

2X660 MW ENNORE SEZ STPP

**TECHNICAL SPECIFICATION
FOR
THERMAL INSULATION-ANCILLARY MATERIAL**

SPECIFICATION No: PE-TS-412-169-M038 (REV-00)



**BHARAT HEAVY ELECTRICALS LIMITED, POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, INDIA**

	TITLE: TECHNICAL SPECIFICATION THERMAL INSULATION-ANCILIARY MATERIAL 2X660MW ENNORE SEZ STPP	SPECIFICATION No. PE-TS-412-169-M038
		REV. NO.: 00
		DATE: 02.07.2020
		SHEET: 1 OF 1

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1 GENERAL

This specification covers the design, materials, manufacturing and testing of ancillary materials required for application of thermal insulation on piping and equipment at Vendor's or/ and sub-Vendor's works inclusive of packing requirements. In case of contradiction between Section-I and Data Sheet-A of Section-II, Data Sheet-A of Section-II will prevail.

2 MATERIALS

- 2.1 All the items to be supplied under this specification shall conform to/ fabricated from material conforming to the latest edition of applicable standards and shall be new, unused and free from any defects.
- 2.2 Binding wires and lacing wires shall be of galvanized/ stainless steel conforming to IS: 280 / IS: 6528. All the wires shall be supplied in coil form.
- 2.3 Mild steel flats, lugs etc. shall be as per IS: 2062. Flats and lugs shall be supplied in coil form.
- 2.4 Screws used for cladding sheet joints shall be self-tapping type, cheese headed type with washers. Both screws and washers shall be of stainless steel as per requirement of BOM conforming to the applicable standards.
- 2.5 All other materials i.e. bolts & nuts, rivets, Aluminium band & seals etc. shall be of commercial quality conforming to applicable standards.

2.6 SEALING COMPOUND

Joint sealing compound shall be used between the overlapping of the Protective Cladding Sheet of Thermal Insulation to make cladding joints vapour tight and to prevent Moisture & Water from entering into the insulation. They shall be of self-setting paste type. The sealing compounds shall be suitable for and comply with the following parameters:

- | | |
|-----------------------------|--|
| a) Service Temperature | : To Withstand 100°C |
| b) Approximate weight | : 1.5 Kg / litre |
| c) Viscosity | : Soft Paste |
| d) Drying Time | : 8 hours or as specified by the manufacturer. |
| e) Application | : Trowel or as recommended by the manufacturer |
| f) Average volatile matters | : To be specified by the manufacturer. |

The shelf-life of sealing compound being approximately 1 year, it should be dispatched only after getting clearance from site.

3 CERAMIC FIBRE PAPER

- 3.1 The ceramic fibre paper shall be suitable for and comply with the following parameters:

- | | |
|--|--|
| a) Classification Temperature (°C) | : To be Suitable for a Minimum of 600°C. |
| b) Thickness (mm) | : 3 mm |
| c) Bulk Density (Kg / m ³) | : 128 Kg / m ³ (Minimum) |
| d) Size (mm) | : 1000mm x 500mm |

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4 INSPECTION AND TESTING

- 4.1 All the materials to be supplied under this specification shall be of good quality meeting requirements of applicable standards.
- 4.2 In case of all ancillary materials, supplier shall furnish a certificate that the materials supplied complies with the requirements of applicable standards.

5 PACKING & MARKING

- 5.1 Materials like binding wires and lacing wires shall be packed in Polythene lined hessian.
- 5.2 Bolt & nuts, rivets, screws etc. shall be packed in polythene bags and further shall be packed in wooded boxes. The wooden boxes should be marked with indelible ink.
- 5.3 Sealing compound shall be packed in metallic drums/ tins.
- 5.4 Mild steel lugs shall be packed in polythene lined hessian. Mild steel flats shall be wrapped with polythene lined hessian.
- 5.5 Ceramic fiber paper shall be packed in such a way that no moisture can enter even if the packing is kept in the open atmosphere (exposed to rain), by suitably providing polythene covers.
- 5.6 The following details shall be legibly and indelibly marked on all the packages:
 - a) BHEL Purchase order number
 - b) Project Name
 - c) Name of supplier
 - d) Material / Item.
 - e) Item details (Size / Thickness / Gauge / Dimension)
 - f) Weight of the package
 - g) A caution note "Always store under covered shed and on raised platform"

6 DOCUMENTS REQUIRED ON DISPATCH

Before dispatch of the material the vendor shall furnish the following in original for BHEL review and acceptance.

- a) Material Test certificates.
- b) Shop test reports and certificates.
- c) Vendor to provide soft copy of photos/ snaps of duly packed insulation material. The soft copies to be provided by vendor after final inspection of Insulation material. Clearance for dispatch of insulation material will be given only after satisfactory packing conditions from vendor's work.

7 DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER

Bidder shall submit the following documents duly filled, signed and stamped along with the bid:

- a) Compliance sheet
- b) Documents as per the list indicated in the NIT.

The above are the only documents which will be used for technical evaluation unless other documents are asked for during technical clarifications. Any other technical document enclosed with the bid shall be ignored for the purpose of technical evaluation. All other documents attached with the specification are for information of the vendor and no comments shall be marked on these.

	DATA SHEET- A ANCILLARY MATERIALS REQUIRED FOR APPLICATION OF THERMAL INSULATION 2X660 MW ENNORE SEZ STPP		SPECIFICATION No. PE-TS-412-169-M038	
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B.O.M.

Sl. no	ANCILLARY	DENSITY / SIZE / THICK	UNIT	QUANTITY (one unit)	QUANTITY (Two units)
1	Binding Wire, Stainless Steel	0.9 mm dia. (20 SWG)	Kg	300	600
2	Lacing wire, Stainless Steel	0.9 mm dia. (20 SWG)	Kg	300	600
3	Binding Wire, Galvanised Steel	0.9 mm dia. (20 SWG)	Kg	3100	6200
4	Lacing wire, Galvanised Steel	0.9 mm dia. (20 SWG)	Kg	2600	5200
5	M.S. Straps/Flats	20 mm x 3 mm	Kg	6000	12000
6	Sealing compound	----	Kg	600	1200
7	Self-tapping, cheese headed screws with washers - SS	No. 8 x 19 mm long	Set	270000	540000
8	Ceramic Fiber paper	3 mm thick	SQM.	667	1334
9	MS rivets	3 mm dia 12 mm long	Nos.	50700	101400
10	Bolts & Nuts	10 mm dia 60 mm long	Set	4300	8600
11	Bolts & Nuts	10 mm dia 40 mm long	Set	4300	8600
12	Bolts & Nuts	10 mm dia 25 mm long	Set	4300	8600
13	Anodised Aluminium bands	20 mm x 0.6 mm	Kg	4500	9000
14	Seals for aluminium bands	To suit Al. bands	Kg	400	800
15	GI toggle clips	----	Nos.	1000	2000

NOTE:-

- Bidder to quote/ fill all columns related to applicable taxes, freight etc. separately & individually. No cost is to be made inclusive in Ex.-works price or other heads. Non-compliance to this may lead to rejection of bid.
- Bidder to mention the base NALCO ingot rate in the unpriced offer for item at Sl. No. 13 & 14 (proof of base NALCO ingot rate i.e. print out of the base rate from NALCO website to be attached).
- Quantity Tolerance on total quantity of above items shall be as given below:
 - Item no. 1,2,3,4,6 &14:** (+)0 Kg / (-)20 Kg
 - Item no. 5 & 13:** (+)0 Kg / (-)50 Kg
 - Item no. 7,10,11 &12:** (+)0 Set / (-)50 Set
 - Item no. 8:** (+)0 SQM / (-)20 SQM
 - Item no. 9 &15:** (+)0 Nos. / (-)50 Nos.

	COMPLIANCE SHEET THERMAL INSULATION-ANCILLARY MATERIAL 2X660MW ENNORE SEZ STPP	SPECIFICATION No. PE-TS-412-169-M038
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I hereby comply/not comply (*) to all the requirements of this technical specification in totality.

*** In case the bidder does not comply to the technical specification, the deviations shall be explicitly listed in the technical deviation sheet of GCC. Deviations listed in technical deviation sheet shall only be considered.**

Name of Bidder / Authorized Representative :- -----

Designation :- -----

Signature :- -----

Company Seal :- -----

Date :- -----