

2X660 MW MAITREE STPP, BANGLADESH

TECHNICAL SPECIFICATION FOR THERMAL INSULATION-ANCILLARY MATERIAL

SPECIFICATION NO: PE-TS-421-169-M038 (REV-00)



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

	TITLE: TECHNICAL SPECIFICATION THERMAL INSULATION-ANCILIARY MATERIAL 2X660MW MAITREE STPP, BANGLADESH	SPECIFICATION NO. PE-TS-421-169-M038
		REV. NO.: 00
		DATE: 07.05.2019
		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 DataSheet-A of Section-II, DataSheet-A of Section-II will prevail.

2 MATERIALS

All the items to be supplied under this specification shall conform to/fabricated from material conforming to latest international standards.

2.1 Bidder to note that Indian & Chinese standards are not acceptable as per customer requirement.

2.2 Binding wires, stitching wires and lacing wires shall be of galvanized / stainless steel conforming to ASTM A853/ ASTM A580 or equivalent international standard. All the wires shall be supplied in coil form.

2.3 Mild steel flats, lugs etc. shall be as per ASTM A36 or equivalent international standard. Flats and lugs shall be supplied in coil form.

2.4 Anodized Aluminum bands & seals for Aluminum bands shall be as per ASTM B209 1060 H14 or equivalent international standard.

2.5 Screws used for cladding sheet joints shall be self-tapping type with washers. Both screws and washers shall be stainless steel as per requirement of BOM.

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 vapor 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
manufacturer | : Trowel or as recommended by the |
| 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.

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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 |

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

Sea-worthy packing to be provided for final packing of all material as per attached document number PE-TS-888-100-A001 including the details mentioned below:

- 1) Wooden Crate Details (Refer clause 9 of seaworthy packing document)
- 2) Packing (Category-IV) (Refer clause 8.4 of Seaworthy packing document)
- 3) Packing Identification Marks (Refer clause 7 of Seaworthy packing document)

Additionally, following requirements also to be fulfilled:

- 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.
- 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"

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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		SPECIFICATION NO. PE-TS-421-169-M038	
	ANCILLARY MATERIALS REQUIRED		VOLUME : II B	
	FOR APPLICATION OF THERMAL		SECTION: D	
	INSULATION		REV. NO.: 00	DATE: 07/05/2019
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B.O.M.

Sl. no	ANCILLARY	SPECIFICATION	DENSITY / SIZE / THICK	UNIT	QUANTITY (one unit)	QUANTITY (Two units)
1	Binding Wire, Stainless Steel	PE-SS-421-169-M038	0.9 mm dia. (20 SWG)	Kg	300	600
2	Lacing wire, Stainless Steel	PE-SS-421-169-M038	0.9 mm dia. (20 SWG)	Kg	300	600
3	Binding Wire, Galvanised Steel	PE-SS-421-169-M038	0.9 mm dia. (20 SWG)	Kg	3600	7200
4	Lacing wire, Galvanised Steel	PE-SS-421-169-M038	0.9 mm dia. (20 SWG)	Kg	3000	6000
5	M.S. Straps/Flats	PE-SS-421-169-M038	20 mm x 3 mm	Kg	9500	19000
6	Sealing compound	PE-SS-421-169-M038	----	Kg	600	1200
7	Self-tapping screw with washers -SS	PE-SS-421-169-M038	No. 8 x 19 mm long	Set	284400	568800
8	Ceramic Fiber paper	PE-SS-421-169-M038	3 mm thick	SQM.	600	1200
9	MS rivets	PE-SS-421-169-M038	3 mm dia 12 mm long	Nos.	53400	106800
10	Bolts & Nuts	PE-SS-421-169-M038	10 mm dia 60 mm long	Set	4600	9200
11	Bolts & Nuts	PE-SS-421-169-M038	10 mm dia 40 mm long	Set	4600	9200
12	Bolts & Nuts	PE-SS-421-169-M038	10 mm dia 25 mm long	Set	4600	9200
13	Anodised Aluminium bands	PE-SS-421-169-M038	20 mm x 0.6 mm	Kg	4800	9600
14	Seals for aluminium bands	PE-SS-421-169-M038	To suit Al. bands	Kg	500	1000
15	GI toggle clips	PE-SS-421-169-M038	----	Nos.	1000	2000

NOTE:-

- Bidder to quote/ fill all columns 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 MAITREE STPP, BANGLADESH	SPECIFICATION NO. PE-TS-421-169-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 :- _____