

	TITLE: STANDARD TECHNICAL SPECIFICATION FOR ALUMINIUM CLADDING SHEETS	STD SPECIFICATION No: PE-SS-	
		VOLUME	
		SECTION	
		REV. NO. 01	DATE: 16.08.2016
		SHEET 1	OF 2

1.00.00 GENERAL

This specification covers the requirements for supply of Aluminium sheet for using it as cladding or protective covering over Thermal insulation.

2.00.00 CODES & STANDARDS

- 2.01.01 Manufacturing, 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.
- 2.01.02 **IS:737** Specification for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes / **ASTM B209-14** Standard Specification for Aluminium and Aluminium-Alloy Sheet and Plate.
- 2.01.03 **IS:504** Methods of chemical analysis of aluminium and its alloys / **ASTM E34**
- 2.01.04 **IS:1608** Metallic materials - Tensile testing at ambient temperature / **ASTM-B209-14 Table 2**
- 2.01.05 **IS:2676** Dimensions for wrought aluminium and aluminium alloys, sheet and strip/**ANSI H 35.2**
- 2.01.06 **IS:5052** Aluminium and its alloys - Temper designations. / **ANSI H35.1**

3.00.00 MATERIAL REQUIREMENTS:

3.01.00 FORM

The aluminium sheets to be supplied shall be in coil form and with **Mill Finish**

3.02.00 FREEDOM FROM DEFECTS

The material shall be sound and free from harmful defects for the intended application.

3.03.00 DESIGNATION AND CONDITION

The designation and the condition of the material shall be in line with **IS:737 Gr. 19000 H2 or ASTM B209 – 1100 Temper H-14**

3.04.00 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 / Table 1 of ASTM B209-14**

3.05.00 MECHANICAL PROPERTIES

3.05.01 TENSILE TEST

The material when tested in accordance with **IS:1608 / ASTM B209-14** shall conform to the values given in **Table 2 of IS:737 / Table 2 of ASTM B209-14**

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3.05.02 BEND TEST

When tested in accordance with the method prescribed in **IS:737 / ASTM B209-14**, the outer surface of the bend shall not show any visible crack.

4.00.00 DIMENSION AND TOLERANCES

4.01.00 The width of the aluminium sheet shall be **900 to 1500** mm. (uniform for the entire lot of supply). BHEL will confirm the same in the Purchase Orders.

4.02.00 Standard thicknesses of the aluminium sheet will be **0.415, 0.56, 0.71, 0.91, 1.00, 1.22, 1.6 mm**. (The exact requirement of thickness and the quantity (weight in MT) will be indicated specifically in the Purchase Orders).

4.03.00 Tolerances on width & sheet thickness shall be as per **IS:2676 / ASTM B209-14**.

5.00.00 INSPECTION AND TESTING

5.01.00 The material sampling shall be done as given in **IS:737 / ASTM B209-14**.

5.02.00 The material to be supplied under this specification shall be of tested quality. Inspection and testing of Aluminium sheets shall be carried out as per the requirements of **IS:737 / ASTM B209-14**. Manufacturer's test certificate indicating all the chemical composition and mechanical properties shall be furnished.

5.03.00 All test certificates shall be submitted in ORIGINAL for BHEL / CUSTOMER review and based on the satisfactory test results, Material Despatch Clearance Certificate (MDCC) will be issued.

6.00.00 PACKING AND MARKING

6.01.00 The material will have to be packed in polythene-lined hessian and covered with metallic sheets. Wooden saddle supports for each coil to be provided and finally the coils needs to be strapped with metallic bands suitably. Material shall be packed in such a manner so as to prevent damage in ordinary handling & transport. ***The edges of the coils (Both ID and OD) to be reinforced with metallic circular rings to avoid damage while handling. For First time supplies – packing drawing to be approved by BHEL prior to manufacture.***

6.02.00 Each package shall contain only one size of material.

6.03.00 Each package / coil shall be suitably marked with a tag for identification as given below: (legibly written - preferably at two locations for easy identification).

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



BHARATH HEAVY ELECTRICALS LIMITED
BOILER AUXILIARIES PLANT
Ranipet-632406

BHEL Ranipet

STANDARD QUALITY PLAN

QP NO: SQP:ESP:292
REV NO: 00
DATE: 28.07.2016
PAGE: 1 OF 1

ITEM: PLAIN ALUMINIUM CLADDING SHEET AS
PER IS 737

SYSTEM:ESP

SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY		REMARKS
									M	C	
1	2	3	4	5	6	7	8	9	D*	** 10	11

1.0 RAW MATERIAL:

	Rolling Ingot	Chemical Composition	B	TC Review	Each Cast	IS 737/ASTM B209-10	IS 737/ASTM B209-10	Raw Material TC /Lab Test Report	✓	P	V
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2.0 INPROCESS CONTROLS:

	Hot Rolling/ Cold Rolling / Slitting	Thickness	A	Measurement	Each Coil	IS 2676/ASTM B209-10	IS 2676/ASTM B209-10	Internal Record/Mill Form	✓	P	V
		Length/ Width	A	Measurement	Each Coil	IS 2676/ASTM B209-10	IS 2676/ASTM B209-10		✓	P	V
		Surface	B	Visual	Each Coil	BHEL PO	BHEL PO		✓	P	V

3.0 FINAL INSPECTION :

	Mechanical Property	Thickness, Length/ Width, Surface	A	Measurement	Each Coil	IS 737/ASTM B209-10	IS 737/ASTM B209-10	Lab Test Report	✓	P	W#
		UTS MPa	B		Each Coil				✓	P	W
		%E	B		Each Coil				✓	P	W
		Bend	B		Each Coil				✓	P	W

4.0 MARKING, PACKING AND PRESERVATION:

	Packing in polythene lined hessian	B	Verification			BHEL Technical Specification	BHEL Technical Specification			P	V
	Reinforcement of edges of coil with metallic rings	B	Visual							P	V
	Identification & verification of completeness	B	Visual							P	V

PREPARED BY

REVIEWED BY

APPROVED BY

[Signature]

[Signature]

[Signature]

LEGEND: *RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER C: BHEL / BHEL AIA; P: PERFORM. W: WITNESS. V: VERIFICATION: A - CRITICAL ; B - MAJOR MTC- Mill /Manufacturer's Test Certificate; IR- Inspection Report;

#BHEL / BHEL AIA randomly check these characteristics. Supplier 100% check.

		QUALITY ASSURANCE PLAN							QAP NO: BHE/RU/QC/QAP/AL_RM		
									REV: 00		
									DATE: 30.09.15		
		ALUMINIUM ALLOY SHEETS AND PLATES									
SL. NO.	COMPONENT	CHARACTERISTICS	CATEGORY	METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY		REMARKS
									P	W	R
1.0	RAW MATERIAL	a) Dimensions (thickness) b) Surface finish c) Bend Test (if applicable) d) Tensile Strength e) % Elongation f) Chemical composition g) Electrical Conductivity at 20° C (if applicable as per IS)	Major Minor Major Major Major Major Critical	Measurement Visual Mechanical Mechanical Mechanical Chemical Electrical	1 sample/batch 100 % 1 sample/batch 1 sample/batch 1 sample/batch 1 sample/batch 1 sample/batch	BHEL Spec.	IS : 2676 / 2677	TR	3	2/1	-
1.1	Aluminium Sheets & Plates					IS : 5082 / IS : 737	IS : 5082 / IS : 737	TR	3	-	2/1
								TR	3/4*	2/1	-
								TR	3/4*	2/1	-
								TR	3/4*	2/1	-
								TR	3/4*	2/1	-
								TR	3/4*	2/1	-
								TR	3/4*	2/1	-

ABBREVIATIONS:

R= REVIEWED BY
P= PERFORMED BY
W= WITNESS BY

FORMAT OF RECORDS:

TR= TEST REPORT/CERTIFICATE

REFERENCE:

IS= INDIAN STANDARD

AGENCY:

1= BHEL

2= BHEL'S THIRD PARTY INSPECTION AGENCY (TPIA)

3= MANUFACTURER

4= NABL APPROVED EXTERNAL LABORATORY

NOTE: IN CASE OF INSPECTION WAIVER BY BHEL, MANUFACTURER WILL SUBMIT TEST CERTIFICATES FOR '*' MARKED CHARACTERISTICS, CONDUCTED AT CERTIFIED EXTERNAL LABORATORIES.


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PREPARED BY

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi – 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for

_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-
 - 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
 - 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved

in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors". framed by the Principal.

Section 4 – Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors

- 6.1 The Bidder(s)/ Contractor(s) undertake(s) to obtain from all subcontractors a commitment consistent with this Integrity Pact and report Compliance to the Principal. This commitment shall be taken only from those sub-contractors whose contract value is more than 20 % of Bidder's/ Contractor's contract value with the Principal. The Bidder(s)/ Contractor(s) shall continue to remain responsible for any default by his Sub-contractor(s).
- 6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.
- 6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors /Sub-contractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 –Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- 8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- 8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- 8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the

Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

9.1 This Pact begins and shall be binding on and from the submission of bid(s) by bidder(s). It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On behalf of the Principal

(Office Seal)

For & On behalf of the Bidder/ Contractor

(Office Seal)

Place-----

Date-----

Witness: _____

(Name & Address) _____

Witness: _____

(Name & Address) _____
