mm	75	50	M22	8	80 x 80 x 6 80 dia x 6	200 x 200 x 5	80	M20 80 x 60 x 5
7.	From 2301 mm and above	90	50	M22	8		250 x 250 x 8	80	M20 60 x 60 x5

*****************End of the Specification******************

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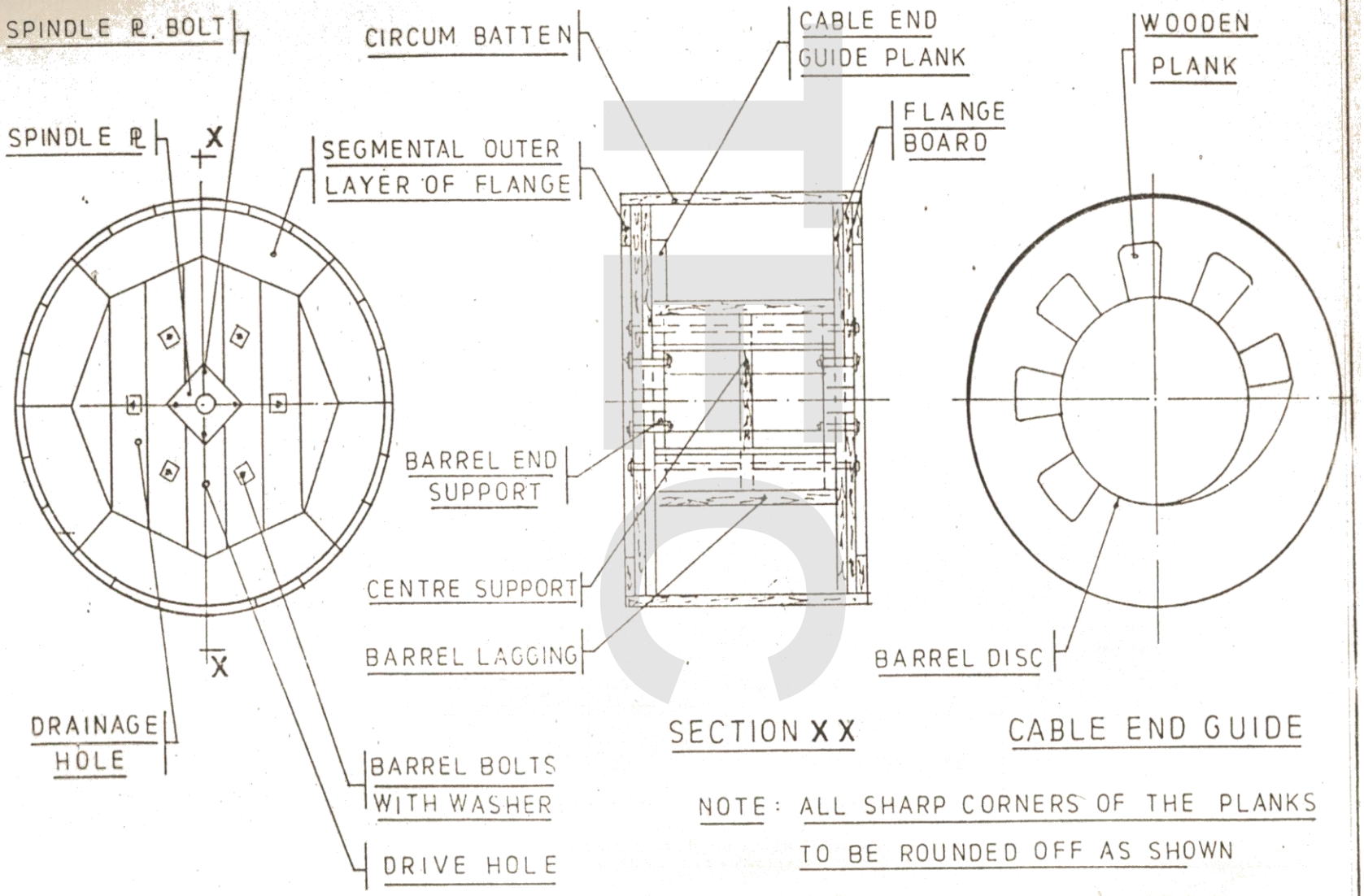
DRUM NOMENCLATURE



SECTION XX

CABLE END GUIDE

NOTE: ALL SHARP CORNERS OF THE PLANKS TO BE ROUNDED OFF AS SHOWN

WOODEN CABLE DRUM FOR TELECOM CABLES.

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DRG. NO. 1