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SEAWORTHY PACKING FOR EXPORT ORDERS						
1.0 SCOPE:						
This standard specifies the seaworthy packing methods for export orders.						
2.0 PACKING WOOD:						
2.1 The timber used shall be of non-coniferous type as per specification HY51463 for Beams & Runners.						
2.2 Ply Wood planks as per specification IS:303 Gr. “MR” Type A,B are used for the Sides, Top & Bottom of the Packing Cases.						
3.0 The packing cases are covered with GI sheet on outside for sides and top; inside for bottom as per the Sketch-I.						
4.0 PACKING CASES:						
4.1 <u>Categorisation of Packing Cases:</u>						
The packing cases are categorised as follows:						
4.1.1 Open packed consignment. Packing subjected to BHEL approval.						
4.1.2 <u>Closed packing cases:</u>						
a) All the export seaworthy packing of the items shall be covered with GI sheet covering as per the sketch – I enclosed.						
b) Any other special or export seaworthy packing (improvement or equivalent to the above) shall be subjected to BHEL Engg & QC approval).						
4.2 <u>Packing procedure for closed packing cases:</u>						
4.2.1 Inner surfaces of the sides & bottoms, outer surfaces of top of all the categories of closed packing cases shall be covered with hessain bitumen coated polyethylene kraft paper/HDPE Tarpaulin 150 GSM weight (refer sketch 1).						
4.2.2 Adequate battens (lined with water proof bitumenised paper/HDPE Tarpaulin 150 GSM together with rubber sheet) shall be provided at appropriate places to prevent the movement of equipment/component inside the packing cases.						
Revisions : Revised Clauses 2.2, 8.01 and Sketch - I. Deleted Clause 8.10.				Issued : STANDARDS ENGINEERING DEPARTMENT		
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4.3 Sealed Packing:

- 4.3.1 Components, sub-assemblies and assemblies sensitive to climatic conditions shall be packed seal tight wherever required.

All the openings of the sensitive components, sub-assemblies and assemblies shall be blanketed to prevent the ingress of dust and moisture wherever required.

- 4.3.2 The components, sub-assemblies and assemblies are completely covered with 2 layers of polyethylene sheet. All sharp corners and edges are to be protected by rubber mats to prevent the polyethylene sheet from damage. Excelsior, corrugated cardboard, felt or other hygroscopic materials shall not be used. The top surface of the case shall be free from dents to prevent rain water pockets.

Note: Seal tight packing case shall not be opened during transportation till destination. Therefore customs authorities and shipping agents shall be informed in advance of the arrival of item. Suitable arrangements shall be made with the authorities for customs clearance.

- 4.3.3 Certain special precautions are required for sealtight packing of Turbogenerator rotor and the same are specified in product standard no. TG 55507.

- 5.0 Turbogenerator stator is a special open consignment and the same shall be packed in accordance with product standard TG 55506 for compliance.

6.0 DESICCANT:

- 6.1 Desiccant (silicagel to spec IS:3401) is filled into dust free, air permeable linean bags. Silicagel bags inside the packing consignments such as boxes with or without sealed polyethylene sheets excluding Turbogenerator rotor and and stator need not be arranged in any particular way. However, these silicagel bags shall be arranged in a particular way as specified in the respective product standards/drawings for Turbogenerator rotor and stator.

6.2 Desiccant Quantity for Components:

The desiccant quantity depends on the dimensions of the polyethylene sheet as well as transit and storage time.



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T A B L E - 1

Desiccant Quantity in units of TROCKEN EINHEITN (TEH)
 (Drying Effectiveness Unit) (1 TEH = 35g)

Transit & Storage time	Upto 1 month	Upto 3 months	Upto 6 months	Upto 12 months
Parameters				
i) Sealed packages				
a) For 1m ² surface area of sealed polyethylene sheet for Turbogenerator rotor.	14 TEH (450 g)	-	42 TEH (1470 g)	-
b) For 1m ² surface area of sealed polyethylene sheet for other components.	-	9 TEH (315 g)	18 TEH (630 g)	36 TEH (1260 g)
c) For each kg of wood within sealed polyethylene sheet.	8 TEH (260 g)			
d) For each kg of foam rubber or other padding material within sealed polyethylene sheet.	1 TEH (35 g)			
e) For 1m ³ of air within the case.	15 TEH (525 g)			
ii) For closed packing cases without sealtight packing and special open consignment like Turbogenerator stator.				
a) For 1m ³ of air within the case.	15 TEH (525 g)			

6.3 Humidity indicators shall be fixed wherever specified in product standards, packing drawings.

7.0 SURFACE PROTECTION:

7.1 Volatile Corrosion Inhibitor (VCI) Paper:

Un-protected surfaces of steel and cast iron components, tools, bearings, shaft seals etc., are covered with VCI paper. VCI paper has been impregnated with corrosion inhibitors which by evaporation and chemical conversion, protect metals in an enclosed area against corrosion.

7 m² VCI paper is necessary for 1m³ of packed item approximately.

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7.1.1 Application limitations:

VCI paper shall not be used for components made aluminium, aluminium alloys as well as zinc, copper, brass, cadmium and silver.

7.2 VCI powder is sprinkled inside the piping components and ends shall be protected with end covers as specified in plant standards, drawings.

8.0 GENERAL INSTRUCTIONS:

8.01 For packing and despatch of components, plant standard No. HY 0490572 – ‘Code of practice for storage, handling, packing and despatch of components’ shall be applicable.

8.02 For storage of different products and their components, plant standard no. HY 0490564 – ‘Code of practice for storage of different products and their components’ shall be applicable.

8.03 For handling, storage and preservation, plant standard no. HY 0490570 – ‘Instructions on handling, storage, preservation, represervation and transport of export order components at works and site, shall be applicable.

8.04 For nitrogen blanketing of heat exchangers, plant standard no. HY 0490562 – Preservation of heat exchangers prior to shipment’ shall be applicable.

8.05 All openings of components shall be blanketed to prevent the ingress of dust and moisture.

8.06 All packing cases shall contain a packing list inside a waterproof envelope. In addition, a copy of packing list will be kept in a metallic pocket outside the case.

8.07 All markings on the case shall be made of waterproof materials to prevent obliteration during transit.

8.08 All concerned designers shall identify the packing cases including direct despatch (DD) items as per the categories of packing indicated in clause 4. Components requiring special packing not included in this standard shall be covered by product standards.

Suitable instructions for packing of DD items shall be incorporated in the purchase orders as per relevant product standards.

8.09 The details of packing materials are indicated in Sketch-I.

8.10 The following details shall be marked on the packing case:

- a) W.O. No.
- b) Case No.
- c) Net weight
- d) Gross weight
- e) Dimensions of box
- f) Markings showing:
 - i) Upright position.
 - ii) Sling position
 - iii) Storage position (P, Q, R, S)
 - iv) Fragile components
 - v) Any other special markings required by the customer



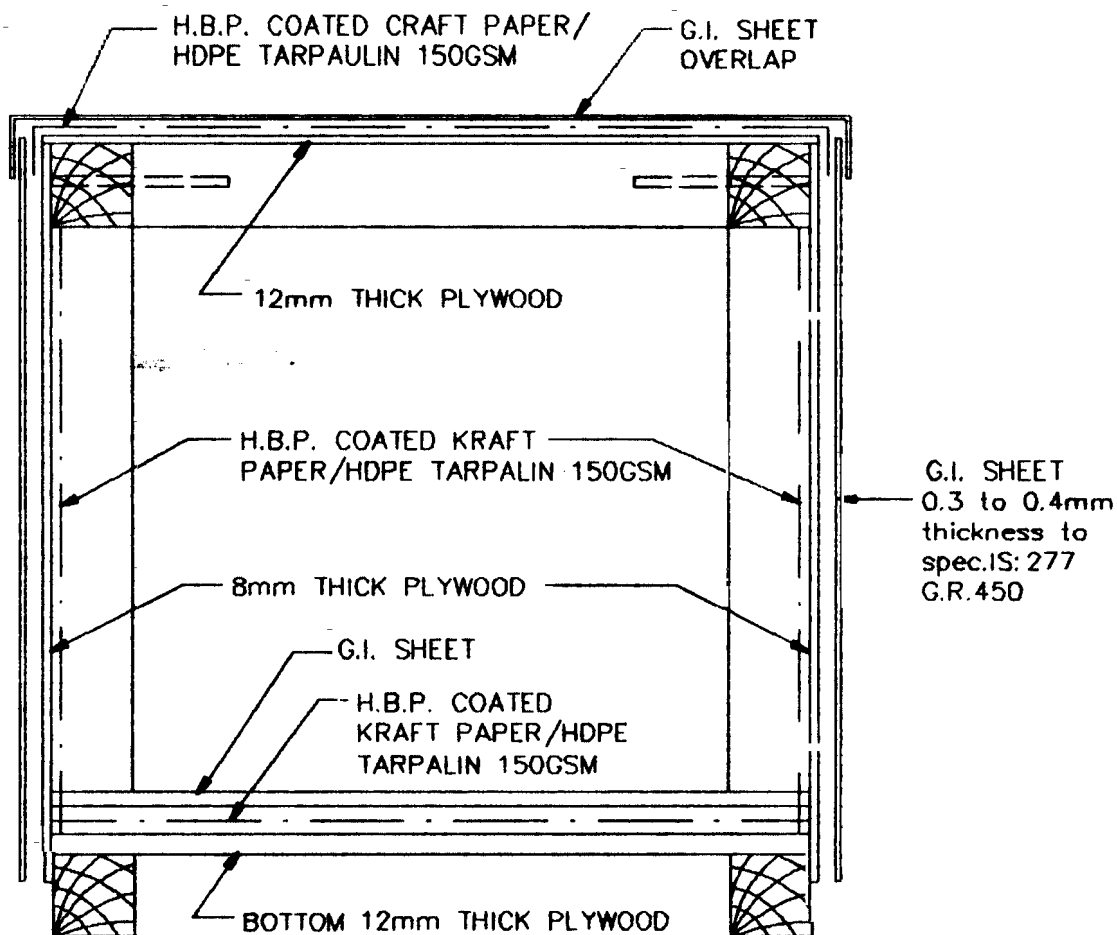
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CLOSED PACKING CASE WITH
G.I.SHEET SHOWING LAYERS
OF PACKING MATERIALS

SKETCH-I