OPEN TENDER CHECKLIST

Sl. No.	Document Name	Vendor Confirmation (Signed copy to be submitted along with Techno Commercial Offer)
01	Annexure A	Submitted ☐ Not Submitted ☐
02	Annexure B	Submitted ☐ Not Submitted ☐
03	Annexure C	Submitted ☐ Not Submitted ☐
04	Annexure D	Submitted ☐ Not Submitted ☐
05	CEBG	Submitted ☐ Not Submitted ☐
06	Experience certificate	Submitted ☐ Not Submitted ☐
07	Integrity Pact	Submitted ☐ Not Submitted ☐
08	IEM Annexure	Submitted ☐ Not Submitted ☐
09	BHEL's TDC	Submitted ☐ Not Submitted ☐
10	Online SRF	Submitted ☐ Not Submitted ☐

BHEL :: BAP :: RANIPET

PURCHASE DEPARTMENT

NOTICE INVITING TENDER

ANNEXURE-A TO OPEN TENDER

Tenders are invited from prospective manufacturers for supply of Alluminium Sheet as per Scope, Size, Specification, Standards and Quantities as listed below.

SCOPE : SUPPLY OF CARBON STEEL COLD ROLLED SHEETS IN COILS IN SIZES/SPEC/QTY AS DETAILED BELOW:

ENQ SNO	Material Code	SIZES		MATERIAL SPECIFICATION	APPLICABLE BHEL TDC	WT (MT)	UNIT	Destination	ED Applicability	Delivery Requirement
		THICKNESS (mm)	WIDTH (mm)							
01	160063730000	0.914	Supplier to specify	IS 737 /19000 H 2	TEP:AQCS:PE:CLADDING SHEET:REV:00 / 09.01.13, Quality Plan SQP:ESP:292 REV:00 DT:28.07.2016	47.76	MT	BHEL Site Wanakbori (Gujrat)	ED 12.5% Applicable	15/12/2016
02	160063500002	1.000				450.00	MT	BHEL Stores Ranipet	ED 12.5% Applicable	150.00-15/12/2016, 150.00-15/01/2017, 150.00-15/02/2017.
03	160063580001	1.200				32.97	MT	BHEL Site Neyveli (Tamilnadu)	ED Exempted being Mega power project	15/12/2016
Total						**530.72**	**MT**			

Note:

1. Quanity Tolerance: +/- 2% applicable on individual item qty.Supplies beyond this tolerance are liable to be rejected and returned back to the supplier.

2. Pointwise specific confirmation to BHEL TDC to be given in the Techno-Commercial Bid without fail; otherwise offer may not be considered.

3. In case of supplies from any new foreign suppliers, who are not in BHEL Product Material Directory, material inspection shall be carried out by Third Party Inspection Agency like Lloyds or SGS or BVQI prior to shipment at Supplier's work and total inspection charges shall be borne by the supplier only. (Quoted price shall be inclusive of TP inspection charges). For indigenous suppliers, first inspection will be carried out by BHEL only and subsequent inspections will be by BHEL/BHEL approved Third Party Inspection Agencies.

4. In case of offer with equivalent material grade, then copy of the entire specification of that equivalent grade shall be sent along with the techno-commercial bid without fail.

5. Offer to be submitted through Enterprise Procurement System (EPS) only .In case of direct hard copy offers, the same will be returned to the supplier without opening.

6. Duly-filled in & signed Integrity Pact to be submitted by Supplier along with the Techno-Commercial bid without fail. It may be noted that submission of signed BHEL standard format of Integrity Pact (without any deviation) is a prerequisite condition for evaluation of bids. Bids without Integrity Pact will be summarily rejected.

7. Pre Qualification Criteria - (1) The supply shall be as per our Technical Specn: TEP:AQCS:PE:CLADDING SHEET:REV 00/09.01.13, drawing and quality requirement as per above Table, deviation if any, the "deviation summary " shall be submitted for our technical evaluation.
(2) The supplier shall fill all the details as called in the Supplier's Registration Form trough online as stated above.
(3) Supplier needs to have At least 1200MT/ Year Production capacity.
(4) At least one order completed suceesfully (Sucessfull order completion certificate to be attached by supplier)

8.BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false / incorrect, the offer shall be rejected.

Incase of any clarification, kindly email to gravi@bhelrpt.co.in / psureshkumar@bhelrpt.co.in / 04172 284031 / 284958 / between 0830 hrs to 1630 hrs

ANNEXURE –B

GENERAL TERMS & CONDITIONS

(FOR GUIDANCE TO THE SUPPLIERS)

A] Submission of Offer

a)Invitation for bid

Tenders are invited through electronic mode from eligible suppliers in case of open tenders and from suppliers to whom the enquiry is addressed in case of Limited / Single Tender.

The offers shall be posted into the system before the date and time specified in the tender.

The offer shall be sent on single part / two part / three part basis as specified in the main tender document.

Bids shall be submitted through e-Procurement portal, https://bheleps.buyjunction.in, of M/s mJunction Services Limited who are our solution provider.

b)Hardware and Software requirements for participating in e-tender

Requirement for participating in e-Procurement is as under:
i)A Computer with internet connectivity (Internet Explorer Version 9 and above.
ii)Digital Signature Certificate (Class 3- SHA2-2048 BIT- with both Signing and Encryption component separately).
iii)JAVA (Version 1.8 Update 45).

c)Instructions for Registered Suppliers

For all types of tenders (Single / Limited / Open) an automated email alert regarding issue of the Tender will be sent by the e-procurement portal to all Suppliers registered with BHEL, Ranipet for the item/s for which the tender is issued.

In case of open tenders, Registered suppliers with registered DSC will have to login with their user id/password & DSC and search for the Open Tender. On clicking the "Interest" button, they will get attached to that particular Open Tender.

Registered suppliers without DSC will have to first register themselves in https://bheleps.buyjunction.in as new supplier by clicking the "New Supplier" button.

To know the procedure for obtaining Digital Signature Certificate (DSC), suppliers who are not having the DSC are advised to visit our website www.bhel.com →Tender Notifications →Sample Checklist.

d) Instructions for new suppliers wishing to bid against open tenders

New, unregistered suppliers wanting to bid against open tender/s will have to first register themselves in https://bheleps.buyjunction.in as new supplier by clicking the "New Supplier" button.

After entering the Income Tax Permanent Account Number (PAN) details and pressing "Enter", they have to click the "Interested" button against the respective BHEL Unit for which they want to participate in the Open Tender and also fill up other relevant Company information as a one-time activity.

Then, a box for filling in a "preferred login id" will appear at the top of the page. After giving the "preferred login id" and then clicking the "Next" button, Supplier would have to map their DSC (which will be activated by M/s mJunction Services Limited), if available. Or else, by pressing "skip" button and selecting relevant procurement category from the list available in the next page and "agreeing" to the BHEL's terms & conditions, user id and password will be generated/activated once in 2 hours and mailed to their registered email id. Using this user id and password, Supplier has to login and map the Digital Signature Certificate they have purchased to their code. The DSC will then be activated by M/s mJunction Services Limited.

As required by the tender, the necessary documents have to be filled-in online, in the provided template. Additional documents required are to be scanned and uploaded as .pdf file. Suppliers are advised to take note that the maximum space that is provided for uploading the documents that are to be attached is 300 MB. However the size of an individual document cannot exceed 10 MB. For any clarification on submission of offer on line, attention of the Supplier/s is invited to our document "Supplier Manual" hosted in the home-page of the e-procurement portal. During normal business hours, helpline maintained by the service provider mJunction is available for clarifying any doubts of supplier/s. The helpline numbers are 09840704941 or 09500199108.

Typical documents that would be required as part of tender submission would be

a) ***Complete technical Offer*** with details, catalogues, as applicable.

b) ***Un-priced bid*** (i.e. Bid without the Price) as per given format, if any.

c) ***Filled-in BHEL's Standard Terms & Conditions*** as per Annexure enclosed with the Tender Document,

d) ***Deviation summary*** submitted in two parts – giving the summary of technical deviations separately and the commercial deviations separately, if any and

f) ***Supporting documents*** to substantiate equivalent material specifications / sections, where quoted for.

g) Where asked for, ***Client list*** with their full address including detail of contact person with phone no., fax no. & e-mail ID (if any) to whom the same / similar items are supplied in the past two years. The date of supply may also be indicated, against each client.

h) ***Bidders who are not already registered with BHEL Ranipet*** are requested to submit the Supplier Registration Form (SRF) online. The Supplier Development Cell (SDC) of BHEL, Ranipet would process the SRF for evaluation / registering the Supplier.

Suppliers can also upload their credentials by way of submission of Performance certificate/s issued by their customer/s detailing the quantity supplied and specification along with the un-priced PO copies and proof of supply along with the offer.

Technical acceptance of offer by BHEL shall be based on the evaluation of offer and the submitted documents.

Note

(i) The materials offered, shall conform to the specification and scope attached in the tender.

(ii) In case the offered materials are not conforming to the Enquiry material Specification, such offers would not be considered for evaluation and would be rejected.

Where equivalent specifications are offered, considering such offers will be at the sole discretion of BHEL. Wherever alternative standards / specifications are offered by Bidder, the Bidder shall provide sufficient documentary evidence to ensure equivalence to the designated standards / specifications, failing which the offer would be considered as not technically acceptable and hence shall stand rejected.

(iii) All taxes and duties payable as extra to the quoted price should be specifically stated in offers (as appearing in the online template).

Offer/s from within India shall be submitted along with CST & TIN No. / Tariff No. etc, failing which the purchaser will not be liable for payment of such taxes and duties. Our TIN No. 33024364741, CST No. 1141686/01.07.2014, BHEL ECC No. AAACB4146PXM008.

(iv) The un-priced bid shall be used to indicate relevant commercial terms such as scope of freight and insurance, applicability of duties and taxes etc. All Commercial terms are to be indicated clearly in the offer.

(vi) No changes shall be entertained once the bid is opened unless otherwise specifically agreed to in writing by BHEL.

(vii) Money values other than for those items appearing in the un-priced bid template shall not be indicated anywhere in the un-priced bid.

(viii) Time required for inspection (at Supplier's works), should be clearly given in terms of numbers of working days.

(x) **Offers sent by FAX / E-mail**: would not be entertained.

Price Bid in conformance with the specification and terms as given in the Un-Priced bid document.

Caution:

The suppliers are severely cautioned to note that the price bid document accepts the price in figures only. It does not allow the supplier to write the value by words. Therefore all care shall be exercised by the supplier while filling in the figures. Once the price bid is opened no option is available for the supplier to retract the offer under any grounds. If a supplier, for any reason whatsoever approaches BHEL with a request for change in the price, it would be treated as going back on the offer submitted. In such cases, action would be initiated by BHEL for suspending further business dealings with such suppliers as per policy of BHEL which prevails at that point of time.

Foreign / Overseas suppliers are hereby informed that offers with differential currencies are not permitted for a given tender document.

Note

(i) The price break-up should be in line with technical specification / scope of the tender. (Cost of material, packing charges, forwarding charges, freight and insurance charges shall be shown appropriately, as applicable).

(ii) Unless otherwise specified as a part of the tender condition, No Price Variation Clause will be entertained and No advance payment will be made by BHEL.

(iii) In case, there is a discrepancy in the term quoted in techno-commercial bid and price bid, the term as per the techno-commercial bid (Part I) shall hold good and the commercial term quoted in the Price Bid (Part II) shall not be considered.

(iv) In their own interest, all Tenderers are advised to double check their prices, applicable duties and taxes.

(v) The quotation should be valid at least for a period of 90 days from the tender opening date.

(vi) Indian bidders should submit the prices in Indian Rupees only.

(vii) Foreign bidders may submit their bid in foreign currency. The currency for quoting shall be selected from the drop-down menu provided.

(x) Indian Suppliers shall quote on FOR Destination basis only. Destination is BHEL, Ranipet Stores or BHEL Project Site as specified in the tender requirement. Foreign Suppliers shall quote on CFR Chennai Seaport Delivery and Insurance will be in BHEL's scope. No other delivery terms shall be acceptable. Shipment shall be arranged by the Seller on *Liner in / Liner out basis*. As per Government of India guidelines, BHEL Ranipet being a Government of India Undertaking the Bill of Lading shall be made with the Shipper as "Government of India". This shall be specifically confirmed by the Bidder.

(xi) Where the cargo is containerized, Container washing charges, stuffing charges and / or any other such charges would be to the account of the supplier, where the containers are to be stuffed at the works of the supplier.

B] Opening of Offers

a) **Tenders can be submitted up to 1400 Hours on tender opening due date. Part I will be opened on the same day at 1430 Hours. Results of the tender opening will be available for viewing for upto 7 days from the date of opening.**

b) Requests by Bidders for extension of due date will not be entertained by BHEL.

c) Price Bid opening will be done through e-mode / Reverse Auction method (English method) which will be decided after techno-commercial bid evaluation is completed. All tenderers would have to specifically give their acceptance for this in their bid/s.

Note

(i) Bids including all enclosures and supporting documents like catalogues, pamphlets, etc., shall be provided in ENGLISH language only.

(ii) In exceptional circumstances, at its option, BHEL may consider extending the due date/s for the tender openings for reasons such as (but not limited to) paucity of offers etc. However, sufficient notice would be given by BHEL for such extension.

(iii) Deviations shall be summarized and provided in a "Deviation Statement", listing the points and the deviation against each point.

(iv) BHEL reserves the right to increase or decrease the tendered quantity and to order on more than one vendor at the lowest acceptable price to BHEL. In ordering on more than one source, the ratio of quantity split will be as specified in the tender terms.

If not explicitly specified, BHEL reserves the right to split the quantity of the enquiry as follows: 70% quantity being ordered on the original lowest bidder (L1) and balance 30% on the next higher bidder/s excluding H1, who accepts the L1 price. However, the final decision to split the order rests with BHEL only.

In the event that the other than L1 suppliers do not accept the L1 price, then the balance will be reverted to the original L1 and the original L1 shall be bound to accept the balance of the enquiry quantity kept reserved for order splitting. This decision would be given by BHEL within 60 days of the price bid opening.

Notwithstanding the quantum of split that may be indicated in the main body of the enquiry, bidders are advised to note that the splitting of the orders will be decided by BHEL after the evaluation of the techno-commercial and price bids.

(v) Offers for part quantities on item level basis are not acceptable to BHEL. While tenderers can quote for some or all the tendered items, no supplier shall quote for partial quantity of any given enquiry item. Such partial offer would not be considered in the enquiry for that item. Suppliers are to note that the evaluation unless otherwise specified will be on item level and not for the tendered items as a whole.

C] Evaluation of Offers

a) The price bids including the impact price (if any) of the technically acceptable offers alone shall be opened.

b) Offers with pre-conditions (like conditional discounts) for price are liable to be not considered / rejected. For evaluation such conditions would be removed and only the base offer would be considered for evaluation and comparison.

d) In the event of any change in scope / quantity arising out of the discussions, offerers would be given a chance to submit their revised offer / Impact bids. The option for the revised offer / impact offer will be triggered by BHEL. The Supplier then will have the facility to feed-in the revised price / impact price as per the provision given by BHEL. The impact price can be positive or negative (or nil). The impact price option shall contain only the price addition / deletion for such change in the scope / quantities, over and above the original scope and price quoted. The original price quoted would remain unchanged. The total price would then be computed by the arithmetic addition of the original price and the impact price. Where BHEL gives the option of submitting the revised offer, the impact would be computed as the arithmetic difference of the revised price and the original price.

e) For evaluating the overseas offers, CFR Chennai Sea Port price quoted will be taken into account. The cost to BHEL will be arrived at by loading the applicable customs duty project wise, insurance charges, inland transportation charges to BHEL stores and LC charges etc.,

f) For suppliers within Tamil Nadu state, as per prevailing VAT Act, VAT input credit is currently 5%.

g) BHEL reserves the right to reject without assigning any reasons / load any offer with factors other than already specified for such offers having deviations to BHEL Specifications, Standard Terms & Conditions at its discretion. The decision of BHEL in this regard shall be final.

h) BHEL reserves the right to reject an offer due to unsatisfactory past performance during tender finalisation / execution of a contract at any of BHEL projects / units or if unsatisfactory performance report is received from the party/s referenced by the supplier at any time during tender finalisation.

i) BHEL reserves the right to operate Purchase / Price preference to Government of India Undertakings, which shall be given as per the guidelines of Government of India given from time to time and / or relax the Terms and Conditions of the tender.

j) For the purpose of comparing prices, tender prices shall be converted to Indian rupees and the conversion shall be made by using the TT Selling rate of State Bank of India (SBI) prevailing on the date of opening of Techno-Commercial / Unpriced bids. If the relevant day happens to be a bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken. This exchange rate will be followed till placement of order. Tenderers may please note that even if an impact price is taken as in (d) for purpose of price evaluation and arriving at the rank; the exchange rate will be taken as explained above.

k) Unless otherwise specified, evaluation will be on individual line item basis only and ordering will be on respective L1 vendors.

l) BHEL reserves the right to conduct negotiations on the "Price" and "Other Commercial Terms and Conditions" with the lowest ranked offerer at any time after the bid opening but before the release of the Purchase Order and If so required by BHEL, Supplier may have to share their costing sheet with BHEL.

m) Bidders are required to confirm in writing in their techno-commercial document that other than themselves (the bidder) none of its group companies, concerns or affiliates etc., are participating in the tender either directly or indirectly or through any other agency under the same proprietor / common partner(s)/ common Directors. If during the evaluation of the bids it is found that the bidder has submitted the offer in violation of this condition then all the offers received from the group companies would stand rejected. If such relationship is found at a later date where the Purchase Order has been issued, then BHEL would cancel the Purchase Order and initiate suitable action/s under the contract/s including but not limited to invoking the Risk Purchase clause of the order and other applicable legal provisions / guidelines of BHEL including guidelines on suspension of business dealings. (Please see clause L sub-clause c).

D] Execution of the Order

a) BHEL will have the option to pre-inspect the materials at Supplier's works by BHEL's own inspector or by third party agency appointed by BHEL or BHEL's end customer/s. The mere act of the pre-dispatch inspection (PDI) does not absolve the Supplier from giving the specifications as agreed upon in the Purchase Order. In the case of inspection being carried out by a third party inspector (TPI) as per the extant practice, the TPI would forward the Inspection Report (IR) along with Test Certificates and other related documents to the Quality Assurance (QA) Department of BHEL. The QA department after scrutinising the report/s submitted by the TPI would issue the Material Dispatch Clearance Certificate (MDCC). Suppliers are hereby informed that materials should be dispatched only after getting the MDCC, failing which the materials may be rejected on receipt at BHEL Stores.

b) In the case of overseas suppliers Inspection call for carrying out the inspection shall be given 30 days before the scheduled contract delivery date. The Inspection date/s given by the Supplier shall be on firm basis. For local Suppliers the Notice period of Inspection shall be 10 working days.

c) Deviations, if any pointed out by the visiting Inspection team of BHEL shall be corrected and the items as per specification shall be dispatched on or before the contract delivery date after getting the MDCC.

d) The final inspection for acceptance will, however be carried out at BHEL's works at Ranipet.

e) The contract delivery date is the date of receipt at BHEL Stores for suppliers in India, applicable in the case of FOR Destination Contracts.

For ex-works contracts or FOR dispatching station indigenous contracts, the date of the Lorry way bill issued by the authorised transport carriers of BHEL / Railway Receipt / Courier Way bill / Airway bill or any such dispatch documents of carriage approved by BHEL would be considered as the Contract Delivery Date. In the case of CFR contracts with overseas suppliers, the B/L date shall be taken as the Contract Delivery Date

f) Travel & other local stay cost for the Inspectors sent by BHEL will be to BHEL account, but other Inspection Charges, if any shall be to the account of the Seller only.

g) The supplier shall arrange for packing suitably in all respects for normal transport by sea / rail / road and Materials shall be suitably protected against effect of tropical salt laden atmosphere in the event of shipment being delayed at ports / store yards and as per BHEL TDC.

h) Foreign suppliers shall dispatch on CFR agreed Sea-Port basis, according to the contract conditions. Indian suppliers shall dispatch on free delivery (door-delivery) at BHEL stores basis only. Unloading the materials at BHEL Stores would be to the account of BHEL only.

i) In the event of any short supply, it shall be the responsibility of the supplier to deliver such short supplied/ missing items on Free-of-Cost basis at BHEL stores, including customs clearances at Indian Ports in the case of foreign suppliers.

k) Terms of payment:

k.1) For Indigenous Suppliers: Unless otherwise agreed to by BHEL, the standard payment terms of BHEL shall be: For non-MSE suppliers 100% payment made directly through EFT within 90 days from the date of receipt and acceptance of materials at BHEL Stores, Ranipet or 90 days from the date of acknowledgement of receipt of materials at destination specified. If any supplier asks for payment terms other than the above specified, then suitable loading on cost will be considered. **Loading of any deviation in the payment terms w.r.t tender terms will be "Base rate of State Bank of India (SBI) (as applicable on the date of bid opening: Techno-commercial bid opening in case of two part bids) + 6%, will be considered for loading for the periods of relaxation sought by bidders.**

k.2) For MSE vendors (under Micro & Small category alone) 100% payment will be made within 45 days from the date of receipt and acceptance of materials at BHEL Stores, Ranipet or 45 days from the date of acknowledgement of receipt of materials at destination specified.

l) NOTE:

Where the destination specified is other than BHEL Stores Ranipet, for claiming payment, Supplier has to submit proof of receipt of the materials at the destination by furnishing a copy of the acknowledged despatch document (LR/RR/Courier receipt etc.) .

If the Bidder is bidding for the first time and wants to be considered as an MSE then, the Bidder shall submit document evidencing that they are an MSE along with a certificate from a Chartered Accountant certifying the status of their Unit / Works clearly specifying the address of the works which is to be considered as MSE and send the same to BHEL, Ranipet either before the tender opening date or upload it as a part of the tender document in the e-procurement portal. Where the document is submitted electronically a hard copy shall invariably be sent within a reasonable period (not exceeding 30 days) from the bid opening date for the purpose of BHEL's records. If the hard copy is not received within this specified time, then the supplier would be treated as a non-MSE. BHEL will not be responsible for any postal / courier / delivery delays.

For approved vendors the status as on the date of the bid opening as available with BHEL Ranipet's records shall be used for reckoning the status of the Bidder as an MSE or otherwise.

Offer/s received without these documents will be treated as non-MSE and order finalization will be done based on this premise. Documents submitted after Bid-opening will not be considered in this tender. This provision for MSE will apply subject to the condition that the participating MSE meets the tender requirements.

For approved suppliers, in case of any change in the MSE status, it shall be the responsibility of the Bidder to notify the change as a part of the Bid document. If at a later date it comes to the knowledge of BHEL, Ranipet that the change in the status has not been intimated by the Bidder and the order is obtained under the premise of an MSE then BHEL would cancel the pending order against this tender and take necessary steps for suspension of the business dealing with the Bidder as per the procurement policy of BHEL. Similarly if a supplier claims MSE status after the Part I bid opening, then the same would not be considered in the tender.

In case after the bid opening it is seen that no MSE has become L1, then depending on the nature of the item, if it is not possible to split the tendered items / quantities on account of reasons like customer contract requirements of supplying one make for a given project or technical reasons like the tendered item being a system etc. then BHEL would not counter offer the L1 prices even though there may be MSE bidders within the +15% band of L1.

Other concessions for MSEs / Reserved sectors

In addition to the concessions specified above, MSE suppliers will be eligible for such other concessions as per the MSME Act 2006 and any other benefits / concessions that may be announced by the Government of India from time to time.. However, such concessions as applicable at the time of tender opening alone will be applicable. Any concessions advised after tender opening will not be considered for the current tender.

Items that are reserved for MSE and for any other items for which reservations for Indian manufacturers are notified by the Govt. Of India, such concessions as prevailing on the date of tender opening shall apply as a part of this tender conditions.

ii) Foreign Suppliers "100% thru' irrevocable & unconfirmed LC at sight within 3 weeks from the PO date through any one of our Bankers listed elsewhere in the tender conditions for 100% value (less Agency Commission, if any) valid up to the PO delivery period and 15 days thereafter for negotiation. All bank charges in India to BHEL's account and all other charges outside India to Supplier's account. **BHEL would load the price of foreign suppliers in order to bring them on common platform as per Indigenous Suppliers on the account of differential payment terms to Indigenous Suppliers. Loading of payment terms will be "Base rate of State Bank of India (SBI) (as applicable on the date of bid opening: Techno-commercial bid opening in case of two part bids) + 6%, will be considered for loading for the periods of relaxation compared to indigenous suppliers i.e. 90 days.**

m) Any incidence of tax like Income tax, Service Tax and Withholding any other similar tax / duties /levies imposed by the Government of India, or the State Government, where the BHEL Unit is located, deductible at Source, during the tenure of the Order shall be deducted by BHEL and necessary certification of the deduction (Tax deduction at Source) would be given. This is subject to the supplier fulfilling the necessary documentation as specified by the Government of India. (e.g. Tax Residency Certificate, PAN Number etc.)

n) The Guarantee period shall start from the "Date of receipt and acceptance of the materials at BHEL Stores."

o) Where any bidder gives extended credit period over and above that offered by BHEL, then all other Non-MSE bidders and foreign bidders would have to match the extended period of payment terms. This information would be given to such bidders after opening of the techno-commercial bids; but before opening the price bids. However bidders would not be allowed to change their price bid for purpose of confirming the extended credit period. In the event such bidder/s do not accept the extended credit period for payment, then their offer would be loaded to the extent of the differential between their offered payment terms and the revised payment terms offered by BHEL as explained above.

E] Liquidated Damages Clause:

BHEL will levy penalty as Liquidated Damages (LD), for delay in delivery. The damages shall be at the rate of ½% per week or part thereof subject to a maximum of **10%.** The contract delivery date for purpose of L.D is the date of receipt at BHEL Stores for suppliers in India for F.O.R. Destination Contract and the date of dispatch clearance given by BHEL for overseas suppliers. For ex-works or F.O.R dispatching station contracts, the date of the dispatch document will be reckoned as the date of delivery for computing the LD. Supplier shall deduct the applicable LD from the first payment when raising the claim for the same. The applicable LD if any would be communicated by BHEL along with the dispatch clearance. It is taken by BHEL that Foreign Suppliers have confirmed their acceptance to BHEL for opening the LC for value which is the value of the order reduced by the applicable LD. The LD would apply on the undelivered portion only. In case of reasons attributable to BHEL for the delay in delivery (for e.g. delay in arranging the pre-inspection) then the delivery time would be reset to the extent of the time delay attributable to BHEL, with waiver of the LD. Delivery being the essence of BHEL's contract requirements, Unless otherwise specified the LD would apply on the undelivered portion of the contracted items. In the event that a **Supplier does not accept the LD condition above, the offer would be loaded to the extent of the shortfall with respect to upper limit specified above.**

F) Miscellaneous

i) Role of Agents:

BHEL will deal directly with indigenous manufacturers only.
BHEL strongly discourages the engagement of Agents in India by foreign principals, to deal with BHEL, in BHEL's tenders.
BHEL will not enter into any correspondence with an Indian Agent.
The Indian Agent will not be extended the privilege given to the principals, such as that of attending the tender openings, attending technical discussions, commercial discussions or price negotiations and such like.
In case, in spite of the above, a foreign principal insists on engaging an Indian Agent, It is made clear by BHEL that:
It is the sole responsibility of the foreign principal to ensure the Agent does not represent any other foreign principal in a given tender.
An undertaking to this effect shall be given by the foreign principal that his / her Agent does not represent any other foreign principal in the tender. This document shall form a part of the techno-commercial offer.
If at any stage of the tender, BHEL finds that an Indian Agent has represented more than one foreign principal, all such offers of and all the foreign principals would be disqualified summarily in the tender inquiry.
BHEL will only give an intimation of notice of the disqualification. No correspondence would be entertained by BHEL, on their decision. Such decision of BHEL shall be irrevocable, firm and final and shall be binding on the tenderer.
BHEL, due to business reasons would ban, would have banned Indian agents from dealing with BHEL.
Any foreign principal who engages such a banned agent, or an employee of the banned agency, or any other person connected with the banned agency, at any time during the tender proceedings, would be disqualified from the tender proceedings. The decision of BHEL in this regard shall be final and be binding on the OEM.
Hence in their own interests, prospective tenderers may check with BHEL, the status of their proposed agent vis-à-vis BHEL.
In view of the requirement of BHEL, it is strongly suggested that in their own interest, foreign principals may desist from engaging any Indian agent and deal with BHEL directly and it is stressed that any Main producer proposing to deal with BHEL by engaging and through an Indian Agent does so at their own risk.
BHEL shall in no way be responsible for any consequences that may arise to the foreign principal on account of the antecedents / actions of their Indian Agent.

In the event of the foreign principal engaging an Indian Agent:

a) **The Supplier shall furnish an authenticated copy of the Agency Agreement with his agent detailing the precise relationship between them and their mutual interest in the business along with techno-commercial bid.**
b) The Supplier shall furnish original authorization letter for the Indian Agent. The letter shall contain name, contact person, complete postal address including phone, fax and e-mail ID. It shall also spell out the type of services to be rendered by Indian Agent.
c) Indian Agent & Agency commission: An Indian Agent can represent only one Foreign Manufacturer against a particular Tender. The FOB price quoted by the foreign bidder shall include the agency commission. However, the agency commission component payable to their Indian Agents shall be shown separately in the Offer, either as a lump-sum or as a percentage of the quoted price. This will be paid by BHEL in Indian Rupees, on satisfactory receipt & acceptance of the materials. For calculation of Rupee

equivalent of Agency Commission, exchange rate as prevailing on the date of Purchase Order will be taken and

d) For all discussions, technical clarification and negotiations etc. only the principal would be authorized for interaction with BHEL. The Agent shall not be a party to the discussions / negotiations and would not be normally allowed to participate.

ii) Terms & Conditions of Letter of Credit (L/C) for overseas suppliers (indicated for acceptance).

a) Unconfirmed irrevocable Letter of Credit at Sight only will be opened by BHEL. Confirmation of L/C is not preferred by BHEL. Also L.C will be opened in Lots in line with the staggered delivery.

b) All Bank charges out side India are to the Supplier's account and within India to BHEL's account.

c) In case of L/C extension caused by delays attributable to the Supplier, the L/C extension / commitment charges are to be borne by the Supplier.

iii) Other terms & conditions for letter of credit: - Documents for negotiation

a) Signed Commercial invoice in quadruplicate, for a value not exceeding the draft amount, quoting the import Licence No and certifying goods evidencing shipment of the merchandise are as per Applicant's Purchase Order. The amount of invoice after deducting Indian Agent's commission, if any, should not exceed the Credit amount. (The Indian agent's commission, if any, is payable in India in Indian rupees only.)

b) Certificate of Country of Origin, from the country of manufacture, issued by the Chamber of Commerce.

c) One set of Original and two sets of Non-negotiable copies of 'signed', ‘unmarked’, 'clean on board' Ocean Bill of Lading, showing Shipper as “Government of India” Account M/s. Bharat Heavy Electrical Ltd, Unit: BHEL, Ranipet as consignee (The opening bank should not be notified as consignee), marked freight payable / prepaid at destination.

d) Packing list in 4 copies in English, indicating Size wise Number of bundles / pieces shipped and weight.

e) Certified copy of the fax / e-mail sent by the beneficiary to the applicant giving the following particulars of shipment, as the insurance is to be arranged by the Applicant in India: (a) Purchase Order Number & date; (b) Bill of Lading Number & date (c) Name of vessel; (d) Port of Loading; (e) Number of bundles / pieces and weight; (f) Invoice Number, date and value (g) Purchase Order item number's despatched. The cable / fax is to be sent within 2 working days of shipment.

f) Beneficiary's certificate showing the relevant airmail / courier reference no. and date that the following clauses have been complied with:

1] Beneficiary to forward by Registered Airmail / Courier one complete set of original documents and one set of non-negotiable documents within 3 working days of obtaining shipping documents to Regional Manager (ROD), Bharat Heavy Electricals Ltd, No. 165, Thambu-Chetty Street, Chennai – 600 001. India. (Phone: +91-44-25341249, 25341240 / Fax - +91-44-25340787; e-mail: raja@rodchn.bhel.co.in)

2] Beneficiary to courier at his cost 3 copies of complete set of non-negotiable documents to the Officer who released the Purchase Order.

3] Declaration by the Supplier certifying that the contents in each case are not less than those entered in the invoices / packing list and that the invoicing for the supplies effected is strictly in accordance with agreed rates as stipulated in the Purchase Order.

4] Declaration to the effect that all other documents as per purchase order has been couriered to the Purchase order releasing authority

5) The carrying steamer should be seaworthy, less than 25 years of age and approved by Lloyds / Classification Societies / General Insurance Corporation of India from time to time and

6) Copy of Dispatch Clearance / Instruction issued by BHEL.

iv) Documents to be sent directly to the Purchaser prior to shipment

a) Manufacturer's Original Internal Inspection / Test certificate in triplicate.

b) Manufacturer's Original Guarantee certificate as per Purchase Order. The material shall be guaranteed for a period of 12 months from the date of acceptance of the materials at BHEL stores or 18 months from the date of dispatch whichever is earlier. The acceptance would be evidenced by the Stores Receipt Voucher (SRV) which will be raised by BHEL.

c) Inspection / Test Certificate issued by BHEL / Inspection agency specified in the Purchase Order. In the event that Inspection prior to dispatch is not carried out by the Engineers of BHEL, the Inspection certificate of the third party so authorized by BHEL and

d) Any other documentation as specified in the Purchase Order.

v) Conditions for transportation:

a) All shipping documents shall show the Purchase Order Number & Date, Import Licence Number & Date, and Letter of Credit Number & Date.

b) Transhipment is to be avoided.

c) Loading on deck is not permitted. The transport document must not contain a provision that goods may be carried on deck.

d) A transport document which is produced or appearing to have been produced by reprographic, automated or computerized systems or as carbon copy will be accepted as an original document provided that it is marked as original and is ink-signed.

e) The transport document must contain all the conditions of carriage on the original document.

f) The transport document must not indicate the place of destination as being different from the port of discharge.

g) The transport document must not contain the indication 'intended' or similar qualification in relation to the vessel or other means of transport or port of loading or port of discharge.

h) The transport document must be issued by the carrier or his agent and not by any freight forwarder.

i) Transport documents bearing reference by stamp or otherwise, to costs additional to the freight charges are not acceptable.

j) The Bills of Exchange must be dated and presentation of documents for negotiation must not be later than 15 days after the date of shipment and in any case not later than the expiry date of the Credit.

l) Indian suppliers shall dispatch the materials on freight prepaid and on door-delivery basis (FOR Destination – Destination: BHEL Stores) and

m) In the event there is a delay by the Supplier in negotiating / submitting the document, any demurrage / wharfage arising out of the same shall be to the account of the Supplier and shall be deducted from the final payment. Also, in such cases, the Supplier shall authorize the Steamer / Shipping agent / transporter to freely release the consignment to BHEL by providing a “Surrender Bill of Lading”. Over-seas Suppliers have to give a No-Objection Certificate to BHEL, authorizing BHEL to get the Delivery Order from the Steamer Agent without producing the Original Bill of Lading. This is required to ensure avoidance of incidence of demurrage at Chennai Sea-port that may arise in case of delayed presentation of documents by the Seller.

G) Reverse auction (RA) / on-line bidding on internet:

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.

2.a. BHEL reserves the right to go for Reverse Auction (RA) instead of opening Part I bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

2. b.Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit "online sealed bid‟ in the Reverse Auction. Non-submission of "online sealed bid‟ by the bidder for any of the eligible items for which techno commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.

3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.

4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.

5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.

6. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.

7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for noncompliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.]

8. Reverse auction will be conducted on scheduled date & time.

9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.

10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.

11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL‟ s standard practice.

12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction‟ , which will be communicated before the Reverse Auction.

13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.

14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.

15. In case BHEL goes for reverse auction & depending on the number of bidders, the H1 bidders (whose quotes are highest in online sealed bid) may not be allowed to participate in further RA process. Further, in case of sufficient vendors, exclusion of H1 bidders may get extended up to 20%.

16. ***In order to bring more transparency and to address any queries of Bidders on Reverse Auction, an abridged version of BHEL's "Common Guidelines for conducting Reverse Auction (RA)" has been hosted in BHEL's web site www.bhel.com under the links "Supplier Registration Page" and "Tender Notification". All Bidders are requested to visit the link and familiarize themselves with BHEL's RA procedures and guidelines before submission of their bid/s. Submission of Bid shall mean that the Bidder has read and understood BHEL's RA procedures and the bid is in agreement with the same.***

H] Force Majeure

If at any time during the currency of this contract, the performance in whole or in part, by either party of any obligations under this contract shall be prevented or delayed by reason, of any war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, explosions, epidemics, quarantine, restrictions or acts of GOD (hereinafter referred to as events), then provided notice of happening of any such events is given by either party to other within ten days from the date of occurrence thereof, neither party shall reason of such events be entitled to terminate this contract nor shall either party have any such non performance and delay is resumed as soon as practicable after such events has come to an end or ceased to exist. If the performance in whole or part of any obligation under this contract is prevented or delayed by reason or any such event claims for extension of time shall be granted for period considered reasonable by the purchaser subject to prompt notification by the seller to the purchaser of the particulars of the events and supply to the purchaser if required of any supporting evidence. Any waiver of time in respect of partial installment shall not be deemed to be a waiver of time in respect of remaining deliveries.

I] Cancellation of Order:

In the event of non-performance of the contract by the Supplier, BHEL reserves the right to cancel the order with issue of a written notice. BHEL would provide a curing period of 30 days, for the Supplier to rectify the situation. If the Supplier fails to rectify the reason/s that led to the issue of cancellation notice by BHEL, then the cancellation order would be issued automatically by BHEL, without further recourse to the Seller. BHEL will not pay any cancellation charges or any other charges / damages to the Supplier, arising out such cancellation. In the event of the non-performance of the supply contract, by the Supplier, the rights of BHEL include, in addition to cancelling the order, to take alternate purchase action at the cost and risk of the supplier. The additional expenditure to be incurred by BHEL in such alternate purchase would be to the account of the supplier. (Risk Purchase). This remedy would be in addition to the invoking of the CEBG on grounds of failure of the Supplier in executing the Contract and any other legal remedies." BHEL reserves the right to initiate the alternate purchase action at the cost and risk of the erring supplier by issue of a simple notice of intention for the alternate purchase action duly sent by any electronic means and / or by a letter. The cancellation of the order would not be a pre-condition for initiation of the alternate purchase action.

J] Contract Execution Bank Guarantee:

To demonstrate the fidelity of the successful bidder, in executing the Contract, on receipt of the Letter of Intent / Purchase Order, the Supplier shall arrange to provide a contract execution bank guarantee (CEBG). The format of the CEBG is a part of this enquiry. The format may be downloaded and necessary stamping may be obtained from the Banker towards submission of the CEBG. The indigenous suppliers have to provide the CEBG from any one of the Nationalized Banks, listed in the annexure to these terms. Overseas suppliers can submit the CEBG from any of the reputed International / National Bankers. However the CEBG is to be confirmed by any of the Bankers listed by us. In the event of failure by the Supplier to execute the contract either fully or partially, BHEL would encash the entire CEBG. The CEBG shall be valid for the period covering the agreed delivery date of the order with a further claim period of 3 months on the last specified delivery date. In the event of the failure of delivery BHEL would proceed with encashing the CEBG without reference to the Supplier. In the event of BHEL granting extension of the delivery dates, then the CEBG validity shall also be got extended by the Supplier to the extent of the extended delivery times together with the claim period as specified elsewhere. **The CEBG shall be for a value of 2% of the Purchase order.**

Suppliers who are all already registered with BHEL and having a vendor performance rating of A or A+ grade would be exempted from submission of CEBG.

Performance Bank Guarantee

Where ever so required, the Supplier shall arrange to provide a Performance bank guarantee (PBG). The indigenous suppliers have to provide the PBG from any one of the Nationalized Banks, listed in the tender terms. Overseas suppliers can submit the PBG from any of the reputed International / National Bankers. However the PBG shall be confirmed by any of the Bankers listed by us. The PBG shall guarantee the performance of the equipment / materials / items supplied and shall cover the guarantee period. The PBG shall have a claim period of 3 months in addition to the guarantee period. In the event of failure of the supplies made within the guarantee period, BHEL would encash the entire PBG. **The PBG shall be for a value of 10% of the Purchase order.**

The supplier/s have to get the PBG format (pre-printed) from BHEL and get the same stamped by the Banker. Change of PBG terms either by the supplier's Banker or by the supplier, after servicing of the order is not acceptable. Similarly PBG prepared by the supplier (typed by them) will also not be acceptable to BHEL. The pre-printed form issued by BHEL shall be used for making the PBG.

K] Post-order submission of documents for approval

In the event of the release of Letter of Intent (LoI) / Purchase order/s (PO) against this tender, Bidders have to submit the applicable documents as called for in the tender / LoI / PO/s, such as drawings, data sheets, design calculations etc. These documents for approval have to be submitted within the agreed timelines between BHEL and Bidder. Normally the time period for submission for approval is 15 days from the date of receipt of the LoI / PO by the supplier. The actual time period within which the documents have to be submitted for approval would be specified in the LoI / PO.

Such documents would be subjected to evaluation and approval by BHEL and / or by BHEL's customer / Consultant / Customer's Consultant. Bidders have to give their specific acceptance for this.

After approval of such documents and after getting clearance from BHEL, only the items ordered can be taken up for manufacture.
Any changes required by BHEL / Customer etc. in the documents submitted for approval shall be incorporated by the Bidder and no extra cost would be payable by BHEL for such changes.
In the event that the Bidder does not carry out the required corrections, then the LoI / PO would be liable for cancellation by BHEL and BHEL would resort to alternate purchase action at the risk and cost of the Bidder under the Risk Purchase Condition of the Purchase Order.
Note: After receiving the LoI / PO, supplier shall also forward the acknowledgement / acceptance of the LoI / PO by signing and returning the second copy of the LoI / PO as the token of acceptance.

L] Others

a) In case of any contradiction in the terms and conditions given here and elsewhere in the other documents of the tender, it shall be the responsibility of the tenderer to get it clarified from BHEL. The officer authorized to provide such clarifications is the tender issuing officer.

b) Alterations to the conditions of the Tender can be done only by the authorized officer, at any time before the date and time of tender opening and would be duly communicated through a corrigendum.

c) **Suspension of Business dealings with Suppliers**:

(i) Before submitting offer, prospective bidders are advised to visit our web-site www.bhel.com / supplier registration to familiarize themselves with BHEL's policy and procedures of Suspension of Business Dealings with Suppliers.

Submission of offer shall be deemed to be evidence of the Bidder to have read and understood the above said policy.

ii) **Treatment of Banned / Under-performing Vendors**:
Any supplier who has been put on "Hold" or "Banned" from having business dealings with BHEL, Ranipet or any other unit of BHEL shall not submit their offer against this tender. If any such offers are received they would be summarily rejected and sent back. During the processing of tender, if any unit of BHEL puts a supplier on "Ban" then further processing of the offer will not be taken up and in case an order is placed, BHEL, Ranipet may resort at their discretion to cancel the PO either fully or partially.
If any of the supplier who is supplying similar material to BHEL, Ranipet has a Vendor Performance Rating (VPR) score of 'C' or below, then offer given by such parties will not be considered for ordering in this tender.
Offers of such of those bidders against whom action for suspension of business dealings has been initiated by BHEL, Ranipet or any other Units/Division of BHEL will also not be considered in this tender.

d) **Fraud Prevention Policy**:

The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.
e) **Applicability of Integrity Pact**:-

IP is a tool to ensure that activities and transactions between the company and its Bidders/ Contractors ate handled in a fair, transparent and corruption free manner. A panel of Independent External monitor (IEMs) have been appointed to oversee implementation of IP in BHEL.

The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid. Only those bidders who have entered into such an IP with BHEL would be competed to participate in the bidding. In other words, entering into pact would be a preliminary qualification.

A detail of IEM for this tender is furnished below:

Name : Shri D.R.S Chaudhary,IAS (Retd.)

Address : Flat No. L-202 & L-203 (1st Floor)
Ansal Lake View Enclave
Shamla Hills
Bhopal- 462 013 (M.P.)

Email : dilip.chaudhary@icloud.com

Please refer section-8 of the IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to the IEM mentioned in the tender.

No routine correspondence shall be addressed to the IEM (phone / post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/issues shall be addressed directly to the tender issuing (procurement) department".

Integrity Pact are applicable for all the BHEL enquiries whose estimated value is equal to or more than Rupees 05 Crores.

Copy of Integrity Pact with applicable nominated IEM is attached along with the tender documents for ready reference of Suppliers.

If any Supplier attempts to bribe, or pay commission, gift or any advantage or bring in undue influence either by himself or on his behalf any one including a stranger to the tender, in addition to instituting legal proceedings as per the extant laws prevailing, will disqualify the supplier from this tender and all future tenders of BHEL. Decision of the Purchaser would be final in this matter.

f) The laws governing this transaction shall be the laws in India.

g) Wherever not specified, Inco terms 2010 shall be used to interpret the Commercial terms and conditions and

h) In the event of an order, Supplier shall agree to settlement of disputes or differences, if any, by way of arbitration, in accordance with the "Rule of Arbitration" of the Indian Council of Arbitration.

The language in the tender documents downloaded by the Bidders shall at no point of time be changed, altered or modified in any manner by the Tenderer. If such changes are made by any tenderer, it shall be considered as tampering with BHEL's terms and the offer shall be summarily rejected, whenever it is noticed by BHEL. Such Bidders would be disqualified from the Bidding Process and their offers would be forfeited / Bank Guarantees invoked. They would also not be allowed to participate in future tenders of BHEL.

Conditions for rejection of offers:

<u>Following is the list of situations which would lead to rejection of offer/s.</u>

<u>This list is not exhaustive but only indicative.</u>

BHEL reserve the right to reject one or all offers without assigning any reason. The decision of BHEL will be final in this regard.

1. *If the offer fails to meet the technical requirements/specifications of the tendered item/s.*

2. *If the offer does not meet the commercial terms & conditions, such as but not limited to delivery period specified in the tender, Delivery terms, payment terms, Liquidated damages, Risk Purchase, cancellation clause etc., including the load factors specified in the tender.*
3. *If the bidder fails to respond to clarification sought, within a reasonable period. In case of doubts / lack of clarity on the technical and commercial offer of the bidder, BHEL will seek clarifications. Bidders are required to respond completely to such BHEL's queries within 3 working days unless otherwise agreed to in writing by BHEL for period beyond 3 days. If supplier fails to respond within 3 working days or maximum 2 working days on a reminder thereon, the offer of such bidders will be automatically dis-qualified in the tender without further recourse to informing the bidder.*

Record of Revisions:

Revision No.	Revision Date	Modification
01	17.08.2016	Payment terms for Foreign suppliers modified wrt loading- Clause k.ii
02	29.08.2016	Treatment of banned vendors – Para 3 added - Clause L.ii
03	14.09.2016	Opening of offers – clause B – sub clause 'b' included and existing clause 'b' renamed as 'c'.
04	14.09.2016	Opening of offers – Note – sub clause (ii) modified

ANNEXURE - C

CHECK LIST STANDARD COMMERCIAL TERMS & CONDITIONS

S No.	BHEL Standard Terms	Supplier Confirmation	Deviation (if any)
01	**Terms of Delivery:**		
(a)	**Indigenous Supplies :** Destination as per annexure-A [Packing & Forwarding, Freight & Insurance are in Supplier's scope i.e. included in the quoted prices. Unloading would be to the account of BHEL only].		
(b)	**Foreign Supplies :** CFR Chennai Sea Port Basis only and Insurance in BHEL's scope.		
02	**Delivery Period:** To mention clearly the exact delivery period as it attracts contractual penalty on delays.To be indicated in days/weeks/months from date of receipt of Purchase Order (P.O)		
03	**Liquidated Damages (LD) :** The applicable LD shall be at the rate of 0.5% per week to maximum of 10% for the undelivered portion and for the deliveries made beyond the agreed Delivery Period. Delivery being the essence of BHEL's contract requirements, in the event that a Supplier does not accept the above LD condition, the offer would be loaded to the extent of the shortfall with respect to upper limit specified above.		
4 (a)	**Terms of payment for Indigenous Suppliers:** 100% payment will be made directly thru' EFT within 90 days from the date of receipt and acceptance of materials at BHEL Stores, Ranipet. If any supplier is asking for payment terms other than the above specified, then suitable loading on cost will be considered. Loading of any deviation in the payment terms w.r.t tender terms will be "Base rate of State Bank of India (SBI) (as applicable on the date of bid opening: Techno-commercial bid opening in case of two part bids) + 6%, will be considered for loading for the periods of relaxation sought by bidders.		
4 (b)	**Terms of Payment for Foreign Suppliers:** "100% thru' irrevocable & unconfirmed LC at sight within 3 weeks from the PO date through any one of our Bankers listed elsewhere in the tender conditions for 100% value (less Agency Commission, ifany) valid upto the PO delivery period and 15 days thereafter for negotiation. All bank charges in India to BHEL's account and all other charges outside India to Supplier's account. BHEL reserves the right to load the price of foreign suppliers in order to bring them on common platform as per Indigenous Suppliers on the account of differential payment terms to Indigenous Suppliers. Loading of payment terms will be "Base rate of State Bank of India (SBI) (as applicable on the date of bid opening: Techno-commercial bid opening in case of two part bids) + 6%, will be considered for loading for the periods of relaxation compared to indigenous suppliers i.e. 90 days.		
05	Whenever there is an Indian Agent to represent a Supplier, it is mandatory to give the details of services to be rendered by Indian Agent and / or the details of agreement between Supplier and Agent. Supplier to indicate the Agency Commission payable. Indian Agency Commission will be paid only in Indian Rupees, calculated at the rate of exchange prevailing on the date of price bid opening. This is payable on satisfactory completion of the contract. Agency agreement copy shall be submitted along with Annexure-C without fail. **Note: In order to maintain sanctity of the tender system, it is mandatory that one Agent cannot represent two Suppliers or quote on their behalf in a particular tender enquiry. If any Agent represents more than one Suppliers all such offers will be rejected.**		

ANNEXURE - C

CHECK LIST STANDARD COMMERCIAL TERMS & CONDITIONS

S No.	BHEL Standard Terms	Supplier Confirmation	Deviation (if any)
06	**Guarantee Period:** Guarantee regarding manufacturing defect should be for a period of 12 months from date of acceptance of the materials at BHEL Stores, or 18 months from the date of shipment whichever event occurs earlier.		
07	**Contract Execution Bank Guarantee (CEBG):** The Supplier shall submit a BG for 2% of the contract value valid for the agreed delivery period + 3 Months. Attached CEBG Format is to be signed and submitted along with Annexure-C as a token of acceptance. Please note no deviation is allowed.		
08	**Validity:** Supplier to mention clearly the validity date of the offer. Minimum 90 days from tender opening date and 60 days from the date of the Reverse Auction/Price bid opening date;		
09	**Clientele List:** Supplier to submit detailed clientele list with their full address including detail of contact person with phone no., fax no. & e-mail ID as per clause A]i) of Annexure - B (STANDARD TERMS & CONDITIONS).		
10	**Reverse Auction (R/A) / Bidding through Internet:** Supplier confirmation required.		
11	**Taxes & Duties:**		
(i)	**Excise duty in % (for Indigenous supplier): As per annexure -A**. ED invoice is required for availing Cenvat benefit		
(ii)	**Sales tax in % (for Indigenous supplier): VAT / CST** to be indicated by the supplier.		
12	**Test Certificate:** To be submitted. With Chemical and Mechanical properties and dimensions as per Standards and our Technical Delivery Conditions		
13	**Risk Purchase Clause (as per clause-I of Annexure-B)** (Supplier Confirmation Required)		
14	Firm price till completion of order		
15	Inspection before despatch at supplier's works by BHEL/TPI agency		
16	MSE /NON MSE STATUS WITH PROOF		
17	**For Foreign Offers:**		
(i)	Manufacturers' Name and address:		
(ii)	Country of Origin:		
(iii)	Mills Letter of Authority		
(iv)	Agency Agreement		
(v)	Approximate weight and cubage of the consignment.		

Signature & Office Seal of Vendor

ANNEXURE-D

Reverse auction (RA) / on-line bidding on internet:

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.

2.a. BHEL reserves the right to go for Reverse Auction (RA) instead of opening Part I bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

2. b.Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit "online sealed bid‟ in the Reverse Auction. Non-submission of "online sealed bid‟by the bidder for any of the eligible items for which techno commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.

3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.

4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.

5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.

6. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.

7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for noncompliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.]

8. Reverse auction will be conducted on scheduled date & time.

9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.

10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.

11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL ‟s standard practice.

12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction‟, which will be communicated before the Reverse Auction.

13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.

14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.

15. In case BHEL goes for reverse auction & depending on the number of bidders, the H1 bidders (whose quotes are highest in online sealed bid) may not be allowed to participate in further RA process. Further, in case of sufficient vendors, exclusion of H1 bidders may get extended up to 20%.

Annexure for IEM of Integrity Pact

The nominated IEM for IP for the above enquiry is

Shri D.R.S Chaudhary,IAS (Retd.)

And he can be contacted at :

Flat No. L-202 & L-203 (1st Floor)
Ansal Lake View Enclave
Shamla Hills
Bhopal- 462 013 (M.P.)
Ph: +91 755 4050495
dilip.chaudhary@icloud.com

(TO BE STAMPED IN ACCORDANCE WITH STAMP ACT AND THE EXPIRY DATE OF BG MUST BE AFTER 3 MONTHS FROM THE DATE OF COMPLETION OF SUPPLIES)

CONTRACT EXECUTION BANK GUARANTEE

In accordance of M/s. Bharat Heavy Electricals Limited (A Government of India undertaking, a company incorporated under the Companies Act 1956 having its Registered Office at "BHEL House", SIRI Fort, New Delhi 110 049) through its Boiler Auxiliaries Plant located at Ranipet – 632 406, (hereinafter called 'the Company') having entered into a contract with M/s……………………………………………………………………………….…… ………………………. hereinafter called 'the said contractor' which term includes 'suppliers' for the purpose of this Bond and under the terms and conditions of the Contract No…………………………..Dt………………....between BHEL, Ranipet and as per the Contract, the Contractor / Supplier is to furnish a Contract Execution Bank Guarantee for Rs……………………………in words……………………………………………………….... ……………………………………..………………………………………………………for the due performance of the contract and for the fulfillment of all the terms and conditions of the contract.

Sign and seal of issuing bank
Please affix Non Judicial Stamp
here, as per Stamp Act

Bank Guarantee No…………………….Date…………………Banker Name…………………..
Bank Guarantee Value Rs………………………

1. We………………………………………………………………………………………………
………………………..………………………………………………………………………
………………………(Bank's name, Branch, Place – address to be mentioned [herein after referred to as the Bank) at the request of………………………………………
………………………...............................………………………(Contractor(s)] do hereby undertake to pay the company an amount not exceeding Rs……………in words
………………………………………….……………………………….…………………………
…………………………………….…………………………………………………………
…………………………………………………………………………………………………
……………………..against any loss or damage caused to or suffered or would be caused to or suffered by the company by reason of any breach by the said Contractor(s) of any of the terms and conditions contained in the said agreement.

2. We………………………………………………………………………………………...
……………………………………………………………………………………………..…
……………………………………………………………………………………..(name of the bank with full address), do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the Company stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Company by reason of breach by the said Contractor(s) of any of the terms and conditions contained in the said Agreement or by the reason of the Contractor(s) 'failure to perform' the said agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs…………………………………in words……………………………………………………
………………………………………………………………………………………………..

Sign and seal of issuing bank

Bank Guarantee No…………………….Date…………………Banker Name…………………..
Bank Guarantee Value Rs………………………

3. We undertake to pay conditionally to the Company any money so demanded notwithstanding any dispute(s) raised by the Contractor in any suit, or proceedings pending before any Court or Tribunal or Arbitration or before any other authority relating thereto our liability under this present being absolute and unequivocal. The payment under this guarantee would not wait till the disputes have been decided by any Court or Tribunal or in the arbitration proceedings or by any other authority. The payment so made by us under this Bond shall be a valid discharge of liability for payment thereunder and the Contractor(s) shall have no claim against us for making such payment.

4. We……………………………………………………………………………………..(name of Bank), further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Company under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till Purchase Department of the Company certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.

5. (i) Unless a demand or claim under this guarantee is made on us in writing on or before ……………………………(date) (After 3 months from the date of completion of supplies) we shall be discharged from all the liability under this guarantee thereafter. But where such claim or demand has been preferred by the Company with the Bank before the expiry of the said date, the claim shall be enforceable notwithstanding the fact that the said enforcement is effected after the said date. (ii) For the purpose of this clause, any letter making demand on the Bank by M/s. BHEL dispatched by Registered Post with Ack. Due or by Telegram or by any Electronic media addressed to the above mentioned address of the Bank shall be deemed to be the claim / demand in writing referred to above irrespective of the fact as to whether and when the said letter reaches the Bank, as also any letter containing the said demand or claim is lodged with the Bank personally.

Sign and seal of issuing bank

Bank Guarantee No…………………….Date…………………Banker Name…………………..
Bank Guarantee Value Rs………………………

6. We……………………………………………………………………………………..(name of the Bank), further agree with the company that the Company shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by any reason of any such variation or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of the company or any indulgence by the company to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating would, but for this provision, have effect of not so relieving us.

7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).

8. The guarantee herein contained shall not be determined or affected by the liquidation or winding up or insolvency of or change in the constitution of the Contractor, but shall in all respects and for all purpose be binding and operative until all payments of all moneys due or that may hereafter become due to the said company or settled irrespective of any liability or obligation of the Contractor under the said Contract.

9. It shall not be necessary for the company to proceed against the Contractor before proceeding against the guarantor-bank and the guarantee herein contained shall be enforceable against them notwithstanding any security, which the company may have obtained from the Contractor shall, at the time when proceedings are taken against the Guarantor hereunder be outstanding or unrealized.

10. Any claim or dispute arising under the terms of this document shall only be enforced or settled in the Courts at Ranipet, Tamilnadu Jurisdiction.

…5

11. The Bank declares that it has powers to issue this Guarantee under the Bank’s Memorandum and Articles of Association and the undersigned has full powers to do so on its behalf under the power granted to him by the proper authorities of the Bank.

12. We ……………………………………………………………………………………(name of Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the company in writing.

In witness whereof we……………………………………………………………………………. (name of Bank) have hereunto setout Bank Seal the………………………………………… day of………………………………………..month 20__.

Sign and seal of issuing bank.

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	For & On behalf of the Bidder/ Contractor
(Office Seal)	(Office Seal)

Place---------------------

Date----------------------

Witness: ____________________	Witness: ______________________
(Name & Address) ____________	(Name & Address)________________
____________________________	______________________________

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 331 01 31, 331 13 75 — Telegrams: Manaksanstha (Common to all Offices)

Regional Offices:

		Telephone
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002	331 01 31 331 13 75
*Eastern	: 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola, CALCUTTA 700054	36 24 99
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SPECIFICATION FOR WROUGHT ALUMINIUM AND ALUMINIUM ALLOY SHEET AND STRIP FOR GENERAL ENGINEERING PURPOSES

(Third Revision)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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SPECIFICATION FOR WROUGHT ALUMINIUM AND ALUMINIUM ALLOY SHEET AND STRIP FOR GENERAL ENGINEERING PURPOSES

(Third Revision)

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(*Continued on page* 2)

(*Continued from page* 1)

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Deputy Director (Metals), BIS

Indian Standard

SPECIFICATION FOR WROUGHT ALUMINIUM AND ALUMINIUM ALLOY SHEET AND STRIP FOR GENERAL ENGINEERING PURPOSES

(Third Revision)

0. FOREWORD

0.1 This Indian Standard (Third Revision) was adopted by the Indian Standards Institution on 25 November 1986, after the draft finalized by the Light Metals and Their Alloys Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 This standard was first issued in 1956 and subsequently revised in 1965 and 1974. Further revision became necessary as number of new alloys which have found wide applications in engineering industries were required to be included. Tables on requirements for mechanical properties were reviewed and modified, wherever necessary. The main modifications which have been made in this revision are as follows:

a) Aluminium of 99·6 percent purity has been added; and

b) Code designations given in IS : 6051-1970* have been adopted in this standard. The relevant extract from the standard for designating wrought aluminium alloys is given in Appendix A.

0.3 Some characteristics and typical uses of alloys specified in the standard have been listed in Appendix B.

0.4 The major alloying elements have been printed in heavy type in the chemical composition (*see* Table 1).

*Code for designation of aluminium and its alloys.

TABLE 1 CHEMICAL COMPOSITION OF WROUGHT ALUMINIUM AND ALUMINIUM ALLOY SHEET AND STRIP

(*Clauses* 0.4 *and* 5.1)

Composition limits are in percent maximum, unless shown otherwise.

DESIGNATION	ALUMINIUM	COPPER	MAGNESIUM	SILICON	IRON	MANGANESE	ZINC	TITANIUM AND/OR OTHER GRAIN REFINING ELEMENTS	CHROMIUM	REMARKS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
19990	99·99 *Min*	—	—	—	—	—	—	—	—	Cu+Si+Fe=0·01
19800	99·8 *Min*	0·03	—	0·15	0·15	0·03	0·06	—	—	Cu+Si+Fe+Mn +Zn=0·2
19700	99·7 *Min*	0·03	—	0·2	0·25	0·03	0·06	—	—	Cu+Si+Fe+Mn +Zn=0·3
19600	99·6 *Min*	0·05	—	0·25	0·35	0·03	0·06	—	—	Cu+Si+Fe+Mn +Zn=0·4
19500	99·5 *Min*	0·05	—	0·3	0·4	0·05	0·1	—	—	Cu+Si+Fe+Mn +Zn=0·5
19000	99·0 *Min*	0·1	0·2	0·5	0·7	0·1	0·1	—	—	Cu+Mg+Si+Fe +Mn+Zn=1·0
24345	Remainder	3·8-5·0	0·2-0·8	0·5-1·2	0·7	0·3-1·2	0·2	0·3*	0·3*	
24345 Alclad	Remainder	3·8 5·0	0·2-0·8	0·5-1·2	0·7	0·3-1·2	0·2	0·3*	0·3*	
31000	Remainder	0·1	0·1	0·6	0·7	0·8-1·5	0·2	0·2	0·2	
31500	Remainder	0·2	0·6-1·3	0·4	0·7	1·0-1·5	0·2	0·2	—	
40800	98·0 *Min*	0·2	0·1	0·6-0·95	0·6-0·95	0·1	0·2	0·2	—	
51000-A	Remainder	0·2	0·5-1·1	0·6	0·7	0·2	0·25	—	0·1	
51000-B	Remainder	0·2	1·1-1·8	0·6	0·7	0·2	0·25	—	0·1	
51300	Remainder	0·3	0·2-0·9	0·6	0·9	0·2-0·7	0·4	[illegible]	0·2	
52000	Remainder	0·1	1·7-2·6	0·6	0·7	0·5	0·2	0·2	0·25	Cr+Mn=0·5
53000	Remainder	0·1	2·8-4·0	0·6	0·7	0·5	0·2	0·2	0·25	Cr+Mn=0·5
54300	Remainder	0·1	4·0-4 9	0·4	0·7	0·5-1·0	0·2	0,2	0·25	
55000	Remainder	0·1	4·5-5·5	0·6	0·7	0·5	0·2	0·2	0·25	Cr+Mn=0·5
64430	Remainder	0·1	0·4-1·2	0·6-1·3	0·6	0·4-1·0	0·1	0·2	0·25	
65032	Remainder	0·15-0·4	0·7-1·2	0·4-0·8	0·7	0·2-0·8	0·2	0·2	0·15-0·35	Either Mn or Cr shall be present
74530	Remainder	0·2	1·0-1·5	0·4	0·7	0·2-0·7	4·0-5·0	0·2	0·2	

NOTE — It is the responsibility of the supplier to ensure that any element not specifically limited is not present in an amount such as is generally accepted as having an adverse effect on the product. If a purchaser's requirements necessitate limits for any element not specified, it should be agreed between the purchaser and the supplier.

*Titanium and/or other grain refining elements and/or chromium may be present at the option of the supplier provided the total content does not exceed 0·3 percent.

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0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions as given in IS : 5047 (Part 1)-1986† and IS : 5047 (Part 2)-1979‡ shall apply.

2.1 Sheet/Strip — Hot or cold rolled product of rectangular section, over 0·15 mm but less than 6·00 mm thick. It may be either in straight length or in coil form.

2.2 Heat-Treatment Batch — A quantity of material of one alloy of the same dimension and produced in the same way, solution-treated and subsequently precipitation treated in the furnace load. More than one heat-treatment batch may comprise a furnace load.

3. SUPPLY OF MATERIAL

3.1 General requirements relating to the supply of aluminium and aluminium alloy sheet and strip shall conform to IS : 10259-1982§.

4. FREEDOM FROM DEFECTS

4.1 The material shall be sound and free from harmful defects.

5. CHEMICAL COMPOSITION

5.1 The chemical composition of the aluminium and aluminium alloys used for the sheet and strip shall be according to Table 1.

5.2 The chemical composition of the material shall be determined either in accordance with IS : 504-1963‖ or any other instrumental/chemical method of analysis. In case of dispute, the method specified in IS : 504-1963* shall be used as the referee method.

*Rules for rounding off numerical values (*revised*).

†Glossary of terms relating to aluminium and aluminium alloys : Part 1 Unwrought and wrought metals (*second revision*).

‡Glossary of terms relating to aluminium and aluminium alloys : Part 2 Plant and operations, thermal treatment, control and testing, finishing.

§General conditions of delivery and inspection of aluminium and aluminium alloy products.

‖Methods of chemical analysis of aluminium and its alloys (*revised*).

6. MECHANICAL PROPERTIES

6.1 The mechanical properties of sheet and strip shall comply with the requirements given in Table 2.

TABLE 2 MECHANICAL PROPERTIES OF WROUGHT ALUMINIUM AND ALUMINIUM ALLOY SHEET AND STRIP

Designation	Condition*	0·2 Percent Proof Stress, MPa	Tensile Strength, MPa		Elongation on 50 mm Gauge Length, Percent, for Thickness				Bend Test, Radius of Bend
					0·5 to 0·8 mm	Over 0·8 to 1·3 mm	Over 1·3 to 2·6 mm	Over 2·6 to 6·3 mm	
		Min	*Min*	*Max*	*Min*	*Min*	*Min*	*Min*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
19990	O	—	—	65	30	35	40	45	Close
	H2	—	80	100	7	8	10	12	1/2 t
	H4	—	100	—	3	4	5	6	1 t
19800	O	—	—	90	29	29	29	34	Close
	H2	—	90	120	5	6	7	8	1/2 t
	H4	—	120	—	3	4	4	5	1 t
19700	O	—	—	95	27	27	29	34	Close
	H2	—	95	120	4	5	6	7	1/2 t
	H4	—	120	—	3	3	4	4	1 t
19600	O	—	—	95	25	25	29	32	Close
	H2	—	95	125	4	5	6	6	1/2 t
	H4	—	125	—	3	3	4	4	1 t
19500	O	—	55	95	22	25	29	30	Close
	H2	—	95	135	4	5	6	6	1/2 t
	H4	—	125	—	3	3	4	4	1 t
19000	O	—	70	110	20	25	29	30	Close
	H1	—	90	130	5	6	8	8	Close
	H2	—	105	140	3	4	5	5	1/2 t
	H3	—	125	150	2	3	4	4	1/2 t
	H4	—	140	—	2	2	3	3	1 t
24345	O	—	—	240	14	14	14	14	Close
	W	240	380	—	13	14	14	14	3 t
	WP	345	425	—	6	6	6	6	5 t
24345	O	—	—	240	14	14	14	14	Close
Alclad	W	225	370	—	13	14	14	14	3 t
	WP	320	395	—	6	6	6	7	5 t

(*Continued*)

*Methods of chemical analysis of aluminium and its alloys (*revised*).

TABLE 2 MECHANICAL PROPERTIES OF WROUGHT ALUMINIUM AND ALUMINIUM ALLOY SHEET AND STRIP — *Contd*

Designation	Condition*	0·2 Percent Proof Stress MPa	Tensile Strength, MPa		Elongation on 50 mm Gauge Length, Percent, for Thickness				Bend Test, Radius of Bend
					0·5 to 0·8 mm	Over 0·8 to 1·3 mm	Over 1·3 to 2·6 mm	Over 2·6 to 6·3 mm	
		Min	Min	Max	Min	Min	Min	Min	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
31000	O	—	90	130	20	23	24	24	Close
	H1	—	115	150	5	6	7	8	Close
	H2	—	130	180	3	4	5	5	1/2 t
	H3	—	150	195	2	3	4	4	1 t
	H4	—	170	—	2	2	3	3	3 t
31500	O	—	125	165	16	16	18	20	Close
	H1	—	150	210	5	5	6	8	1/2 t
	H2	—	190	245	3	4	5	5	1 t
	H3	—	215	275	2	2	3	4	2 t
	H4	—	245	—	1	1	1	2	4 t
40800	O	—	85	120	20	23	25	30	Close
	H1	—	105	140	5	6	7	8	Close
	H2	—	125	160	3	4	5	5	1/2 t
	H3	—	150	180	2	3	4	4	1 t
	H4	—	175	—	2	2	3	3	3 t
51000-A	O	—	105	150	18	18	18	22	Close
	H1	85	120	160	3	4	5	6	Close
	H2	105	140	180	2	3	4	4	1/2 t
	H3	125	160	200	1	2	2	2	1 t
	H4	—	185	—	1	2	2	2	3 t
51000-B	O	—	125	170	18	18	18	19	Close
	H1	110	155	195	3	4	5	6	1/2 t
	H2	140	175	215	2	3	4	4	1 t
	H3	155	190	225	1	2	2	2	—
	H4	—	200	—	1	2	2	2	—
51300	O	—	95	145	14	14	15	16	Close
	H1	—	130	180	6	6	7	8	1/2 t
	H2	—	150	200	4	4	5	6	1 t
	H3	—	175	215	2	2	3	4	2 t
	H4	—	195	—	1	1	1	2	4 t
52000	O	60	175	215	16	16	16	18	Close
	H1	125	200	240	3	4	5	6	1/2 t
	H2	175	230	275	2	2	3	4	1 t
	H3	190	235	295	2	2	3	—	—
	H4	215	265	—	1	2	3	—	—

(*Continued*)

TABLE 2 MECHANICAL PROPERTIES OF WROUGHT ALUMINIUM AND ALUMINIUM ALLOYS SHEET AND STRIP — *Contd*

Designation	Condition*	0·2 Percent Proof Stress MPa	Tensile Strength, MPa		Elongation on 50 mm Gauge Length, Percent, for Thickness				Bend Test, Radius of Bend
					0·5 to 0·8 mm	Over 0·8 to 1·3 mm	Over 1·3 to 2·6 mm	Over 2·6 to 6·3 mm	
		Min	Min	Max	Min	Min	Min	Min	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
53000	O	85	210	270	12	14	16	18	Close
	H1	160	240	290	4	5	6	7	1 t
	H2	220	270	320	3	3	5	5	2 t
	H3	225	290	340	2	2	4	—	—
	H4	235	310	—	2	2	3	—	—
54300	O	130	265	365	12	14	16	16	Close
	H1	235	315	395	5	6	7	7	2 t
	H2	275	355	—	4	4	5	5	3 t
55000	O	130	265	365	12	14	16	16	Close
	H1	220	310	395	5	6	7	7	2 t
64430	O	—	—	175	14	16	16	17	Close
	W	115	200	—	12	15	15	15	2 t
	WP	250	295	—	5	5	5	6	3 t
65032	O	—	—	175	14	16	16	18	Close
	W	110	200	—	12	15	15	15	2 t
	WP	235	280	—	5	5	5	6	3 t
74530	W (naturally aged for 30 days)	175	280	—	8	9	9	10	5 t
	WP	270 (17·5)	315	—	6	7	7	8	5 t

NOTE 1 — 1 MPa = 1 N/mm² = 0·102 kgf/mm².

NOTE 2 — For thickness 2·6 mm and less, elongation values are for guidance only and not guaranteed. For this purpose bend test as specified in 6.3 may be carried out.

**Conditions*

O Annealed
H1 Strain hardened
H2 Strain hardened and partially annealed
H3 Strain hardened and stabilized
H4 Strain hardened and stabilized
W Solution-heat treated and naturally aged
WP Solution-heat treated and precipitation treated.

6.2 Tensile Test and Proof Stress — The tensile test shall be carried out and proof stress determined thereby in accordance with IS : 1816-1979*.

6.2.1 The tensile test piece shall be of rectangular section and conform to the dimensions as given in IS : 1816-1979* with a gauge length of 50 mm. The test piece shall be cut transverse to the direction of rolling for sheet and strip 300 mm wide and over and parallel to the direction of rolling for sheet and strip under 300 mm wide. When the width of the material to be tested is insufficient to permit preparation of the standard tensile test piece, a piece of the full width of the material may be used.

6.3 Bend Test (for Material 2·6 mm and Thinner) — Unless otherwise stated, the bend test piece shall be not less than 15 mm wide, of convenient length, and cut with its longer axis transverse to the direction of rolling. The longer edges shall be carefully rounded and smoothened longitudinally, so that the cross-section of the test piece has approximately semi-circular ends.

6.3.1 The test piece may be bent by hand to a U-form, and the piece thus obtained shall subsequently be closed in a vice until the inner surfaces of the test piece are twice the specified radius apart (or are in general contact, if the test piece is to be closed flat).

6.3.2 When tested in accordance with **6.3.1**, the outer surface of the bend shall not show any visible crack (for details, *see* IS : 1599-1985†).

7. CONDITION

7.1 The material shall be supplied in the condition as required by the purchaser, while specifying the condition, the temper designation as laid down in IS : 5052-1969‡ shall be followed.

8. DIMENSIONS AND TOLERANCES

8.1 The dimensions and tolerances of sheet and strip shall be as given in IS : 2676-1981§ and IS : 2677-1979‖.

9. SELECTION OF TEST SAMPLES

9.1 Sheet and Strip of Aluminium or Non-heat Treatable Aluminium Alloys — Material of the same thickness, produced in the same way, and of the same nominal composition shall be grouped into batches of not more than 4 000 kg. If a sheet or strip in coil exceeds 4 000 kg in weight, it shall be deemed to represent one batch.

*Method for tensile test for light metals and their alloys (*first revision*).
†Method for bend test (*second revision*).
‡Temper designations of aluminium and its alloys.
§Dimensions for wrought aluminium and aluminium alloys, sheet and strip (*first revision*).
‖Dimensions for wrought aluminium and aluminium alloys, plates and hot-rolled sheets (*first revision*).

9.1.1 The supplier shall sample each batch at such a rate that he may, on the results of the mechanical tests on the samples, certify that the material conforms to this specification.

9.1.2 Before the test samples are cut off, they shall be marked to identify them with the batch they represent. The test samples shall be taken from the material as supplied and shall not be further annealed or mechanically worked (except for preparing the test piece) before being tested. The test samples may be cut from the margins of the material before cutting it to size.

9.2 Sheet and Strip of Heat-Treatable Aluminium Alloys — One test sample shall be cut from a sheet or strip selected from each heat-treatment batch. Before the test samples are cut off, they shall be marked to identify them with the heat-treatment batch they represent.

9.2.1 The test samples shall be tested in the O, W or WP conditions after heat-treatment as appropriate, as specified by the purchaser. The test samples, after heat-treatment, shall not be mechanically worked (except for straightening and machining the test piece) before being tested.

9.2.2 Material in the O condition, when heat-treated, may be expected to have properties of the order of 15 MPa less than the specified properties for the W or WP conditions as appropriate.

9.2.3 For material supplied in the W condition, the test samples shall be tested in the condition as supplied, unless the purchaser has specified that he requires the test samples to be tested in the WP condition. The test samples shall not be mechanically worked (except for machining the test piece) before being tested. The test samples may be cut from the margins of the material before cutting it to size.

9.2.4 For material supplied in the WP condition, the test samples shall be tested in the condition as supplied. The test samples shall not be further heat-treated or mechanically worked (except for machining the test piece) before being tested. The test samples may be cut from the margins of the material before cutting it to size.

10. RE-TESTS

10.1 Should any of the test pieces first selected fail to pass the mechanical tests, two further samples from the same batch shall be selected for testing, one of which shall be from the sheet or strip from which the original test sample was taken, unless that sheet or strip has been withdrawn by the supplier.

10.2 For heat-treatable alloys, the supplier shall have right, if he so desires, to re-heat-treat the material before the two further samples are selected.

10.3 Should the test pieces from both these additional samples pass, the batch represented by the test samples shall be deemed to comply with this standard. Should the test pieces from either of these additional samples fail, the batch represented by the test samples shall be deemed not to comply with this standard.

11. MARKING

11.1 Each package/coil of sheet(s) and strip(s) may be suitably marked for identification, with the name of the manufacturer, grade, condition of the material and batch number. The supplier shall furnish a certificate that the material supplied complies with the requirements of this specification.

11.1.1 The material may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

APPENDIX A

(*Clause* 0.2)

EXTRACT FROM IS : 6051-1970 CODE FOR DESIGNATION OF ALUMINIUM AND ITS ALLOYS

A-1. IDENTIFICATION OF ELEMENTS

A-1.1 Elements shall be identified by the group number indicated against each in Table 3.

TABLE 3 ELEMENT NUMBER DESIGNATIONS

ELEMENT	GROUP NUMBER
Unalloyed aluminium (wrought and cast form)	1
Copper	2
Manganese	3
Silicon	4
Magnesium	5
Magnesium silicide (Mg_2Si)	6
Zinc	7
Other elements (nickel, titanium, chromium, lead, bismuth, etc)	8
Unassigned	9

A-2. FIVE-DIGIT SYSTEM [FOR WROUGHT ALUMINIUM ALLOYS, ALUMINIUM (UNALLOYED)]

A-2.1 Wrought Aluminium Alloys

First Digit	*Second Digit*	*Third, Fourth and Fifth Digits*
First digit identifies the major alloying element	Second digit indicates rounded off mean value of the percentage of the major alloying element, except for Group 4 containing silicon, when the digit refers to the mean percentage halved and rounded off; and for Group 6 containing magnesium silicide, the digit refers to five times the mean magnesium percentage rounded off	Third, fourth and fifth digits identify the minor alloying elements in the descending order of their percentage and in the case of same alloy percentage in the serial order, except for Group 6 containing the intermetallic compound (Mg_2Si) when the third digit refers to either magnesium or silicon which is in excess of that required for magnesium silicide (that is 1·7 which is the ratio of Mg to Si). For balanced compositions, the third digit will be zero In case of high purity aluminium base alloy, the fifth digit will be 1

Example:

Alloying Elements and Their Mean Percentages	*Designation*
Cu 1·5, Si 1·0, Mg 0·85	22450
Mn 1·2	31000
Si 5·2	43000
Mg 4·4, Mn 0·75	54300
Mg 0·65, Si 0·50	63400
Mg 0·65, Si 0·50 (EC Grade)	63401
Mg 0·95, Si 0·95	65400

A-2.2 Wrought Aluminium (Unalloyed)

First Digit	*Second Digit*	*Third and Fourth Digits*	*Fifth Digit*
First digit is always shown as 1 representing unalloyed aluminium* (wrought)	Second digit is always shown as 9, the unit digit of 99 minimum purity percentage	Third and fourth digits indicate the decimal purity percentage	Fifth digit indicates variants, if any *Example*: EC grade aluminium shown as 1

Example:

Aluminium Purity, Percent	*Designation*
Al 99·99	19990
Al 99·5	19500
Al 99·5 (EC Grade)	19501
Al 99·0	19000

APPENDIX B

(*Clause* 0.3)

CHARACTERISTICS AND TYPICAL USES OF ALLOYS

Designation	*Characteristics*	*Available Forms*	*Typical Uses*
19990	Super-purity aluminium having excellent reflectivity, thermal and electrical conductivity	Sheet and strip	Electrolytic capacitors, decorative hollowares, trims and other applications requiring high degree of finish
19800 and 19700	High purity aluminium having good corrosion resistance	Sheet, plate and wire	Jewellery, decorative and novelty anodized items, auto trim, reflectors, breweries and some chemical plants and metallizing
19600 and 19500	High purity aluminium more resistant to corrosion than other grades	Sheet, plate, extrusion, tube, wire, rolled rod and forgings	Corrosion resistant cladding on stronger alloys, impact extruded containers; food, chemical brewing and processing equipments, tanks and pipes, marine fittings, reflectors, pressed and anodized utility items, jewellery and cable sheathing
19000	Commercially pure aluminium. Very ductile in annealed or extruded condition. Excellent resistance to corrosion	Sheet, plate, extrusion, tube, wire and forgings	Panelling and moulding; refrigeration tubing equipment for chemical, food and brewing industries; packaging; cooking utensils. Sheet metal work, architectural and builder's hardware, spun/pressed halloware, deep drawn parts, cladding, welding wire and electrical appliances
24345	Combines high strength with fair ductility in the solution-treated condition, when forming can be done and parts subsequently aged	Sheet, plate, extrusion, tube, wire and forgings	Heavy duty forgings, structures where high mechanical properties are of utmost importance, aircraft application of clad sheets, extrusions and armaments

*Unalloyed aluminium by convention or definition is not less than 99·0 percent aluminium.

Designation	Characteristics	Available Forms	Typical Uses
31000	Stronger and harder than 19000 but has good workability, weldability and corrosion resistance	Sheet, plate, extrusion, wire, tube and forgings	General purpose alloy for moderate strength applications, pressure-vessels, irrigation tubing, heat exchangers, utensils and pressure cookers, roofing sheets, pilferproof and detonator caps, air-conditioning ducting fan blades and vehicle penelling
31500	Strength between alloys 31000 and 52000. It has good formability, weldability and corrosion resistance	Sheet and strip	General purpose sheet, roofing and siding, utensils, sheet metal work, vehicle panelling, pressure vessels and lamp caps
40800	Strength comparable to alloy 31000 and ductility comparable to alloy 19000. This alloy is fine grained and has excellent drawability	Sheet, strip and plate	Vehicle panelling, fan blades and other applications same as of alloys 19000 and 31000 except those for bright anodizing purposes, detonators, utensils/holloware containers and closures
51000-A	Stronger than alloy 31000, and has excellent finishing characteristics. It can be readily shaped by pressing and forming	Sheet, strip and plate	Appliances and utensils, architectural trims, consumer durables with attractive anodized finishes
51000-B	Strength greater than 51000-A	Sheet, strip and plate	Architectural applications; high anodizing quality kitchenware and cooking utensils, consumer durables;

Designation	Characteristics	Available Forms	Typical Uses
			bath-room fittings, auto trim, air-conditioner and TV housing; chemical equipment, marine applications and refrigerator trim
51300	Stronger and harder than alloy 19000. Strength between alloys 31000 and 31500. It has good weldability	Corrugated sheet, sheet and strip	General purpose alloy which can be used for most of the applications of alloys 31000 and 19000
52000	Ductile in soft condition but work hardens rapidly, becoming extremely tough. Has high resistance to corrosive attack, especially in marine atmosphere	Sheet, plate, extrusion, tube, wire and forgings	Panelling and structures, sheet metal work and domestic appliances
53000	Same as 52000	Sheet, extrusion, tube, wire and rolled rod	Shipbuilding; rivets; pressure vessels and other processing tanks; cryogenics and welded structures
54300	Same as 52000	Sheet, plate, extrusion and forgings	Welded structures, cryogenic applications, structural marine applications, rail and road tank cars, rivets and missile components
55000	Same as 52000	Sheet, plate wire and forgings	Shipbuilding and other applications demanding moderately high strength with good corrosion resistance; rivets, zippers, welding wire, etc

Designation	*Characteristics*	*Available Forms*	*Typical Uses*
64430	A medium-strength alloy with good mechanical properties, corrosion resistance and weldability	Sheet, plate, extrusion, tube, wire and forgings	Structural application of all kinds, such as road and rail transport vehicles, bridges, cranes, roof trusses, rivets, etc. Cargo containers, milk containers and flooring
65032	Medium strength; very good forming characteristics in the O and W condition. Good corrosion resistance	Sheet, plate, extrusion, tube, wire and forgings	Same as 64430
74530	Medium strength self-ageing weldable alloy. It does not require heat-treatment after hot working or welding. Excellent welding characteristics and good formability. Good corrosion resistance when compared with other high strength aluminium-zinc alloys	Sheet, plate extrusion and forgings	Stressed structural applications requiring welding, such as bridges, chequered plates, dumptrack bodies, pressure vessels, rail coaches, etc

BHEL Ranipet	BHARATH HEAVY ELECTRICALS LIMITED BOILER AUXILIARIES PLANT Ranipet-632406	STANDARD QUALITY PLAN ITEM: PLAIN ALUMINIUM CLADDING SHEET AS PER IS 737 SYSTEM:ESP	QP NO: SQP:ESP:292 REV NO: 00 DATE: 28.07.2016 PAGE: 1 OF 1

SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	D*	AGENCY M	AGENCY C	REMARKS
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	
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	
	K.C	06/08/2016	LEGEND: *RECORDS, INDENTIFIED 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.

Technical specification for Aluminum cladding sheets

1.0 **General:** This specification covers the requirements for supply of Aluminum sheet for using it as cladding sheet or protective covering over thermal insulation.

2.0 **Codes and Standards**: The manufacture, physical and chemical properties, dimensional tolerances, Inspection and Testing of Aluminum sheets to be supplied under this specification shall confirm to the latest edition of **IS 737.**

3.0 **Material requirement**:

3.1 Form: The aluminum sheets to be supplied will be in coil form.

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

3.3 Designation and Condition: The designation and the condition of the material shall be in line with **IS 737 Latest edition Grade 19000 H2 or ASTM B 209 1060temper H-14.**

3.4 **The width of the aluminum sheet shall be 900mm to 1500mm.**

3.5 Thickness of the aluminum sheet shall be as per the enquiry.

4.0 **Inspection and Testing**:

4.1 All the test certificates shall be submitted in Original for BHEL review and based on the satisfactory test results Material despacth clearance certificate will be issued.

5.0 **Packing and Marking**:

5.1 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.

5.2 Each package shall contain only one size of material.

5.3 Each package / coil will be suitably marked with a tag for identification as given below: (legibly written on the packet).

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

Prepared: P. Singh / Engineer

Approved: C. Ganesh / Senior Manager

C.GANESH
Senior Manager
AIR QUALITY CONTROL SYSTEMS
BHEL/BAP/RANIPET-632406.

ANNEXURE A

List of Consortium Banks * (wef 22.03.2016)			
	Nationalised Banks		**Nationalised Banks**
1	Allahabad bank	19	Vijaya Bank
2	Andhra bank		**Public Sector Banks**
3	Bank of Baroda	20	IDBI
4	Canara Bank		**Foreign banks**
5	Corporation bank	21	CITI Bank N.A
6	Central bank	22	Deutsche Bank AG
7	Indian Bank	23	The Hongkong and Shanghai Banking Corporation Limited
8	Indian Oversea Bank	24	Standard Chartered Bank
9	Oriental bank of Commerce	25	J P Morgan
10	Punjab National Bank		
11	Punjab & Sindh Bank		**Private banks**
12	State Bank of India	26	Axis Bank
13	State Bank of Hyderabad	27	The Federal Bank Limited
14	Syndicate Bank	28	HDFC
15	State Bank of Travancore	29	Kotak Mahindra Bank
16	UCO Bank	30	ICICI
17	Union Bank of India	31	Indusind Bank
18	United Bank of India	32	Yes Bank