

	TITLE: PREAMBLE	SPECIFICATION NO. PE-SS-999-100-Q001	
		VOLUME	
		SECTION	
		REV. NO.	DATE: 26/08/2011
		SHEET	1 OF 1

- 1.0 The tender document contains three (3) volumes. The bidder shall meet the requirements of all the three volumes.

1.1 Volume-I (CONDITIONS OF CONTRACT)

This consists of four parts as below:-

- Volume-IA : This part contains instructions to bidders for making bids to BHEL.
- Volume-IB : This part contains general commercial conditions of the tender & includes provision that vendor is responsible for the quality of item supplied by their sub-vendors.
- Volume-IC : This part contains special conditions of contract.
- Volume-ID : This part contains commercial conditions for erection & commissioning site work, as applicable.

1.2 Volume-II TECHNICAL SPECIFICATIONS

Technical requirements are stipulated in Volume-II which comprises of :-

- Volume-IIA : General Technical Conditions
- Volume-IIB : Technical Specification including Drawings, if any.

1.2.1 Volume-IIB

This volume is sub-divided into following sections:-

- Section-A : This section outlines the scope of enquiry.
- Section-B : This section provides "Project Information".
- Section-C : This section indicates technical requirements specific to the contract, not covered in Section-D.
- Section-D : This section comprises of technical specifications of equipments complete with data sheet A, B and C.

Data Sheet - A Specifies data and other requirements pertaining to the Equipment.

Data Sheet - B Specifies data to be filled by the bidder (Data Sheet-B is contained in Volume-III).

Data Sheet -C Indicates data/documents to be furnished after the award of contract as per agreed schedule by the vendor (as applicable).

1.2.2 Volume-III (TECHNICAL SCHEDULES)

This volume contains technical schedules and Data Sheets-B, which are to be duly filled by the bidder and the same shall be furnished with the technical bid.

- 2.0 The requirements mentioned in Section-C / Data Sheets-A of section-D shall prevail and govern in case of conflict between the same and the corresponding requirements mentioned in the descriptive portion in Section-D

2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)


**TECHNICAL SPECIFICATION
FOR
ALUMINIUM CLADDING SHEETS**

VOLUME – IIB

SPECIFICATION NO: PE-TS-394-169-M034 (REV-00)




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

	TITLE: TECHNICAL SPECIFICATION ALUMINIUM CLADDING SHEETS 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)	SPECIFICATION NO. PE-TS-394-169-M034	
		VOLUME : IIB	
		SECTION:	
		REV. NO.: 00	DATE: 27.08.2013
		SHEET 1 OF 1	


CONTENTS

SECTION	TITLE
A	SCOPE OF ENQUIRY
B	PROJECT INFORMATION
C	SPECIFIC TECHNICAL REQUIREMENTS
D	STANDARD TECHNICAL SPECIFICATION FOR ALUMINIUM CLADDING SHEETS
D	DATA SHEET – A
D	DATA SHEET-C

	TITLE: TECHNICAL SPECIFICATION ALUMINIUM CLADDING SHEETS 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)	SPECIFICATION NO. PE-TS-394-100-M034	
		VOLUME : IIB	
		SECTION: A	
		REV. NO.: 00	DATE: 27.08.2013
		SHEET 1 OF 1	

SECTION-A

SCOPE OF ENQUIRY

	SCOPE OF ENQUIRY ALUMINIUM CLADDING SHEETS 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)		SPECIFICATION NO. PE-TS-394-169-M034	
			VOLUME : IIB	
			SECTION: A	
			REV. NO.: 00	DATE: 27.08.2013
			SHEET 1 OF 1	


SCOPE OF ENQUIRY

1 SCOPE

This specification covers the design, materials, manufacture and testing of Aluminium sheets (for using it as cladding or protective covering over Thermal insulation) at Vendor's or/ and sub-Vendor's works inclusive of packing requirements for 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG).


2 GENERAL TECHNICAL INSTRUCTIONS

- 2.1 It is not the intent to specify herein all the details of design and manufacture. However the item being procured shall conform in all respects to high standards of design, engineering and workmanship, and shall be capable of performing the required duties in a manner acceptable to Engineer/ Owner, who will interpret the meaning of drawing and specifications, and shall be entitled to reject any component or material, which in his judgement is not in full accordance herewith.
- 2.2 BHEL's / customer's representative shall be given access to the shop in which the equipment are being manufactured or tested and all test records shall be made available to him.
- 2.3 The item covered under this specification shall not be despatched unless the same have been accepted and shipping release issued by BHEL.

	TITLE: TECHNICAL SPECIFICATION ALUMINIUM CLADDING SHEETS 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)	SPECIFICATION NO. PE-TS-394-100-M034	
		VOLUME : IIB	
		SECTION: B	
		REV. NO.: 00	DATE: 27.08.2013
		SHEET 1 OF 1	

SECTION-B

PROJECT INFORMATION


	TITLE: PROJECT INFORMATION 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)	SPECIFICATION NO. PE-TS-394-169-M 034	
		VOLUME : II B	
		SECTION: B	
		REV. NO.: 00	DATE: 27.08.2013
		SHEET 1	OF 1

PROJECT INFORMATION

The site is located near villages Gangai & Umaraiya (about 9 Kms from Gadarwara town in Narsingpur district of Madhya Pradesh. The major cities Bhopal & Jabalpur are located at about 210 Kms & about 140 kms respectively from proposed project site. The nearest BG Railway Station, Gadarwara, on Jabalpur-Itarsi Section on central railway main Line is about 9 Kms from proposed project site.


The nearest commercial airport, Bhopal and Jabalpur are located about 240 Kms and about 155 Kms respectively from site. The plant latitude and longitude are 22° 51' 42" N and 75° 52' 05" E respectively.

The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information provided in this section will be for general guidance and shall not be contractually binding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained/collected by the bidder.

	TITLE: TECHNICAL SPECIFICATION ALUMINIUM CLADDING SHEETS 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)	SPECIFICATION NO. PE-TS-394-100-M034	
		VOLUME : IIB	
		SECTION: C	
		REV. NO.: 00	DATE: 27.08.2013
		SHEET 1 OF 1	

SECTION-C

SPECIFIC TECHNICAL REQUIREMENTS

	TITLE: SPECIFIC TECHNICAL REQUIREMENTS ALUMINIUM CLADDING SHEETS 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)	SPECIFICATION NO. PE-TS-394-169-M034	
		SECTION C	
		REV. NO.: 00	DATE: 27.08.2013
		Sheet 1 of 1	

1 GENERAL

- 1.1 The Aluminium cladding sheets shall meet the technical requirements and conform to the standard technical specifications and Data sheet A of Section D. In addition, the requirements of this Section-C shall also be complied with. However, wherever the details given in the standard technical specification of of Section-D and Data sheet A are different, the requirements of Data sheet A shall prevail. Similarly in the event of contradictions between Section –C & Section –D/ Data sheet A, Section –C shall prevail.
- 1.2 The technical requirements for Aluminium sheets shall, in general, be as per the attached standard Technical specification for Aluminium cladding sheets, and Data sheets A of Vol. II B Section D.

2 SCOPE OF SUPPLY


The aluminium sheets to be supplied shall be as per Data sheet A of Section D.

3 EXCLUSIONS:

Equipment required for Erection & Commissioning at site are excluded from the bidder's scope

4 DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER

- 4.1 Compliance sheet as enclosed in Volume III
- 4.2 Schedule of Deviations if any.
- 4.3 Schedules of Price & Unit Price.
- 4.4 Schedule of declaration.

	TITLE: TECHNICAL SPECIFICATION ALUMINIUM CLADDING SHEETS 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)	SPECIFICATION NO. PE-TS-394-100-M034	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 27.08.2013
		SHEET 1 OF 1	

SECTION-D

STANDARD TECHNICAL SPECIFICATION DATA SHEET – A DATA SHEET – C

	TITLE: STANDARD TECHNICAL SPECIFICATION FOR ALUMINIUM CLADDING SHEETS	STD SPECIFICATION No: PE-SS-999-169-M034	
		VOLUME II-B	
		SECTION "D"	
		REV. NO. 04	DATE: 15.06.2012
		SHEET 1 OF 2	

1 GENERAL

This specification covers the design, materials, manufacture and testing of Aluminium sheet (for using it as cladding or protective covering over Thermal insulation) at Vendor's or/ and sub-Vendor's works inclusive of packing requirements.

2 CODES & STANDARDS

The manufacture, physical & chemical properties, inspection and testing of Aluminium sheets to be supplied under this specification shall conform to the latest edition of the following codes and standards.

- a) IS:737 Specification for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes.
- b) IS:504 Methods of chemical analysis of aluminium and its alloys.
- c) IS:1608 Metallic materials - Tensile testing at ambient temperature
- d) IS:2676 Dimensions for wrought aluminium and aluminium alloys, sheet and strip.
- e) IS:5052 Aluminium and its alloys - Temper designations.

- 2.1 In case of any conflict between the above Codes/Standards and this specification, the latter shall prevail and in case any further conflict in this matter, the interpretation of the specification by the BHEL engineer shall be final & binding.

3 MATERIALS

- 3.1 The aluminium sheets to be supplied will be in coil form.
- 3.2 The material shall be sound and free from harmful defects and shall be suitable for the intended application.
- 3.3 The designation and the condition of the material will be in line with IS:737 Gr. 19000 H2 or Gr. 31000 H3 as specified in the Data sheet-A.


3.4 CHEMICAL COMPOSITION

The material when analyzed as per IS 504 or any other instrumental/chemical method shall conform to the requirements as given in Table 1 of IS:737.

- 3.5 Mechanical Properties shall conform to the requirements of IS737.

4 DIMENSION AND TOLERANCES

- 4.1 The width of the aluminium sheet will be 900 or 1200 mm.
- 4.2 Standard thicknesses of the aluminium sheet will be as give in Data Sheet-A.

	TITLE: STANDARD TECHNICAL SPECIFICATION FOR ALUMINIUM CLADDING SHEETS	STD SPECIFICATION No: PE-SS-999-169-M034	
		VOLUME II-B	
		SECTION "D"	
		REV. NO. 04	DATE: 15.06.2012
		SHEET 2	OF 2

4.3 Tolerances on width and sheet thickness shall be as given in IS:2676.

5 INSPECTION AND TESTING

5.1 The material sampling will be done as given in IS:737.

5.2 The material to be supplied under this specification will be of tested quality. Inspection and testing of Aluminium sheets will be carried out as per the requirements of IS:737. Manufacturer's test certificate indicating all the chemical composition and mechanical properties will be furnished.

5.3 All test certificates will be submitted in ORIGINAL for BHEL / CUSTOMER review and based on the satisfactory test results MDCC will be issued.


6 PACKING AND MARKING

6.1 The material will have to be packed in polythene-lined hessian and covered with metallic sheets and finally strapped with metallic bands suitably. Material shall be packed in such a manner so as to prevent damage in ordinary handling & transport.

6.2 Each package shall contain only one size of material.

6.3 Each package / coil will be suitably marked with a tag for identification incorporating the following details.

- a) BHEL's Purchase order number
- b) Project Name
- c) Name of the manufacturer
- d) Material grade & condition
- e) Sheet thickness
- f) Weight of the contents

	TITLE: ALUMINIUM CLADDING SHEETS DATA SHEET- A 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)		SPECIFICATION NO. PE-TS-394-169-M 034
			VOLUME : II B
			SECTION: D
	REV. NO.: 00		DATE: 27.08.2013
		SHEET 1 OF 1	

Specification Ref. No. PE-SS-999-169-M034 / Rev 04


Vol. II-B Section D

Dated 15.06.2012

The quantities of **Aluminium sheets** to be ordered are as given below:

S. No.	Description	Quantity (One Unit)	Quantity to be ordered (for Two Units)
1.	18 SWG to Gr 19000 H2	54700 Kg	109400 Kg
2.	20 SWG to Gr 19000 H2	19600 Kg	39200 Kg
3.	22 SWG to Gr 19000 H2	1900 Kg	3800 Kg

Handwritten signature

	DATA SHEET C		SPECIFICATION NO. PE-TS-394-169-M034
	ALUMINIUM CLADDING SHEETS		VOLUME : IIB
	2 X 800 MW NTPC GADARWARA STPP		SECTION: D
	STAGE I (TG)		REV. NO.: 00
			DATE: 27.08.2013
	SHEET 1 OF 1		

DATA SHEET - C

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

- Material Test certificates.
- Shop test reports and certificates.

**2 X 800 MW NTPC GADARWARA STPP STAGE I
(TG)**

VOLUME – III

TECHNICAL SCHEDULES


FOR

ALUMINIUM CLADDING SHEETS

SPECIFICATION NO. PE-TS-394-169-M034 (REV-00)




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

	TITLE: TECHNICAL SCHEDULES ALUMINIUM CLADDING SHEETS 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)	SPECIFICATION NO. PE-TS-394-169-M034	
		VOLUME : III	
		SECTION:	
		REV. NO.: 00	DATE: 27.08.2013
		SHEET 1 OF 1	

CONTENTS

SL.NO	TITLE
1	COMPLIANCE SHEET
2	SCHEDULE OF DEVIATIONS
3	SCHEDULE OF DECLARATIONS
4	SCHEDULE OF PRICES (As per enclosed format only)

	TITLE:		SPECIFICATION NO. PE-TS-394-169-M034
	TECHNICAL SCHEDULES		VOLUME : III
	ALUMINIUM CLADDING SHEETS		SECTION:
	2 X 800 MW NTPC GADARWARA		REV. NO.: 00 DATE 27.08.2013
	STPP STAGE I (TG)		SHEET 1 OF 1

INSTRUCTIONS REGARDING SCHEDULES AND DATA SHEETS TO BE FILLED BY BIDDER

1.0 Volume III comprises of following:-

1.1 Data Sheet : Data Sheet (s) 'B'

1.2 Schedules:


PART - A : Compliance sheet & Technical Schedules
PART - B : Price Schedules

The Schedules and Data Sheets enclosed/indexed shall be completely filled up by the bidder and furnished with the bid duly signed and stamped by the bidder. Purchaser reserves the right to ask the bidder to fill 'additional schedules' which are not listed in the contents.

2.0 Form No. PE-6020 is a Checklist' which is enclosed to facilitate the bidder to make sure that the necessary data / information is furnished by him in his bid. The remarks column of this schedule shall be filled up by the bidder as per the instructions given below:

- a) The bidder shall write 'Not Applicable' against those schedules/documents which are not listed in the contents.
- b) The bidder shall write 'Enclosed' for the listed schedules/documents which are filled and furnished by the bidder with the bid, otherwise 'Not Enclosed' shall be written.
- c) Duly filled Part - A schedules (Technical schedules) & compliance sheet as well as Data Sheet - B shall be furnished with the technical bid, while Part - B Schedules (Price Schedules) shall be submitted with price bid in separate covers.
- d) Unpriced copy of Part - B schedules shall also be furnished along with Part-A schedules in the technical bid.
- e) Other documents/information as required in the checklist shall also be furnished by the bidder.

3.0 The Data Sheet (s) - 'B' shall be filled-up completely and typed written and shall be duly signed with Rev. No. and date. One copy of the same shall be furnished with the bid. The items which deviate from the specification shall be marked with an asterisk (*) in the data sheets and details shall also be given in the 'Schedule of deviations from technical specification (Form No. PE-6036)

	TITLE: TECHNICAL SCHEDULES ALUMINIUM CLADDING SHEETS 2 X 800 MW NTPC GADARWARA STPP STAGE I (TG)	SPECIFICATION NO. PE-TS-394-169-M034	
		VOLUME : III	
		SECTION:	
		REV. NO.: 00	DATE 27.08.2013
		SHEET 1 OF 1	

A) Technical Details: Bidder to tick whichever is applicable.

1	Specific Technical requirements of Vol. II B Section-C	Accepted	Not Accepted
2	Standard Technical Specification of Vol. II B Section-D	Accepted	Not Accepted
3	DATA SHEET-A of Vol. II B Section-D	Accepted	Not Accepted
4	Documentation requirement as per Data sheet-C	Accepted	Not Accepted

B) Deviations to the technical specification are not acceptable. However, if there are any deviations due to unavoidable reasons then the same to be clearly specified in the schedule of deviation. In case of no deviations, schedule of deviations to be filled as NIL by bidder.

C) All reports, test certificates etc. to be submitted during contract shall be subject to BHEL/Customer review/ approval.



TITLE

*** SCHEDULE OF DEVIATIONS**

() From Technical Specifications (Volume –II B)

SPECIFICATION NO
PE-TS-394-169-M034

VOL III

SHEET..... OF.....

We the undersigned hereby certify that the above mentioned are the only deviations.



TITLE

***SCHEDULE OF
DECLARATIONS**

SPECIFICATION NO
PE-TS-394-169-M034

VOL III

SHEET OF

* Bidder shall include this schedule both in technical and Price offers

DECLARATION

Icertify that all the technical data and information pertaining to this specification are correct and are true representation of the equipment/system covered by our format proposal number Dated and there is no deviation to the specification.

I hereby certify that I am duly authorized representative of the Bidder's company whose name appears above my signature.

Bidder's Company Name

Authorised representative's
Signature

Name

Bidder's Name
with

The bidder hereby agrees to fully comply
the requirements and intent of this
specification for the price indicated

	TITLE: SCHEDULE OF UNIT PRICES* (ALUMINIUM CLADDING SHEETS)	SPECIFICATION NO. PE-TS-394-169-M 034	
		REV.00	DATE: 27.08.2013
		VOLUME : III	PART B
		SHEET 1 OF 1	

The quantities of **Aluminium sheets** to be ordered are as given below:

S. No.	Description	Quantity (One Unit)	Quantity to be ordered (for Two Units)
1.	18 SWG to Gr 19000 H2	54700 Kg	109400 Kg
2.	20 SWG to Gr 19000 H2	19600 Kg	39200 Kg
3.	22 SWG to Gr 19000 H2	1900 Kg	3800 Kg

UNIT EX-WORKS PRICE (PER Kg) –

TOTAL EX-WORKS PRICE (PER Kg) -