

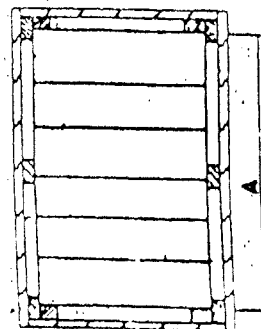
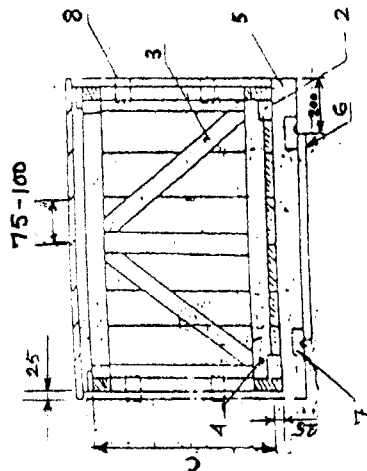
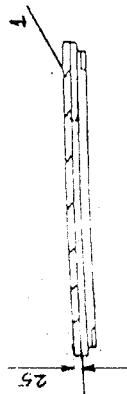
Box Type No 2A is added.  
*Bakshi Singh*  
 24/8/2002

TYPE NO				
	L	W	H	
1A	320	250	260	
1	320	250	430	
2	430	370	430	
2A	500	450	550	

### NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. L, W, H ARE INNER DIMENSIONS OF THE BOX.

TYPE	DIMENSIONS			QTY
	A	B	C	
16	2134	915	1220	
16A	2743	1220	1070	
16B	2743	1220	1525	



NOTE

1. HARD WOOD PLANKS THICKNESS AS PER TDC.
2. END TRAVERS BAR 100X50
3. DIAGONAL BRACE 75X25
4. HARD WOOD BATTEN 75X25
5. RUNNER 100X100 MM.
6. RESTING BEAM 100X50 MM
7. SLING PLATE [M.S. SHEET]
8. SIDE PLATE [M.S. SHEET]

TYPE	DIMENSIONS			QTY
	A	B	C	
1	670	670	670	
2	710	670	600	
3	810	670	670	
4	1000	770	670	
5	1100	670	670	
6	1200	670	670	
7	1300	770	670	
8	1400	770	670	
9	1500	770	670	
10	1600	770	670	
11	1700	770	670	
12	1800	770	670	
13	1900	770	670	
14	2000	770	670	
15	2100	770	670	
16	2200	770	670	
17	2300	770	670	
18	2400	770	670	
19	2500	770	670	
20	2600	770	670	
21	2700	770	670	
22	2800	770	670	
23	2900	770	670	
24	3000	770	670	
25	3100	770	670	
26	3200	770	670	
27	3300	770	670	
28	3400	770	670	
29	3500	770	670	
30	3600	770	670	
31	3700	770	670	
32	3800	770	670	
33	3900	770	670	
34	4000	770	670	
35	4100	770	670	
36	4200	770	670	
37	4300	770	670	
38	4400	770	670	
39	4500	770	670	
40	4600	770	670	
41	4700	770	670	
42	4800	770	670	
43	4900	770	670	
44	5000	770	670	
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66	7200	770	670	
67	7300	770	670	
68	7400	770	670	
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72	7800	770	670	
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Date of Issue: 04-03-2004  
Date of Implementation: 04-03-2004  
Rev: 03

**Technical Delivery Conditions  
For  
Wooden Packing Boxes Made Of Non-Coniferous Timber**

**1. General:**

This specification governs the quality of packing boxes of non-coniferous in the form of planks, battens as per the dimensions and drawing in different sizes as per annex.

**2. Application:**

Packing boxes/crates/battens shall be used at industrial valves plant for transportation of the valves and shall be duly provided with a black polythene lining, sufficiently strong to protect the valves from outside rain water or condensing moisture during and after transportation. The lining is not required for the base of the boxes. Corner plates made of mild steel measuring 150 x 100 x 1.0 mm. shall be nailed at two places for strengthening each vertical corner of the boxes and the base.

**Compliance With National Standard:**

Assistance has been derived from the following standards in the preparation of this specification.

-BHEL Corporate P.S. No. : AA 51402  
-IS-1326-1976: Spn. For Non-Coniferous Timber  
-IS-5966-1970: Spn. For Non-Coniferous Timber  
in converted from for general purpose.

**Dimensions & Tolerances:**

Width, thickness and length of Planks/Battens Shall have the following tolerance:

Width	:	+ 3mm	from 75-100mm
		- 0	
Thickness	:	+ 5mm	from 100-200mm
		- 0	

Box Type No.	Planks	Diagonal Brace	Battens
2	18 +3 -0		+5 on the ordered -0 dimensions
3,3A, 4,4A, 5,5A, 6, 7,9A, 10A, 13A	20 +3 -0	25 +3 -0	+5 on the ordered -0 dimensions
9,9B, 10,11A, 13,14,14A, 14B, 15,16,16A, 16B	25 +3 -0	25 +3 -0	+5 on the ordered -0 dimensions

Length : As Per the Dimensions of the Boxes/ordered.

#### **Moisture Content:**

Normally no. Seasoning is required, however the moisture content should not exceed more than 40%.

#### **Freedom from Defects:**

- Brashness, splits across the grains, shakes, cups, twist, insect attack, centre heart in planks are the defects which are not acceptable.
- Following defects are acceptable when measured in accordance with IS-3364

#### **Bow:**

Shall be permissible upto a maximum of 2mm for 300mm

#### **End Splits:**

The largest end splits at each end shall be measured and the length added together. The added lengths of these shall not exceed 80mm per meter run of the piece.

#### **Live / Dead Knots:**

A maximum of 5 Knots/m length are permissible; however, the knots shall not be so grouped or located as to affect the strength of the piece. Knots above 35mm. diameter are not permissible. Major axis of the knot shall be taken as the diameter of this knot.

**Surface Cracks:**

Surface cracks with a depth of 10 % subject to a depth of 10mm are permissible. A continuous crack of any depth all along the length is not permissible. /

**Certificate:**

The supplier shall furnish a certificate with each lot/consignment in support of the species of the wood, moisture content, size of the nails used, and any special information which the tenderer feel is essential for the quality of the packing boxes and battens distance between two nails should be 50mm. Any hard wood species are acceptable.

**Marking:**

The boxes shall be marked/painted in order to identify the source of supply on two faces with additional stenciling on one face as:-


- CONSIGNEE:
- OA NO./WO. NO.:
- CASE NO. :
- NO. OF VALVES:
- WEIGHT:
- FROM: BHEL/GOINDWAL/TARN TARAN

**BHEL/IVP/GOINDWAL****SIZES FOR THE PACKING BOXES**

<b>Box size No. Type</b>	<b>Dimensions (overall) (L. x W. x H.)</b>
2	430x 370x 430
3A	670x 670x 500
4	710x 630x 600
5	850x 630x 600
6	1000x 770x 670
7	1100x 430x 670
9A	1250x 570x 710
10A	1300x 770x 850
13A	1300x 650x 710
14A	1850x 700x 710
14B	1850x 700x 1050
9B	1250x 570x 1050
16	2134x 915x 1220
16A	2743x 1220x 1070
16B	2743x 1220x 1525

N.B. 1. Supplier's Name and type of the box shall be stenciled on the boxes

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	<b>CORPORATE PURCHASING SPECIFICATION</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">AA</td> <td style="text-align: center;">514 02</td> </tr> <tr> <td colspan="2" style="text-align: center;">REV.No. 03</td> </tr> <tr> <td colspan="2" style="text-align: center;">PAGE 1 OF 6</td> </tr> </table>	AA	514 02	REV.No. 03		PAGE 1 OF 6							
AA	514 02													
REV.No. 03														
PAGE 1 OF 6														
<b><u>NON-CONIFEROUS TIMBER FOR GENERAL PACKING PURPOSES</u></b>														
<p><b>1.0 GENERAL:</b></p> <p>This specification governs the quality requirements of Non-Coniferous Timber supplied in the form of planks, battens, beams and sleepers.</p>														
<p><b>2.0 APPLICATION:</b></p> <p>Used for general packing purposes.</p>														
<p><b>3.0 COMPLIANCE WITH NATIONAL STANDARDS:</b></p> <p>There is no National standard covering this material. However, assistance has been derived from the following National standards:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 35%;">IS:1326-1992</td> <td style="border-left: 1px solid black; padding-left: 10px;">Non-Coniferous Sawn Timber (Baulks &amp; Scantling)</td> </tr> <tr> <td>IS:5966-1993</td> <td style="border-left: 1px solid black; padding-left: 10px;">Non-Coniferous Timber In Converted Form For General Purposes.</td> </tr> <tr> <td>IS:6662-1993 Groups I &amp; II</td> <td style="border-left: 1px solid black; padding-left: 10px;">Timber Species Suitable For Wooden Packaging</td> </tr> </table>			IS:1326-1992	Non-Coniferous Sawn Timber (Baulks & Scantling)	IS:5966-1993	Non-Coniferous Timber In Converted Form For General Purposes.	IS:6662-1993 Groups I & II	Timber Species Suitable For Wooden Packaging						
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IS:6662-1993 Groups I & II	Timber Species Suitable For Wooden Packaging													
<p><b>4.0 TERMINOLOGY:</b></p> <p>For the purpose of this specification, the definitions given in IS:707 (Glossary of terms applicable to timber and timber products) shall apply except for the beam which is defined as follows: Beam is defined as converted timber whose cross-sectional dimensions exceed 50mm in both directions.</p>														
<p><b>5.0 SPECIES:</b></p> <p>Shall be as stated on the order. Some standard species are:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 45%;"><u>Trade Name</u></th> <th style="text-align: left; width: 55%;"><u>Botanical Name</u></th> </tr> </thead> <tbody> <tr> <td>Rubber wood</td> <td>Hevea brasiliensis</td> </tr> <tr> <td>Salai</td> <td>Boswellia serrata</td> </tr> <tr> <td>Bahera</td> <td>Terminalia bellirica</td> </tr> <tr> <td>Jaman</td> <td>Syzygium cumini</td> </tr> </tbody> </table>			<u>Trade Name</u>	<u>Botanical Name</u>	Rubber wood	Hevea brasiliensis	Salai	Boswellia serrata	Bahera	Terminalia bellirica	Jaman	Syzygium cumini		
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Rev.No. 03	Amd.No.	Reaffirmed	Prepared	Issued	Dt. of 1st Issue									
Dt. 1.10.95	Dt.	Year:	BHOPAL	CORP. R&D	MAR '80									



<u>Trade Name</u>	<u>Botanical Name</u>
Lendi	Lagerstroemia parviflora
Mango	Mangifera indica
Machilus(Kalamavu)	Machilus macrantha
Irul	Xylis xylocarpa
Irulbaken	Hopes
Karumarudu	Terminalia tomentosa
Murtenga	Bursera serrata
Nangal	Mesua ferrea
Pillamarudu	Terminalia paniculata
Sal	Shorea robusta
Silver oak	Grevillea robusta
Tada(Dhaman)	Grewia tillifolia

Any other species of wood as per Groups I & II of IS:6662 may also be ordered.

#### 6.0 DIMENSIONS AND TOLERANCES:

##### 6.1 Sizes:

Width, thickness and length of timber shall be clearly stated on the order.

##### 6.2 Tolerances:

6.2.1 Width : 50 to 250 mm Tolerance :  $\pm 3$  mm

6.2.2 Thickness : 20 to 250 mm Tolerance :  $+3$  mm  
-1 mm

##### 6.2.3 Length:

Standard length : 1 to 12 metres in multiples of 0.5 metre.

Tolerance :  $\pm 2\%$  or  $\pm 25$  mm whichever is less.

##### Note:

##### 1.0 Measurements:

1.1 When nominal sizes are ordered, length, width and thickness shall be measured on the basis of accepted sizes. Plus tolerances shall not be added while computing the volume.





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1.2 The measurements of length, width, thickness and computation of volume shall be as follows:

- a) The length shall be measured in metres in midline of a piece. The fractions of a metre shall be rounded off to the nearest lower 10 mm.
- b) The width shall be measured at the narrowest place in millimetres and shall be rounded off to the nearest lower one millimetre.
- c) The thickness shall be measured at the narrowest place in millimetres and shall be rounded off to the nearest lower one millimetre.
- d) The volume shall be computed in cubic metres correct to three places of decimal on the basis of accepted sizes.

2.0 Single sampling plan based on IS:2500 shall be followed.

## 7.0 MOISTURE CONTENT:

The timber shall have a moisture content as stated below within a depth of 15mm from the surface excluding a length of 300mm from each end at the time of inspection. The moisture content will be determined in accordance with Appendix-A of IS:287.

October to June : 30%

July to September (Rainy season) : 40%

## 8.0 FREE FROM DEFECTS:

Timber shall be free from the following defects:

Brashness, splits across the grain, shakes, spring, twist, insect attack, any kind of decay (rot), any sign of infection, open centre heart, centre heart on planks and any other defect.

Defects to the extent specified below are permissible. These defects shall be measured in accordance with IS:3364.

### 8.1 Bow:

Shall be permissible upto a maximum of 2mm for 300mm length.

### 8.2 Wane:

- a) For sections upto and including 150 X 150 mm:

Shall be permissible upto  $\frac{1}{5}$  of the width on the broad face subject to a maximum of 60mm and upto  $\frac{1}{3}$  of the width on the narrow face subject a maximum of 40mm, provided that one broad face is completely free from this defect. The wane shall be measured at its deepest part.



b) For sections above 150 X 150 mm:

The cumulative lengths of waness on all the sides should not be more than one length of the piece.

8.3 End splits:

The longest end split at each end shall be measured and the lengths added together. The total length of these shall not exceed 60mm per metre run of the piece.

8.4 Live knots upto 35mm diameter:

A maximum of 5 knots/metre length are permissible. However, the knots shall not be so grouped or located as to affect the strength of the piece.

Live knots above 35mm diameter are not permissible.

8.5 Dead knots:

a) Below 10mm diameter:

A maximum of 3 knots/metre length are allowed provided that the knots are not so grouped or located as to affect the strength.

b) From 10mm to upto and including 25mm diameter:

A maximum of 2 knots allowed to the extent of 1 knot/metre length.

c) Above 25mm diameter:

Not allowed.

Note: (For clauses 8.4 & 8.5): Major axis of the knot should be taken as the diameter of the knot.

8.6 Surface cracks:

Surface cracks with a depth of 10% subject to a maximum of 10mm are permissible. A continuous crack of any depth all along the length is not permissible.

8.7 Sap wood:

Permissible upto a maximum of 12 percent of the cross sectional area.

9.0 END COATING:

Timber shall be coated with any of the following effective compositions upto a distance of 80mm from each end.

9.1 Thick coal tar or bituminous paint.

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- 9.2 Resin and lamp black (10:1) melted, mixed and applied hot.
- 9.3 Hardened gloss oil.
- 9.4 Paraffin wax.
- 9.5 Molasses and lime (3:1).
- 9.6 Geru/Yellow clay.

**10.0 INSPECTION AT SUPPLIER'S WORKS:**

Whenever specified, tests and inspection are to be conducted in the presence of BHEL's representative. BHEL representative shall have free access at all times while work on the contract is being performed to all parts of the manufacturer works. The manufacturer shall offer BHEL's representative all reasonable facilities, without charge, to satisfy the latter that the material is being furnished in accordance with this specification.

The manufacturer shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities are not available at his works the manufacturer shall make necessary arrangements for carrying out the prescribed tests elsewhere. The manufacturer shall notify BHEL in advance about the readiness of the material for inspection and testing.

BHEL reserves the right to test the material at BHEL's Works and the final acceptance of the material shall be based on these test results.

**11.0 TEST CERTIFICATES:**

Three copies of test certificate shall be supplied unless otherwise stated on the order.

In addition, supplier shall ensure to enclose one copy of test certificate along with their dispatch documents to facilitate quick clearance of the material.

The test certificate shall have the following information:

AA 514 02 (Rev.No.03) : Non-Coniferous timber for general packing purposes

BHEL order No.	:
Supplier's References	:
Type & Specie	:
Treatment, if any	:
Results of Dimensional Inspection	:
Moisture content	:
Defects as per clause 8	:
Size	:
Quantity supplied	:

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CORPORATE PURCHASING SPECIFICATION



12.0 MARKING :

The timber shall be marked/painted with the following:

AA 514 02

BHEL order No. :

Supplier's Name :

Size & Quantity :

13.0 REJECTION AND REPLACEMENT :

If the material does not conform to the requirements of this specification or found defective during further processing, such material shall be rejected notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall under take to replace the rejected consignment at his own cost and the rejected material shall be taken back by the supplier after fulfilling the commercial terms and conditions.

14.0 REFERRED STANDARDS:

The following is the list of the latest standards, as published by the respective issuing bodies, referred to in this specification.

- |            |            |            |            |
|------------|------------|------------|------------|
| 1) IS:287  | 2) IS:707  | 3) IS:1326 | 4) IS:2500 |
| 5) IS:3364 | 6) IS:5966 | 7) IS:6662 |            |