

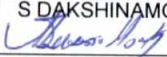


**BHARAT HEAVY ELECTRICALS LIMITED  
TIRUCHIRAPPALLI**

**CONTROLS AND INSTRUMENTATION / FB  
QUALITY ASSURANCE**

**STANDARD PACKING PROCEDURE  
FOR  
ELECTRICAL AND ELECTRONIC PANELS  
(INCLUDING BOXES, CABINETS, CUBICLES, SYSTEMS AND CHASSIS)**

Rev	Date	Prepared	Checked	Approved	Revision History
00	01.01.96	Sd/-	Sd/-	Sd/-	Initial History
01	28.03.02	A.J.OMPRAKASH Sd/-	R.VARADARAJAN Sd/-	G.MATHIYALAGAN Sd/-	Department name changed
02	26.02.07	RM.VAIRAVAN	N.SRIDHAR	S.SOMASUNDARAM	Revised after discussion with Shipping Dept.
03	07.02.2017	AVINASH V 	RM VAIRAVAN 	S DAKSHINAMOORTHY 	Type of wood for packing changed

**1.0 SCOPE**

- 1.1 This procedure gives minimum guidelines to be complied with for packing of Electrical, Electronics and Instrumentation panels. This packing shall be suitable for different handling operations and for the adverse conditions during transportation and during indoor / outdoor storage for periods more than one year.

**2.0 WOOD SPECIFICATION FOR PACKING**

- 2.1 Any seasoned wood or plywood as per relevant international standard  
2.2 Sea worthy packing is envisaged for international shipments.

**3.0 PACKING**

- 3.1 Any seasoned wood or plywood shall be used .It shall be free from knots, etc. and any kind of decay caused by insects and fungus.
- 3.2 The required wood case for the equipment to be packed shall be made out of individual planks of single length and no joint is permissible. Using such planks, the required wood case for the panel shall be made,
- 3.3 Sufficient number horizontal, vertical and diagonal planks (dimension depending upon case size) shall be used for binding and strengthening. Runners have to be provided with metallic sling plates for handling.
- 3.4 Support planks are to be provided such that, no force is acting on the parts of equipment or its parts.
- 3.5 Panels above 1.5 metre shall be bolted at the bottom.
- 3.6 The equipments covered with a polythene sheet shall be kept inside the box, followed by coir, wooden bottoms, thermo coal, etc to prevent vibration effect during loading, transportation, etc.
- 3.7 On all sides of the inner case, black polythene sheet shall be nailed.
- 3.8 Loose items of the equipment, if any, shall be packed separately.
- 3.9 Delicate components likely to be damaged, example PCB – Electronic modules, instrument, etc are to be covered individually in anti-static bags and packed in cartons and filled with fillers like thermo coal, paper cuttings, etc.
- 3.10 Such cartons shall be packed with overall polythene rapping and packed in wooden cases. Mark prominently as "ELECTRONIC COMPONENTS".

**4.0 MARKING**

- 4.1 After completing the packing, Stencil marking, as per dispatch instructions and symbol marking as per Annexure – I shall be made. Please ensure the box is stenciled with "FRAGILE ITEM", "HANDLE WITH CARE"

**5.0 PACKING SLIP**

- 5.1 A copy of the packing slip, kept in a polythene cover shall be kept inside the box. Another copy of the packing slip, kept in a polythene cover shall be kept out side the box and covered with a metallic plate to the case.

**6.0 CAUTION**

Do not pack any other Mechanical items with this case.

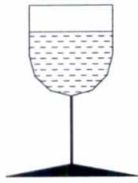
**7.0 GENERAL**

- 7.1 These packing procedures are the minimum requirements in addition to the standard instructions mentioned in the Purchase Order and Specification.

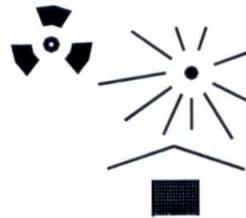
ANNEXURE - 1

TO

PROCEDURE NO:CI:QAC:PR:02/00 ; PR:03/00 ; PR:04/00



FRAGILE, HANDLE WITH CARE



PROTECT FROM HEAT AND RADIOACTIVE SOURCES



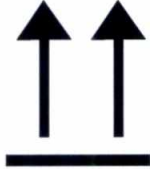
USE NO HOOKS

NOTE: The design of heavy goods packages cannot always resist top lifting by grabhooks.



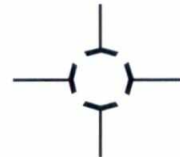
KEEP DRY

NOTE: Not all cases have waterproof internal liners: plywood used in the construction may not have a waterproof glueline.



THIS WAY UP

NOTE: Certain designs of small cases make it difficult to distinguish top from bottom.



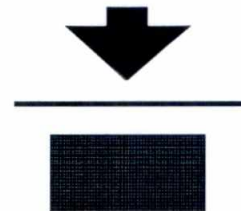
CENTRE OF GRAVITY

NOTE: This should be stencilled as a minimum on the two longest case sides (this information will normally be supplied by the manufacturer of the item(s) packed).



KEEP AWAY FROM HEAT

... kg max



STACKING LIMITATION

NOTE: The maximum load in kilograms should be marked above the arrow.



INTERNATIONAL "SLING HERE" SYMBOL




# BHARAT HEAVY ELECTRICALS LIMITED

HIGH PRESSURE BOILER PLANT, TIRUCHIRAPPALLI 620 014

**TECHNICAL DELIVERY CONDITIONS  
FOR SUB - DELIVERY COMPONENTS OF  
CONTROLS AND INSTRUMENTATION**

**SPECIFICATION FOR COAL FLOW MONITOR**

**SPEC. No. TCI :267/STD/REV. 03**

REV NO	DATE	DESCRIPTION	PRPD	CHKD	APPD
00	15-11-07	INITIAL RELEASE	SD/-	SD/-	SD/-
01	15-03-13	GENERAL REVISION	SD/-	SD/-	SD/-
02	18-02-15	PACKING PROCEDURE INCLUDED IN CLAUSE 14.1	SD/-	SD/-	SD/-
03	08-10-20	TO MENTION SPECIFICALLY COUNTER FLANGE & ACCESSORIES			




**NOTE :**

1. In Vendor Compliance Column - vendor shall indicate "YES", "NO", or "NOT APPLICABLE " and signed. It is mandatory to furnish point wise confirmation for this technical specification.

**SPECIFICATION FOR COAL FLOW MONITOR**

SL. NO	CHARACTERISTICS	REQUIREMENT	VENDOR COMPLIANCE COLUMN
1.0	Application	To detect raw coal flow in the downspout of Gravimetric feeders.	
2.0	Method of flow sensing	Acoustic emission /Microwave/ any other suitable type – Vendor to specify.	
3.0	Velocity of descending Coal column	0.026 ft/sec (min) to 0.129 ft/sec (max)	
4.0	Raw coal details	Crushed coal of 30mm (max.) size and bulk density varying from 800 Kgs / cu.m to 1000 kgs / cu.m.	
5.0	Dimension of down spout	OD : 36 3/4" ID : 36" Wall thickness : 3/8" Material : 304 Stainless Steel.	
6.0	Type of sensing element	Vendor to indicate in the offer.	
7.0	Sensitivity of the sensor	Vendor to indicate in the offer.	
8.0	Control unit for the monitor	Control Unit comprising of electronics shall be mounted inside an enclosure suitable for mounting on Feeder body with enclosure degree of protection IP55 / NEMA-4.	
9.0	Control Power supply	110 volts $\pm$ 10%, 50Hz $\pm$ 5% AC	
10.0	Permissible ambient temperature.	(-) 20°F to 140°F	
11.0	Indication to be Provided on the control unit.	For alarm and ready condition.	
12.0	No. of relay contact	2 N.O. + 2 N.C.	
13.0	Contact rating	5A @ 120V AC resistive 0.5A @ 120V AC inductive 0.25A @ 125V DC resistive 0.05A @ 125V DC inductive	
14.0	Scope of supply	The scope of supply shall include sensor assembly, control unit with enclosure and mounting acc., inter-connecting plug-in cable of 11 metres and flexible conduit with end connector.	

**SPECIFICATION FOR COAL FLOW MONITOR**

SL. NO	CHARACTERISTICS	REQUIREMENT	VENDOR COMPLIANCE COLUMN
14.1	Applicable Packing procedure 	Standard packing procedure : (QA:CI:STD:PR:02/Rev 02)	
15.0	Mounting of sensor	Sensor will be mounted on the spacer of length 450mm having OD of 934mm & 10mm thickness. Vendor to offer sensors suitable for mounting on the above size of downspout spacer pipe.	
16.0	General    	Suitable mounting flanges / brackets for installation of sensor shall be supplied along with the flow monitor.  Counter flange, Gasket, Fixing fasteners (Bolt, Nut, Spring washer & Plain washer) shall be assembled together with coal flow monitor by vendor before despatch to BHEL works.  Sensor to local control unit cable shall have prefabricated connector on both the ends to avoid polarity reversal during commissioning.	
17.0	Commissioning support	Vendor to give optional offer for commissioning of coal flow monitors at job site.	
18.0			
18.1	Documents Along with offer	1. Point wise compliance to this specification & scope of supply. 2. Technical details of the coal flow monitors. 3. Reference list of installations for power plant application with date of installation. 4. Performance feedback.	
18.2	In the event of order (Within 15 days from PO) for approval	1. Details regarding storage installation, calibration and trouble shooting procedures.  2. Detailed installation drawing indicating the overall dimension of the sensor assembly, control unit and their mounting and fixing arrangement for the offered coal flow monitor.  3. O&M Instruction Manuals in 10 sets – hard copies & 3 sets of soft copies in CD along with supplies. 4. Detailed quality plan along with all documents – 3 sets for approval	

**Note:**

General statement like “offer as per BHEL specification” is not acceptable. Any deviation shall be clearly indicated with reasons. Any improved version of equipment can also be offered as alternative clearly highlighting the advantages/technical superiority.