

LIST OF TENDER DOCUMENTS HOSTED FOR CHIMNEY SHELL NIT 52768			
Enquiry No.658021E			Dt.08/05/2020
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 An ISO Company	BHARAT HEAVY ELECTRICALS LIMITED (A Government of India Undertaking) பாரதமிகுமின் நிறுவனம் BOILER AUXILIARIES PLANT, Indira Gandhi Industrial Complex, RANIPET- 632 406 (Tamil Nadu)	Ph: 04172-284030, 284158,284323, 241170 Email:- bsmanian@bhel.in ssvasan@bhel.in
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SECTION I

NOTICE INVITING TENDER (NIT)

(This is only a request for an offer and not a Contract)

Sealed Tenders are hereby invited from experienced Firms located within 350 km by Road from BHEL, Ranipet for Complete manufacture of Chimney Shells - Material: ASTM A588 Gr A /Corten A made of 40mm to 63mm thickness with trial assembly. Inner Diameter of the chimney is 1800 mm. Plates of 2500mm width will be issued for shell rolling. Rolling allowances will be given @ 250mm per side. Scope includes collection of raw-materials (single/multiple) from BHEL, BAP, Ranipet and delivery of finished goods to BHEL, BAP Ranipet is in vendors scope. Chimney Shells are to be rolled, welded and fabricated as per BHEL issued Drawing/QCP and surface preparation and painting as per Painting scheme of the customer. All Procedures required for joining of the shell plates are to be strictly adhered to as per the WPS : 111 and other testing procedures called for as per BHEL issued quality documents. Follow QP No: MAIT:401 and PS:MAIT rev.01 for fabrication and painting.

Kindly submit your hard copy offers as per the tender document

Reverse auction will not be conducted for this tender.

Enquiry No. & Date	658021E Date 08-05- 2020 NIT_52768
Due Date &Time for Submission Of Offer	29.05.2020 by 14.00
Date & Time for Tender Opening (Other than Price Bid)	29.05.2020 by 14.30
Place Of Submission Of Offer	At Tender Box located in Outsourcing department, Third Floor, Administrative Building, BAP/BHEL/Ranipet-632406.
Place Of Tender Opening	Outsourcing Department at Third Floor, Administrative Building, BAP/BHEL/Ranipet

Tender specifies a set of prequalification criteria defining the eligibility for the vendors to quote against a particular item of this tender. The Bidders are advised to go through all the enclosed Tender documents terms & conditions detailed under applicable Sections I to VIII, Annexures- A to L, carefully before submitting their Offer. All the Annexures A to Annexure-L should be filled, wherever applicable by the bidders without fail for evaluation of their offer and **all necessary supporting documents** as required are to be attached.

The bid shall be submitted in Two parts namely (1) Techno Commercial Bid and (2) Price Bid.

Kindly refer to the Section-IV – General Terms and Conditions of the tender for detailed procedure for submission of offers.

Kindly refer to Annexure-F for the detailed eligibility criteria . If vendor is not meeting the eligibility criteria as per Annexure-B, they are not eligible to quote and need not quote for this tender. Sealed Tenders are hereby invited from experienced firms for the above scope.

Contact details / address for any clarification and for Offer submission.

Manager-(Contracts)

Outsourcing Department, Boiler Auxiliaries Plant

Bharat Heavy Electricals Limited, ,Ranipet-632406

Phone : 04172-284030, 284158, 241170, 284323

E-Mail : bsamnian@bhel.in , ssvasan@bhel.in

Manager(Contracts)/OS

	Bharat Heavy Electricals Limited (A Government of India Undertaking) Boiler Auxiliaries Plant, Ranipet – 632 406		☎: 04172-284030, 284158, 284323, 241170
	OUTSOURCING DEPARTMENT		E-Mail : bsmanian@bhel.in , ssvasan@bhel.in
AN ISO 9000 COMPANY			
Enquiry No	658021E	Due Date & Time for submission of offers	Prior to 14.00 Hrs On 29-05-2020
Enq-Dated	08-05-2020	Date & Time of Tender opening	By 14.30 Hrs On 29-05-2020
SECTION II Techno Commercial Terms & Conditions			

Sealed Tenders are hereby invited from experienced Firms located **within** 350 km by Road from BHEL, Ranipet for Complete manufacture of Chimney Shells - Material: ASTM A588 Gr A /Corten A made of 40mm to 63mm thickness with trial assembly. Inner Diameter of the chimney is 1800 mm. Plates of 2500mm width will be issued for shell rolling. Rolling allowances will be given @ 250mm per side. Scope includes collection of raw-materials (single/multiple) from BHEL, BAP, Ranipet and delivery of finished goods to BHEL, BAP Ranipet is in vendors scope. Chimney Shells are to be rolled, welded and fabricated as per BHEL issued Drawing/QCP and surface preparation and painting as per PS of the customer. All Procedures required for joining of the shell plates are to be strictly adhered to as per the WPS : 111 and other testing procedures called for as per BHEL issued quality documents. Follow QP No: MAIT:401 and PS:MAIT rev.01 for fabrication and painting.

1.0 Eligibility of Vendor : Vendor must meet the Eligibility Criteria given as **Annexure-F** else their offer will not be considered. Vendor must have the facilities specified in the **Annexure-F**.

1.1 For study (if required) and quoting of rates for the items given in the tender, Drawings, QWI against are kept at BHEL office for vendor study on all working days from Monday to Saturday from 09.00 Hrs to 16.00 Hrs.(up to 3 days prior to the due date for submission of tender).

1.2 Vendors are requested to have a perusal of these drawings, QWI, etc., before submitting their offer. **The offer has to be submitted Only in Technical Bid format** duly signed therein by the authorized person of the Firm with rubber stamp in the space provided in the format. No deviation or change from the Tender conditions will be entertained and BHEL reserves the right to reject such offers.

1.3 Based on the Rate finalized, the Firms shall accept and undertake all jobs awarded to them and execute to the satisfaction of BHEL. Failure to comply with this requirement will be viewed seriously.

1.4 BHEL will conclude that the offer has been submitted by the firm, fully understanding all the requirements both explicit and implied and other conditions and accepting the same. After tender opening, vendors do not have any right to change / alter any of the conditions either partly or fully. Offers of any such firms doing so, will be rejected.

2.0 FIRM RATES :

2.1 Please quote **FIRM** rates per MT as called for in **Price Bid format**.

(a) Vendor has to quote rates for **F.O.R.destination** basis only.

- (b) The rate shall be **inclusive** of the Transport Charges. Delivery of finished components to vendor works and Dispatch of finished goods to Shipping at BHEL, Ranipet is to vendor's scope.
 - (c) The rate shall include for protecting machined/threaded areas to avoid physical damages while handling, transportation and storage.
 - (d) The rate shall include offering the jobs for inspection to BHEL /Customer of BHEL or their authorized inspection agencies.
- 2.2 The rates shall be FIRM and not subject to any variation/escalation on any account during the validity period.
- 2.3 It may be noted that timely delivery of components is the essence of the Contract.
- 2.4 In case if the quantum of load is beyond the capacity of vendors in the opinion of BHEL or for shorter delivery requirements, BHEL reserves the right to extend/award the contract for manufacture of items covered herein to other probable new or alternative sources, without prior intimation to the vendors and BHEL's decision is final in this regard.
- 2.5 The Vendors are responsible till the Finished/Semi-finished components are safely deposited to BHEL, Ranipet. They should carefully pack, load, stack by providing wooden reapers, etc. for avoiding damage during transit and lash the consignment properly at the time of despatch so that the consignment reach the destination safely.

3.0 Raw Material Issues and Accounting :

- 3.1 The weight indicated in GMS/DRG/ and or as per Scope indicated in the PO addendum will be the basis for accounting of raw materials issued. For billing conversion charges if any the weight indicated in GMS/Drawing only will be considered. Raw materials will normally be issued with process allowance as given below for economical operations.

Description	Invisible wastage	Working allowance	Total process allowance
Sheets	2%	1%	3%
Plates	2%	2%	4%
Structurals (Beams, Channel, Angles, Flats Rods, Pipes, Tubes, Packing etc.,)	0.5%	0.5%	1%

- 3.2 The Cutting Plans should be of "Optimum only", in order to maximize the utilization of the material issued, specifically where the left out material can better be used for other jobs. The balance material, if any after Cutting Plan approval/ machining / fabrication shall be returned to our Stores at Contractor's cost. BHEL reserves the right to call for the returning of the balance material not withstanding its designation (ie. Whether Scrap / Big-size-Scrap).
- 3.3 Balance material arising out of issued quantity shall be returned by sub-contractor. However, if original issued quantity is insufficient due to the shape or size required to be cut, cutting plans may be furnished for BHEL approval WITHIN ONE WEEK OF DRAWAL of Raw materials. Any off cut available from the original issue should be returned to us as per our approved cutting plan. Wherever the materials are supplied by BHEL for mockup test, welders qualification test, Etc., the material is to be treated as scrap on weight basis and material accounting to be settled accordingly.
- 3.4 Wherever firm comes across receipt of excess material due to the error in GMS/Drawings that is to be brought to the notice of AGM/OS immediately. Since material is issued on weight basis, any excess material received on account of section weight variation or otherwise, the same is the property of BHEL, not withstanding the status of MAS. Such information shall be declared by the supplier to BHEL immediately.

- 3.5 Any act of Vendor resulting in dishonest misappropriation or conversion of the materials so issued for his own use shall constitute the offence of Criminal Breach of Trust under Indian Penal Code and /or such other offences under any other provisions of law and the Contractee shall have every right to proceed against the Vendor under Criminal Law in order to ensure proper punishment to such perpetrator/s for the said offence/s. In such cases, BHEL shall take all necessary steps to recover the material available with those firms.
- 3.6 Movement of BHEL materials from Vendor's premises to any other Firm(s), if necessary, for the purpose of production related work shall be documented properly, signed by the sender & receiver and the same to be authenticated by the concerned OS official, otherwise such materials will be treated as shortage by BHEL Accounts.
- 3.7 Protecting the material issued by BHEL under safe custody until completing the delivery as required is vendor's responsibility.

4 Recovery for Turning and Boring Scrap:

- 4.1 Normally the difference between the issued-weight and the net-weight is considered as off-cut/scrap. Wherever machining operation (including Drilling) is involved the difference between individual-piece-weight (ie. Blank weight) and the finished-weight will be considered for T-and-B calculation.
- 4.2 For this tender T&B scrap is negligible and recovery may not be applicable.
- 4.3 The materials rejected due to reasons attributable to vendors like (a). Faulty workmanship, (b). Improper storage of raw material issued by BHEL (c) improper handling (d) improper packing etc. will entail recovery at prime material's cost.
- 4.4 The materials rejected due to BHEL reasons shall be returned to BHEL,Ranipet Stores failing which recovery will be made.
- 4.5 The material supplied by BHEL, Ranipet. shall properly be utilized as per the Scope in Contract/drawings/QWIs in job work order to meet the design and quality requirements of the product.
- 4.6 Failure to return the materials will entail recovery of the value of the materials plus departmental/administrative charges fixed from time to time. Currently the departmental/administrative charges are 25% for indigenous material and 50% for Imported materials on the material value. In addition, statutory taxes, duties & levies as applicable will also be recovered and no claim for refund will be admitted by BHEL, Ranipet. The rate of departmental and administrative charges as applicable from time to time irrespective of the date of failure will be applicable. Besides penal interest will be levied on the material value, for the period starting from date of issue of material.
- (a) Once the IP is closed as mentioned above no re-opening of IP except recovery from running bills will be entertained.
- (b) For this item vendor need not submit Vendor/Firm MAS (Where (a) The Unit of Issue is in "Numbers" (b) the Material type is semi-finished-components/Castings/Forgings (c) The PO Qty, Issue Qty and DC-Qty are same and (d) Not involving addition of material through MIV for the same RS-NO.
- (c) The vendor shall be bound by the accounts, statements acknowledgement of materials, BHEL material issue documents, receipts etc., wherever signed by their representative.
- 4.7 The raw material/semi finished components issued to the Vendor as free issue shall remain the property of BHEL, Ranipet. The Vendor shall use the above material only for the execution of BHEL'S contract/addenda and for no other purpose whatsoever. The Vendor shall be responsible for the full value thereof to be assessed by BHEL, Ranipet whose decision shall be

binding on the Vendor. The Vendor shall be liable for the loss or damage to such property while such property is in the possession or under the control of the Vendor, their employees, workmen, representatives or agents or any other person connected with the Vendor.

- 4.8 All the materials of BHEL, Ranipet shall under no circumstance be hypothecated/leased/liened /encumbered to any bank or to any lending Institution or to any party whomsoever. It should not also be shown as the Vendor's assets in any of the statements of the Vendor to any party.
- 4.9 The Vendor shall, whenever required, produce the materials supplied as free issue by BHEL, Ranipet in the form of raw material, semi finished or fully completed boiler components to BHEL officials visiting the Vendor's unit for verification purposes. If the Vendor fails to produce or properly account the material so issued, BHEL, Ranipet will have the right to take further action as deemed fit including recovery of the value of materials along with the respective administrative charges and statutory levies from the running bills of the Vendor (with BHEL,Ranipet and with other Units of BHEL) and also any or all of the actions such as, Suspension of business dealing, temporary suspension of loading, termination of Contract, holding the payment due etc., Similarly for the claim made by any units of BHEL (on account of such vendor) to the BHEL,Ranipet, the Bank Guarantee submitted to BHEL,Ranipet will be encashed.
- 4.10 As and when required/applicable, BHEL, Ranipet will transfer(or advice for returning u/RSV) the balance material available from one Vendor to the other vendor/other IP of the same vendor. For this, necessary credit will be given in material accounting, the material transfer emanating from Outsourcing, BHEL, Ranipet is to be honored by the Vendor within 15days or otherwise recovery will be made at the prime material cost., Any difficulty for effecting such transfer shall be brought to the knowledge of OS/ BHEL, Ranipet officials immediately.
- 4.11 Raw materials will be loaded by BHEL, Ranipet either in lorries/trailers/ bullock carts and can be overseen by Vendor's representative at BHEL Stores / Shop. Shortage or variation in quantity, size and weight shall not be accepted once the material leaves BHEL, Ranipet Stores. Raw materials will be issued by BHEL, Ranipet, only after the receipt of necessary Bank Guarantee.
- 4.12 Where an entity (whether a proprietorship, partnership, company, Hindus Undivided Family or otherwise) commits a default or breaches the Contract and the proprietor/ partner/ director/ member of such entity is also a proprietor/ partner/ director/ member of another entity that is registered with BHEL (in Ranipet or any other unit of BHEL), BHEL shall have the right to recover losses due to the default or breach, whether direct, indirect or consequential, either from the defaulting/ breaching entity or the other said entity or both. Such right shall also include the right to encash any security (in any form such as but not limited to bank guarantee, demand draft, FDR, etc.) furnished by either or both entities. Without limiting the applicability of the foregoing, it shall not be a defence to the other said entity for enforcement of such a right that:
- (a) Both entities are legally distinct/ separate entities, or
- (b) The management of the entity/ partners/ directors/ members of such other entity were not aware that the proprietor/ partner/ director/ member of the defaulting/ breaching entity was also a proprietor/ partner/ director/ member of the other said entity.
- 4.13 The Vendor shall be bound by the accounts, statements acknowledgement of materials, receipts etc., wherever signed by their representatives.

4.14 Scrap / OFF-Cut Norms :

SI	Description	Scrap Size (mm)	Off Cut Size (mm)
1	CS/AS Sheets & Plates	Below 500 X 250	500 X 250 & above
2	Rolled Sections Including Structural(other than CS/AS rods less than dia 40mm/tubes/pipes): Length	Below 1000	1000 & above
3	CS/AS Rods greater than dia 40mm, RHS, SHS, Tubes and Pipes: Length	Below 500	500 & above
4	Big Size scrap Length x Breadth CS/AS	(2500 & above)X (150-249)	-----

The issue of various wool, CAF Joints, Asbestos rope etc. will be as per required Quantity. Excess material issued if any will be treated as scrap in view of practical problems (Re-Packing, verification, receipt, accounting, storage etc.)

- a) All Off-Cuts (Ferrous, Non-Ferrous, SS etc.) are to be returned to BHEL stores with RSV at contractors' cost.
 - b) Returning of Off-Cuts/Prime material to BHEL is mandatory. Failure to return the materials (prime material/off-cut) will entail recovery of the cost of materials along with GST & other Statutory levies as applicable plus departmental/administrative charges fixed from time-to-time **cl.6.7** from any of the running bills of the supplier/other means of recovery available for the non-returned quantum. The non returned quantum of material (Prime/off-cut) will be as per FMAS approved by BHEL.
 - c) Wherever the materials are supplied by BHEL for mock-up test, welders qualification test etc. (except for Nitriding & Case Hardening), the same will be treated as scrap as classified above.
- 4.15 All scraps (Ferrous, Non-ferrous, SS, CS/AS, WSTE etc.) including Turnings and borings need not be returned to BHEL. Contractors can dispose the above scrap, on completion of Final-Material-Accounting for the respective IP. Necessary cost shall be recovered along with GST and any other statutory levies if applicable.
- 5.0 TRANSPORT CHARGES :** Tender calls for the offers on F.O.R.Destination basis (ie. Freight charges are in vendor's scope and shall include in the quoted price), hence No Transport Charges payable extra for the Raw Materials / Components collected from BHEL and return of finished items vice-versa.
- 5.1 Incase of transfer of raw material/semi-finished items from one vendor to another vendor, through IUWTV, the responsibility for collection of materials including the cost of transportation and handling etc.. shall wrest with Second Vendor.
- 5.2 No extra charges towards transport will be allowed for collection & deliveries by the vendor , since the tender is alled for F.O.R. destination basis.
- 5.3 **Additional Transport Charges:** Transport Charges incurred by the vendor for any special intermittent operations other than specified in the Tender scope or any additional movement requested by BHEL officials in writing, the transport charges payable extra as per the Extra Rate Schedules available in Main OS contract.

- 5.4 For return of PDO materials thro RSV (PDO due to BHEL reasons like issue of faulty materials, non suitable materials, any drawing revision etc), transport charges are to BHEL account.
- 6.0 PACKING:** The Vendor shall do at his cost the necessary packing for easy & safe handling and transportation as per BHEL drawing wherever specific packing arrangements are applicable and normal packing for the other items required for transit by rail/road transport wherever necessary.
- 7.0 TERMS OF DELIVERY:** The price should be on "F.O.R.DESTINATION" basis only (Inclusive of packing charges). The finished machining / fabrications on acceptance by BHEL, Ranipet inspector or by their authorized inspection agency shall be delivered (transport arrangement by VENDOR) to BHEL, Ranipet Stores / Shipping immediately.

8.0 TECHNICAL REQUIREMENTS :

- 8.1 The fabrication shall strictly confirm to the dimensions and tolerances indicated in the drawings/QWI/**Standard quality pan as Listed under Section VI**. Care must be taken to adhere strictly to the NOTES given in the drawings/Contract. It should be ensured that actual dimensions, and deviations if any, are recorded properly in the D.R. books and preserved at least for 5 years. The same shall be made available to BHEL Officials or their authorized agencies.
- 8.2 Welders and welding procedures are to be qualified as per AWS D1.1 before commencement of production welding.
- 8.3 Conducting MPI/LPI & other NDT wherever called for in the Drawings/QWIs/ Quality Plans are in the scope of vendor (cost is in the scope of vendor)
- 8.4 Ultrasonic Testing & Radiographic testing if required are to be carried out in BHEL approved agency. List of approved agencies for MPI/RT and consumables are given in Section VIII. In case there is no approved agency near vendor's works, vendor has to locate suitable agency for RT, MPI, LPI and UT and get them approved by BHEL before commencing the job. The Vendor shall have in house LPI, MPI facilities (equipment's and qualified personnel).
- 8.5 Any other work carried out outside the requirements of drawings/QWIs shall have the prior approval of the competent authority of Outsourcing / BHEL, Ranipet.
- 8.6 **Adequate facilities like welding equipment, Preheating facility, baking oven**, handling facilities, measuring instruments as called for, must be available duly calibrated and kept with the Vendor for the manufacture of boiler components. All the above basic machining / fabrication facilities/equipments must be under working condition and the same be made available for verification by the BHEL officials or their authorized agencies whenever they are called for.

The instrument/gauges are to be calibrated periodically

Calibration status shall be displayed at the Vendors works in a conspicuous location. Calibration can be performed either at BHEL or at any Govt. approved labs traceable to National Standards.

9.0 INSPECTION:

- 9.1 Inspection of fabrications/Machinings (conversion work) shall be by BHEL Quality control department and/or by the customers and/or by an agency or persons authorized by BHEL, Ranipet at the Vendor's works including Self Inspection firms. Selected firms shall be approved by competent authority authorizing self inspection. The concerned Engineer/supervisor/Authorized Official of the firm authorized by the firm to carry out all Inspection activities and their authority/activities shall be on par with any other Inspection agency approved by BHEL. All facilities and equipments, calibrated instruments like tapes,

thread checking gauges upto M20, and bore dial gauges and bits up to 100 mm. and standard gauges required for inspection shall be provided by the Vendor free of cost.

- 9.2 BHEL representatives/authorized agencies will have free access to the Vendor's works at any time during the execution of job work orders as well as for verification of requisite documents/materials. (The requirement of Customer approved quality plan will be indicated in the PO/Addenda).
- 9.3 The semi-finished components are deemed to have been accepted as ready for delivery only after IR is released by the Inspecting Agency.
- 9.4 Statutory inspection requirements such as IBR/External Inspection agency requirements if any, are to be met by the Vendor.

10.0 PAYMENTS :

- 10.1 Payment will be made for IP wise 100% for the supplies made against submission of Vendor invoices in duplicate to Finance section furnishing the job work order Sl. No., W.O., IR & DC No. along with IR, giving details of work carried out as per Extra Rate Schedule applicable, if any supported by
 - (a) Stores Receipt Voucher in case of Stock Work Order items.
 - (b) Delivery challan acknowledged by BHEL Stores.
 - (c) Inspection Report (IR)
 - (d) If the claim is made for more than one job work order Sl. No., only one invoice have to be submitted with annexure giving the above details.
 - (e) Wherever finished goods are dispatched directly to site (DTS) from fabricators works as per BHEL instructions, necessary formalities to be followed as per BHEL conditions stipulated from time to time . Also in such DTS cases, the documents like copy of DC, Lorry Way Bill etc shall be submitted along with their invoices for payment purposes.
- 10.2 The amount due to BHEL, Ranipet, if any, will also be recovered from the Vendor's running bills. No request for the refund of penalty/recovery will be entertained after final material accounting is done. Payment will make only through 'Electronic Fund transfer/RTGS Transfer'. Acceptance for the same may be submitted in the prescribed format if not done already.
- 10.3 Payment will be restricted to two bills per Work Order or Job Work Order Sl. No. only However, one more bill per month against any one of the pending Work Orders will also be permitted as a special case and this should have the prior approval by competent authority.
- 10.4 The payment shall be subject to the deduction of any amount for which the firm is liable indirectly under this contract or any other contract of the firm or any other firm's contract where the proprietor / any of the partners / directors of the present firm is / are proprietor/director/s/partner/s, in respect of which BHEL / Ranipet is a contractee.
- 10.5 Request for delivery extension is to be made if there is a valid reason, in the format for that particular job work order Sl. No., failing which liquidated damages will automatically be levied. No request for extension/refund of penalty will be entertained there after.
- 10.6 Payment will be made in about 45 days after receipt of valid invoices raised and supported by full set of necessary documents at Accounts Department. No interest shall be payable by BHEL on any money due to the Vendor by BHEL.

11.0 PROGRESS REPORT:

The Vendor shall submit progress report from time to time and also discuss with our officials concerning the progress of the work and commitment as may be required by BHEL, Ranipet.

The submission, receipt and acceptance of such reports shall not prejudice the rights of BHEL, Ranipet under the Contract nor shall operate as an estoppel against BHEL, Ranipet merely by reason of the fact that they have not taken notice of/or objected to any information contained in such reports. Action as deemed fit will be taken if the progress of the work is not satisfactory.

12.0 BANK GUARANTEE :

12.1 The Vendor shall execute a Bank Guarantee for the value of **Rs.10 Lakhs** from any one of the Scheduled or Nationalized banks on behalf of the Vendor for the safe custody of the materials supplied by the BHEL, Ranipet as free issue and for the satisfactory performance of the Contracts. The guarantee shall be executed on a non-judicial stamp paper or value Rs. 100/- as per our standard Bank Guarantee clauses and shall be kept valid for One year & Claim period of additional THREE MONTHS over one year and extensible till final settlement of supply and payment **and BG to be submitted directly by Bankers to BHEL in a Standard format. BG format will be given by BHEL and it has to be filled in that format only. Sample form, Bankers list and Instructions for filling BG is given in Section V.**

12.2 In place of Bank guarantee, Fixed Deposit Receipt (FDR) drawn in favour of BHEL, Ranipet can also be furnished. **In any case BG/FDR shall be available at the time of loading the item.**

12.3 The Bank Guarantee should cover the recoveries to be made by BHEL towards Safe custody of Material Supplied , Scrap / Faulty workmanship, etc. also for which proper material accounting is not made within the stipulated time and shall cover all Contracts past, present and future placed / to be placed by the BHEL, Ranipet. If the recovery amount is more than the pending bills, the difference amount to be settled immediately submitting Demand Draft in favour of BHEL/ Ranipet.

12.4 Loading on the vendor shall be restricted in such a way that the value of the materials to be issued and the stock of BHEL materials already available with the vendor.

13.0 BANK GUARANTEE NORMS ;

13.1 Necessary Bank Guarantee(BG) / Fixed Deposit Receipt(FDR) should be furnished. The BG shall be kept **valid through one year PLUS 3 Months as claim period** and must be renewed in-time. It is also to be noted that the BG for the value indicated for each Firm shall be made available with BHEL at the time of loading, failing which Firm will not be considered.

The required Bank Guarantee shall be submitted within 7 Days of finalization of the order, else the non submission of BG will be treated as "*not honoring his own offer or any of the condition*" stated/agreed in the tender and declared fit for taking penal action by BHEL as per "*Suspension of Business dealings*".

13.2 The release of orders by BHEL, Ranipet shall be on the strength of Bank Guarantee for the safe custody of raw materials issued by BHEL, Ranipet as free issue.

13.3 BHEL reserves the right to increase the value of BG/FDR depending on the material availability with the vendor from time to time. For placement of PO/addendum, if available BG is short of the required BG value, the same will be intimated to the vendor to submit additional BG. The vendor shall arrange for the required BG within 15 days from the date of receiving such intimation from BHEL. If the vendor does not submit the required BG within 15 days, then the loading quantity may be reduced / diverted to other firms. After completion of that particular order, the vendors can request for return of BG (other than base BG) and the same shall be considered by BHEL.

13.4 The base BG shall be returned by BHEL after 90 days from the date of final bill submission or ARC validity period whichever is later.

14.0 GUARANTEE OF FABRICATION / MACHINING:

The Vendor shall warrant that the conversion work comply fully with the drawings and other technical conditions. If the jobs are found defective owing to reasons attributable to the vendors like faulty workmanship / incomplete work within a period of eighteen months from the date of handing over to BHEL, the Vendor shall make good of it / replace the same free of cost. Alternatively, the rework / replacement charges will be recovered from the Vendor.

15.0 LIQUIDATED DAMAGES and RISK PURCHASE:

- 15.1 The semi-finished jobs/fabrications/Machining on acceptance by BHEL, Ranipet inspector or by their authorized inspection agency, shall have to be delivered to BHEL, Ranipet Stores / Finishing Bay immediately on or before the delivery date stipulated in the addendum. Where the Vendor supplied the finished machining / fabrications beyond the delivery date stipulated in the addendum, liquidated damages at the rate of **1/2%** of the value (Conversion Cost) of the assemblies delayed for each week or part thereof will be levied subject to a maximum of **10%** value of the particular Work Order in the addendum to the Contract without prejudice to any other relief or compensation to the BHEL, Ranipet under any other conditions of the Purchase Contract.
- 15.2 Further, BHEL, Ranipet will get these items fabricated elsewhere, without notice to the Vendor on the account and at the cost and risk of the Vendor, the jobs not so delivered without canceling the Contract in respect of installments of machining / fabrications not yet due for delivery or cancel the Contract or a portion thereof and, if so desired, fabricate elsewhere at the cost and risk and account of the Vendor. Any additional expenditure incurred by BHEL on this account shall be recovered from the Vendor.
- 15.3 Vacant
- 15.4 Where delivery extension is sought with waiver of penalty, the same should be applied to OS with justification and approval to be obtained before submission of bills and two copies of such letters (One for Accounts & One for OS Department) are to be enclosed along with all the bills. Failure to comply with this requirement will result in recovery of penalty while processing the bills for payment from the same bill and no claims for refund of liquidated damages will be entertained there after.
- 15.5 Reasons like power cut, Labour Issue, Machine Break-down etc., which are controllable by the vendors shall not be accepted as reasons for delay for delivery extension purposes. No compensation shall be given to the Vendors, in case of cancellation/diversion of POS beyond the delivery Due Date, even if the Jobs have been processed partly.

16.0 ACTION AND COMPENSATION IN CASE OF BAD WORKMANSHIP:

If any work has been executed with unsound, imperfect or bad workmanship or with materials of inferior quality, the Vendor shall on demand in writing from BHEL specifying the work, material/articles complained of, notwithstanding that the same may have been passed, certified and paid for, forthwith, rectify the work so specified in whole or in part as the case may require, at their own cost and in the event of his failure to do so within reasonable period. BHEL will rectify or remove and re-execute the work at the risk and expense of the Vendor.

17.0 COMPENSATION AGAINST DAMAGE OF MACHINERY/TOOLS AND GAUGES SUPPLIED:

- 17.1 BHEL reserves the right to claim adequate compensation from the Vendor on account of any damage caused to the machinery / equipment / tools and gauges supplied to them for execution of work, due to careless or faulty handling or negligence on the part of the Vendor. The total cost of recovery will be decided by BHEL.
- 17.2 BHEL shall have general supervision and direction over the work, BHEL has the authority to stop the work, whenever such stoppage may be necessary to ensure the proper execution of the Contract. BHEL shall also have the authority to reject all the works which do not confirm to the specification, to direct the application of forces to any portion of the work as, in their

judgment is required, and order the force increase or decrease and to decide on the issues which arise in the execution of the work.

- 17.3 BHEL reserves the right to suspend the work or part thereof put a hold on further loading to the Vendor at any time for any reason at its discretion and no claim whatsoever on this account will be entertained.

18.0 SUBLETTING :

- 18.1 The Vendor shall not sublet or assign this Contract or any part thereof without the written permission of BHEL, RANIPET. Subletting or assigning this Contract or any part thereof without such permission BHEL, Ranipet shall be entitled to cancel the Contract and to execute the conversion work elsewhere at the risk and cost of the Vendor and the Vendor shall be liable for any loss or damage which BHEL, Ranipet may sustain in consequence of or arising out of such machining / fabrication elsewhere and also cancellation of registration/temporary suspension of further loading.
- 18.2 "Movement of BHEL materials from our Vendor's premises to any other Firm(s), if necessary, for the purpose of production related work shall be documented properly, signed by the sender & receiver and the same to be authenticated by the concerned OS official, otherwise such materials will be treated as shortage by Accounts".
- 18.3 These intermediate operations are to be carried out only at the approved sources and addition/deletion to this list will be indicated to the vendors then and there.

19.0 TAXES AND DUTIES:

- 19.1.1 Taxes and duties as applicable from time to time, shall be paid extra over the quoted rates. (as per latest GST guidelines)
- 19.1.2 Vendors should provide a valid GST registration number and the same should be clearly mentioned in the offer. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer. Vendor should get themselves registered and obtain a valid GST registration number as per the GST guidelines.
- 19.1.3 In case any changes in GST guidelines as per Gov. Notification , the same shall be applicable from time to time.
- 19.1.4 Taxes applicable if any will be reimbursed at actual on submission of necessary tax invoice mentioning the GSTN registration number and proof of payment to the statutory authorities.
- 19.2 BHEL will recover applicable GST along with cost of prime material, off cut, scrap including Turning & Boring (T and B) **as per clause 5.1** at the time of finalizing MAS wherever the property in the goods passed on to the Contractor. An Invoice will be issued under relevant rules of GST.
- 19.3.1 Wherever GST is claimed by Contractor as above BHEL shall reimburse the applicable GST presently @ 12% against submission of the following documents:-
- i. GST Registration Certificate
 - ii. Original Tax Invoice (as per GST Rules)
 - iii. Certificate for payment of GST
 - iv. Abstract of GSTR-I & GSTR-3B or any other returns as prescribed from time to time
- 19.4 In case BHEL is not able to get input Tax credit (ITC) for the payment made by vendor for any of the reason attributable to vendor , the same shall not be reimbursed/recovered from the bills/claims of the vendor (if reimbursed). GST TDS deduction at such percentage as prescribed under GST Law from time to time will be made on the value of invoices

- 19.5 Income Tax deduction and surcharge on IT at source at such percentage as prescribed in the Income Tax Act from time to time will be made on the value of the invoices in the absence of Income Tax Exemption Certificate from the concerned Income Tax Officer received and submitted by the Contractor. Contractor has to submit photocopy of PAN Card along with original for verification.
- 19.6** All statutory documents required for execution of contract to be finalized against this enquiry and required from time to time by State/central Govt. Authorities shall be submitted to BHEL, failing which appropriate recovery/actions as deemed fit will be levied from the running bills of the contractor.
- 19.7 Contractors are exempted from payment of GST as they are job workers as prescribed under Section 143(1) of GST Law as amended from time to time for the purpose of free issue of raw materials/semi finished goods to them for carrying out necessary operation and return the finished components without payment of duty to the BHEL RANIPET's factory for further processing. This is subject to subsequent statutory modifications and amendments in force from time to time. Contractors shall comply with the requirements of the said Section and also rules made under GST LAW. This is subject to subsequent statutory modifications and amendments in force from time to time. Besides, Taxes, duties, levies and any other govt. special levies as applicable from time to time, through notifications/amendments to original notification/orders, during the tenure of the rate contract, shall be extra as applicable against valid documentary evidence. Any increase or decrease in this regard will be effected accordingly against valid documentary evidence.
- 19.8 The required raw materials will be issued under the cover of Delivery challan as prescribed under GST Law. The Contractor receiving the materials under above said challan (2 Copies) have to complete the work order and return the finished components and scrap under the cover delivery challan issued by BHEL within 3 months from the date of first issue of materials unless otherwise extended by BHEL and all materials shall be fully accounted for in FMAS. For this purpose Duplicate (ONE) copy of all the Challan shall be returned back to BHEL after duly signing in with seal with FMAS and DC copy. If the materials are not returned/ fully accounted for within three months or such extended period as may be allowed by BHEL, any financial implication on BHEL will be recovered from the Contractor's bills.
- (i) In case of failure of non submission of challan due to reasons not attributable to Contractor, (like non matching of materials, hold informed by BHEL, delay due to cycle time etc.,) is to be intimated to BHEL every month by the Contractor.
 - (ii) Incase of direct dispatch to customer site (or) returning of material back to BHEL store, necessary GST formalities have to be complied with by Contractor and also necessary records as per GST Law have to be maintained by the Contractor.
 - (iii) FMAS is to be prepared immediately on dispatch in all cases based on which applicable GST on scrap/Off cut will be recovered from Contractor and paid to GST Dept.
 - (iv)** BHEL, RANIPET will not be responsible for payment of any taxes and duties wrongly paid on account of ignorance of law or otherwise and also duty paid at a later date based on litigation.

20.0 GENERAL :

- (a) BHEL reserves the right to recover the dues if any, from the Vendor from any one of the running bills of this contract or any other contract with the vendor or from any other division of BHEL. Vendors disqualify themselves to be an approved vendor of BHEL, in the event , it is found that they carryout activities / business which are in direct competition to BHEL business and accordingly they will be delisted. Vendors / Firms indulging in business practices

detrimental to BHEL, will be severely dealt with by the due process of law. In addition to the above conditions the following specific conditions also bound under this contract.

- (b) The Vendor is liable for all statutory obligations, including but not limited to taxes and duties, ESI, PF, ED/ST, Labour Acts, Factories Acts, Workmen Compensation Act, etc., for their workers. BHEL, RANIPET will have no liability in respect thereof. Notwithstanding the above, if any demand notice is served by the concerned Statutory authorities for recovery of any of their dues on BHEL, BHEL shall have the right to pay the same without notice to the Vendor and recover the same plus administrative charges of 15% of such amount from the Vendor either from the pending/future bills of the Vendor or otherwise. Such act of repeated default is liable for suspension/stoppage of further business till such time the default/violations get vacated. Notwithstanding anything to the contrary, BHEL shall not be liable for any penalty or interest imposed by any statutory authority due to the action of the Vendor or his employees, workers, agents, etc. .
- (c) The Vendor has to devise suitable scheme whereby the employment of child labour should be regulated in line with the child Labour Act (prohibition and Employment Act 1986).
- (d) All the safety precautions and use of safety equipments are to be followed while carrying out the fabrication and despatch of the same. The Vendor must have proper tools and handling equipments. There should always be a responsible person available at the Vendor's works to oversee the operation and compliance of safety regulations. If any non-compliance with respect to proper safety conditions/requirements, BHEL may withhold visit/inspection, instruct stoppage of work till such time the desired safety requirements/conditions are met with.
- (e) All the documents (Inclusive of Drawings, GMS and Standards) of BHEL made available to the Vendor should be kept in a strict confidence and under no circumstance be made available to others or allow others to make use of them for any other commercial purpose whatsoever. This secrecy clause is binding on the employees of the Vendors also. Any contravention will be subjected to legal action besides suspending business with BHEL. Such documents should be returned to the BHEL, RANIPET destroyed with the prior approval of Outsourcing, BHEL, RANIPET.
- (f) Unauthorized act of engagement of any individual who is a full time employee of BHEL for part time/full time work by the Vendor will be viewed very seriously and such act is liable for suspension/total stoppage of further business dealings with the Vendor by BHEL, RANIPET.
- (g) Should a Vendor has a relation or relations in the case of a firm or a company of the Vendor, one or more of its shareholders or relation or relations of the shareholders employed in BHEL or any ex employee who has retired/resigned within a period of two years as on date of the Contract or at any subsequent date after award of this contract, BHEL shall be informed of the fact at the time of signing the contract and thereafter as applicable and obtain the permission of BHEL for such engagement, failing which BHEL may in its own discretion rescind the contract.
- (h) The Vendor shall not attempt any unethical acts and if they are found indulging in such acts, they are liable to be blacklisted apart from other actions. Vendor indulging in any business practices detrimental to BHEL either directly or Indirectly, will be dealt with severely by the due process of law.
- (i) In case of any internal dispute of the Vendor, such as but not limited to disputes between partners of the Vendor, dispute between Vendor and its employees, the same shall be intimated to BHEL within One Month from the date of dispute. Notwithstanding anything to the contrary, BHEL shall not be made a party any suit or legal proceeding in respect of such internal dispute. In case BHEL is made a party to the same, the Vendor and other party(ies) to the dispute, if signatories to this Agreement, shall indemnify BHEL for (a) all direct and indirect costs expended towards such legal proceedings immediately on the issue of a claim notice to

that effect from BHEL and (b) any liability that may be imposed in such legal proceedings against BHEL.

- (j) Payment for all the invoices shall be effected by a crossed A/C payee cheque /EFT/RTGS in favor of the Banker which should be indicated in all invoices of the Vendor.
- (k) In order to ensure safe custody of our materials, leasee of those firms under lease shall ensure that their lease period is valid for minimum of 3 years.
- (l) In addition to the above, our standard General Conditions enclosed shall also apply.
- (m) The entire terms and Conditions contained in this tender shall be deemed to form an integral part of the Contract to be entered.

22.0 BHEL reserves the right to :

- (a) Negotiate with the Vendor who has submitted the Lowest offer.
- (b) Distribute the requirements on more than one vendor at the Lowest acceptable rate.

23.0 Vendors are requested to indicate their own email-Id as "Primary e-Mail-ID", which will only be used for all correspondences.

24.0 Arbitration and Jurisdiction:

- (a) Any dispute between BHEL and the Vendor arising out of or in connection with this Contract, other than those for which BHEL decision is final, shall be referred to arbitration by a sole arbitrator.
- (b) The parties hereto agree that the Sole Arbitrator shall be the Unit Head of BHEL, BAP, Ranipet or his nominee. The venue of Arbitration shall be Ranipet, Tamil Nadu. The arbitrator may hold meetings for convenience at such places as per his discretion.
- (c) The award of the Arbitrator shall be final, conclusive and binding on both parties to the Contract.
- (d) Subject to the above, the courts at Ranipet alone have the jurisdiction to decide any dispute arising out of or in respect of the Contract.

Vendors are requested to quote only for the items applicable to their firm as per the Technical Bid and Price Bid format enclosed.

The offers should be submitted as detailed in applicable **Section I to Section VIII and Annexures A to L**

BHEL, Ranipet is not responsible for any type of delay in receipt of tender.

BHEL, Ranipet reserves the right to reject any or all the tenders either in full or part thereof at their discretion without assigning any reason thereof.

Thanking you,

Yours truly,

For and on behalf of

BHARAT HEAVY ELECTRICALS LIMITED,

MANAGER (CONTRACTS) / OS

 AN ISO 9000 COMPANY	Bharat Heavy Electricals Limited (A Government of India Undertaking) Boiler Auxiliaries Plant, Ranipet – 632 406		☎: 04172-284030, 284158, 284323, 241170
	OUTSOURCING DEPARTMENT		E-Mail : bsmanian@bhel.in , ssvasan@bhel.in
Enquiry No	658021E	Due Date & Time for submission of offers	Prior to 14.00 Hrs On 29.05.2020
Enq-Dated	08.05.2020	Date & Time of Tender opening	By 14.30 Hrs On 29.05.2020
SECTION III Technical Information			

Sealed Tenders are hereby invited from experienced Firms located within 350 km by Road from BHEL, Ranipet for Complete manufacture of Chimney Shells - Material: ASTM A588 Gr A /Corten A made of 40mm to 63mm thickness with trial assembly. Inner Diameter of the chimney is 1800 mm. Plates of 2500mm width will be issued for shell rolling. Rolling allowances will be given @ 250mm per side. Scope includes collection of raw-materials (single/multiple) from BHEL, BAP, Ranipet and delivery of finished goods to BHEL, BAP Ranipet is in vendors scope. Chimney Shells are to be rolled, welded and fabricated as per BHEL issued Drawing/QCP and surface preparation and painting as per PS of the customer. All Procedures required for joining of the shell plates are to be strictly adhered to as per the WPS : 111 and other testing procedures called for as per BHEL issued quality documents. Follow QP No: MAIT:401 and PS:MAIT rev.01 for fabrication and painting.

1. **Tender Items:** The tender requirement is for complete manufacture of chimney shell of thickness 40mm to 63mm. The descriptions of the Items are given in the following table. Technical Bid and Price Bid formats are given in Annexure-C and Annexure-D separately for submission of tender.

Sl.No	Item Description & Drawing Number	Qty (Nos.)	Weight in MT
1	Shell 01 & 02- 63mm Drawing No : 28710081569& 28710081531	1 no each	12.929
2	Shell 03 & 04 -50mm Drawing no : 28710081532 & 28710081533	1 no each	7.533
3	Shell 03 & 04 - 55 mm * Drawing no : 28710081532 & 28710081533 * Incase 55mm plate is issued. Weight will not be changed .Price to be quoted accordingly	1 no each	7.533
4	Shell 05 & 06 - 40 mm Drawing no : 28710081534 & 28710081535	1 no each	9.581

2. **Scope of the Operation:** Complete manufacture of Chimney Shells - Material: ASTM A588 Gr A /Corten A made of 40mm to 63mm thickness with trial assembly. Inner Diameter of the chimney is 1800 mm. Plates of 2500mm width will be issued for shell rolling. Rolling allowances will be given @ 250mm per side. Scope includes collection of raw-materials (single/multiple)

from BHEL, BAP, Ranipet and delivery of finished goods to BHEL, BAP Ranipet is in vendors scope. Chimney Shells are to be rolled, welded and fabricated as per BHEL issued Drawing/QCP and surface preparation and painting as per PS of the customer. All Procedures required for joining of the shell plates are to be strictly adhered to as per the WPS : 111 and other testing procedures called for as per BHEL issued quality documents. Follow QP No: MAIT:401 and PS:MAIT rev.01 for fabrication and painting..

3. **Facilities Required :** To carry out the operations required on the job, the manufacturing Facilities required like General manufacturing facility ,Welding Equipment, Rolling machine with capacity to roll plate thickness 40mm, 50mm, 55 mm and 63mm are mentioned in the Eligibility Criteria as **Annexure-F** and the same has to submitted along with Technical Bid in Cover-I.
4. **Eligibility of Vendors :** The vendors who are all having the Facilities required mentioned in the Eligibility Criteria Sheet as **Annexure- F** and sufficient experience in the manufacturing field can quote for this tender.
5. **Distance Eligibility Criteria- Vendors Location :** Firms located within 350 KM by road are only eligible to quote for this tender.
6. **Quantity:** Quantity requirement is mentioned in technical bid.
7. **Method of Splitting the Order Quantity:** After Price Bid opening, lowest offer will be finalized by comparing BHEL's estimate straightaway or through negotiation. 100% of the enquiry Qty will be placed on L1 ranked vendor on overall cost basis .
8. **Method of Arriving L1 Vendor:- The lowest rate (L1) quoted by the vendor on overall cost basis to F.O.R.destination (Total cost to BHEL) will be ranked L1**
9. **Technical Bid :** Technical Bid is given as **Annexure – C.** Vendors can download the format and fill the details as requested.

Existing Vendors who have executed similar type of jobs has to mention completed PO/IP number released on them. If no PO/IP is not mentioned in the Technical Bid, then the vendor will be evaluated for the facilities required.
10. **Price Bid:** Price Bid is given as **Annexure-D.** Simultaneously Vendor has to download the Price Bid Format along with Technical Bid Document to quote and fill the same.

Note:. Any Rates indicated other than in Price Bid Cover III shall not be considered.

11. **Drawings:** The drawings are indicated in Section VI . However the drawings referred in the tender will be displayed at BHEL for the Vendors who are willing to study to quote for the tender.
12. **Quality Documents:** Quality documents mentioned in the tender will be given along with drawings.

Care: Offers received other than the format hosted in the web site will be summarily rejected.



Enquiry Number: 658021E

Dt. 08.05.2020

SECTION IV
GENERAL TERMS & CONDITIONS OF THE TENDER

Before preparing the offer, vendors are requested to go through the following details carefully

A] Eligibility of Vendors

i) New Firm (So far not registered with BHEL, Ranipet as Outsourcing Vendor)

Sealed Tenders are hereby invited from experienced Firms located **within** 350 km by Road from BHEL, Ranipet for Complete manufacture of Chimney Shells - Material: ASTM A588 Gr A /Corten A made of 40mm to 63mm thickness with trial assembly. Inner Diameter of the chimney is 1800 mm. Plates of 2500mm width will be issued for shell rolling. Rolling allowances will be given @ 250mm per side. Scope includes collection of raw-materials (single/multiple) from BHEL, BAP, Ranipet and delivery of finished goods to BHEL, BAP Ranipet is in vendors scope. Chimney Shells are to be rolled, welded and fabricated as per BHEL issued Drawing/QCP and surface preparation and painting as per PS of the customer. All Procedures required for joining of the shell plates are to be strictly adhered to as per the WPS : 111 and other testing procedures called for as per BHEL issued quality documents. Follow QP No: MAIT:401 and PS:MAIT rev.01 for fabrication and painting.

Filled-in Vendor Registration form as in Annexure-K is mandatory for all new firms. For tender documents in online through internet access the relevant website ,

BHEL registered Vendors (Other BHEL units) : Vendors registered with any unit of BHEL for the similar jobs , shall give details of their registration along with the category registered for. Such Vendors also treated as new vendors for evaluation purpose.

ii) Existing Firm (Registered with BHEL, Ranipet as Outsourcing Vendor having Vendor Code)

Firms already registered with Outsourcing (OS) BHEL/BAP/Ranipet and having facilities to machine this item shall also be evaluated if required. At least one PO / IP number for any one of the item shall be indicated in the Technical Bid as proof for the items already executed by them.

If an existing vendor is quoted newly for this tender, fresh assessment shall be done by BHEL to check the eligibility criteria with respect to Machines, experience available with them.

B] Vendors Not Eligible to Quote

Vendors declared / notified as defaulters / poor performers on quality / delivery grounds are not eligible to quote. The vendors with whom the material shortages were found during stock verification and not settled at the time of price bid opening will not be considered. Offers if any received such vendors shall not be considered.

Vendors under Hold/Delisted/Banned by BHEL are not eligible to quote.

C] Eligibility of Vendors Regarding Facilities (Mandatory) : The vendors must have the facilities given in the Annexure-F to quote for this tender else their offer will be rejected. And also they must have sufficient experience in the manufacturing field to quote for this tender.

D] Distance Criteria for the New Firms

Firms located within 350 KM by road are only eligible to quote, the firms located beyond this distance will not be considered.



E] EMD (Earnest Money Deposit)

Non MSE Vendors has to submit EMD for Rs. 2.00 Lakh in the form of Demand Draft favouring "Bharat Heavy Electricals Ltd., Ranipet – 632 406" payable at Ranipet,

(i) No interest shall be payable by BHEL on Earnest Money Deposit (EMD).

(ii) EMD will be forfeited if

- a) The Tenderer withdraws his Tender within the validity period,
- b) After becoming L1, if the firm does not sign the contract or not submitting the required base BG within the specified period, the EMD will be forfeited.

(iii) The EMD submitted by the vendors will be returned within a month from the date of signing the contract.

F] Validity of Offer

Price validity shall be One Year from the date of release of Purchase order; however the validity date of the offer is 180 days from the date of tender opening for ordering. (Note: If Supplier does not honour his own offer or any of its conditions within the validity period, penal action deemed fit as per Cl.P of Section IV - Suspension of Business Dealings with vendors).

G] Vacant

H] Submission of Offer

TENDERS

The Bids shall be submitted in two parts namely (i) Techno Commercial Bid Cover and (ii) Price bid cover. All these two covers should be sealed individually and to be put in a single envelope.

Sealed tenders super-scribed with Tender Number with date, Supplier's Name, Vendor Code/Reference Code shall be addressed to Manager / Contracts, Outsourcing Department, Bharat Heavy Electricals Limited, Ranipet – 632 406, Tamilnadu, INDIA, so as to reach him on or before the date and time specified in the tender.

The details of contents of the offer covers are as under:-

Sealed Single Envelope super-scribed, with Tender Number & Date, Vendor's Name & Vendor Code / Reference Code containing:

Cover I: Techno-Commercial Bid

Sealed Cover super-scribed "Cover I – Techno-Commercial Bid" with Tender Number & Date, Vendor's Name & Vendor Code / Reference Code containing:

- a) **Basic Details as per Annexure-A**
- b) **Signed in Technical Bid** (without Price) **as per Annexure-C.**
- c) **Signed in Standard Commercial Terms & Conditions format given as Annexure-E.,**
- d) **Manufacturing Facilities Available with Firm** as per format given in **Annexure-F**
- e) **MSME documents** to avail exemption from submission of EMD: –
 - i. Self Attested Copies of either EM II (Entrepreneur Memorandum Part II) having deemed validity Five years from the date of issue of acknowledgement in EM II from the date of acknowledgement of the EM II certificate **(or)**



- ii. Valid NSIC Certificate (or)
- iii. EM II Certificate along with attested copy of a CA Certificate (Format enclosed as **Annexure-G** where deemed validity of EM II certificate of five years has expired) applicable for the relevant financial year (latest audited).
- f) **Affidavit** in Stamp Paper value Rs.100 as per **Annexure-I**
- g) **Vendor Registration Form** given as **Annexure-K** along with all necessary documents (**For New Firm**)
- h) **Experience** - Documentary proof for having experience.
- i) **Form 'A' for partnership firm as on 01.04.2019** with partnership deed
- j) **Own land** - Document copy **along with EC for 20 years / Lease Land** – Self attested Copy of Registered Lease Agreement **for minimum period of 3 Years from the date of tender opening along with EC for past 20 years**
- k) **Documents to be enclosed for Partnership Firm – Self attested Copies**
 - i) Latest Form- A, issued after 01.04.2019.
 - ii) Partnership Deed Copy (AT WILL).
- l) **Documents to be enclosed for Limited Firm (Private Firm) – Self attested Copies**
 - i) Latest resolution by Board of Directors.
 - ii) Memorandum of Article of Association.
 - iii) Company's Affidavit for existence
 - iv) Latest Annual Report.
 - v) Directors Share details

Note:

- (i) All new firms submitting the offer shall be subjected to assessment of vendor registration forms (**Annexure-K**) along with supporting documents & spot evaluation (if applicable) for considering their offer. Price bids of firms failing to meet the Technical Qualification / Eligibility Criteria of the quoted Rate Schedules shall not be considered for further processing in the tender.
- (ii) Offers shall be submitted along with PAN No., GST No. etc, failing which BHEL will not be liable for payment. BHEL GST No. 33AAACB4146P2ZL.
- (iii) Money values shall not be indicated anywhere in the Technical Bid.
- (iv) All Annexure to the Techno-Commercial bid should be serially numbered.
- (v) Tenders not submitted in the prescribed formats given in the Annexure like *Standard Commercial Terms & Conditions, Technical Bid* etc. and *incomplete offers* are liable for rejection.
- vi) **Documents shall be annexed in the order specified above (clause a to J)**

Cover-II : Price Bid

Sealed Cover super-scribed "Cover II – Price Bid" with Tender Number & Date, Vendor's Name & Vendor Code / Reference Code containing:

Price Bid - Price duly filled-in the Price Bid format provided in the tender document in conformance with the commercial terms as per Cover-I.

The Prices shall be indicated in both figures and words. Unit rate only to be mentioned in the price bid.



**Any Rates indicated other than in Price Bid cover II shall not be considered.
Put both Cover I and Cover II in a Single envelope.**

Note:

- i) The price should be on “F.O.R.Destination” basis Inclusive of packing only, No other delivery terms shall be acceptable.
- ii) While quoting their rates, the Bidders are advised to take into account the likely expenditure, escalations, statutory requirements & levies, labour laws, safety requirements, taxes etc. No price escalation/ variations shall be entertained after opening of price bid.
- iii) Tenderer shall bear all cost incidental to preparation, submission and negotiations of the tender.
- iii) If BHEL withdraws the Tender before or after the receipt of offers, whether the offer is accepted or not, tenderer shall not be entitled to claim any costs, charges, expenses incidental or incurred by him through or in connection with the submission of the offer.
- iv) 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 (Cover I) shall hold good and the commercial term quoted in the Price Bid (Cover II) shall not be considered.
- v) In their own interest, all Tenderers are advised to double check their prices before submitting the offer.
- vi) The quotation should be valid at least for a period of 180 days from the tender opening date.
- vii) Offers should be submitted One Set in original only.
- viii) The offers should invariably contain Signature (ink-signed) & Office Stamp of the Supplier. Any corrections / erasures in the offers should be initialled and stamped.
- ix) Bidders should submit the prices in Indian Rupees only.
- x) Offers in Hard-copy are only expected.

I] Persons Authorized for Signing the Offers:

The Tender documents shall be signed by the Authorized Signatory Only.

J] Opening of Offers

a) Tenders shall be received up to 14.00 Hr on the said due date and be opened on the same day at 14.30 Hr Tenders received after 14.00 Hours would not be opened. The times indicated are Indian Standard Time (IST).

- b) It is bidder's responsibility to ensure that the Tenders are submitted before the specified date and time. BHEL shall not be responsible for any postal delay.
- c) If a Supplier submits only one envelope / cover containing techno-commercial bid & price bid together, the bid is liable for rejection. The decision to accept such bids shall be the sole discretion of BHEL, which may be done by BHEL after segregating the bids so received.
- d) First Cover I containing Techno Commercial bid will be opened.
- e) Price bids – Cover II of Technically qualified bidders alone shall be opened on a later date. The date / time of Price Bid opening will be communicated to the technically qualified Bidders separately.

K) Witnessing the Tender opening

- i) Such of those Tenderers who wish so, may participate in the Tender Opening by deputing their representatives. The representatives would be allowed to participate in the Tender opening only on



submission of a signed and stamped authorization letter issued by the Supplier. Representatives without the Authorization Letter would not be allowed to participate in the Tender Opening.

ii) Representatives who turn up after the Tender opening time / start of the Tender opening would not be allowed to participate. After tender opening the details would not be given to such suppliers who choose to be absent at the Tender opening.

iii) Authorizations received by fax / e-mail would not be acceptable.

iv) Details of the vendors participated alone would be read out during Technical Bid opening and details of Price alone would be read out during Price Bid opening by the Tender Opening Officer.

Note

(i) Offers sent by e-mail / fax or any other mode other than the three cover system specified above shall be avoided. .

(iii) At its option, BHEL may consider extending the due date/s for the tender openings. Sufficient notice would be given by BHEL for such extensions.

L] Evaluation of Techno Commercial Offers

a) For New Firm: The Techno commercial bids and Registration forms submitted by the firm will be scrutinized and if the firm is meeting the pre-qualification & mandatory requirements, then the firm may be visited by BHEL team for spot assessment of their works. Based on the assessment, BHEL assessors will communicate the technical suitability of the vendor and the same will be informed to the firm. Subsequently vendor code will be generated for the qualified Vendor and will be considered for Price Bid opening.

b) For Existing Firm: The Techno commercial bids submitted by the firm will be scrutinized and evaluation if required will be carried out to check the eligibility of the vendor to proceed further for price bid opening.

c) The eligibility of the firms will be verified based on the pre-qualification criteria of the tender and compliance / confirmation to the tender requirements for the items quoted. Only those firms complying with the pre-qualification criteria shall be considered for participation in the tender. Once the vendor is found to be technically suitable meeting all the technical and commercial requirements of BHEL, price bid of those qualified vendors will be considered for further processing.

d) Offers of vendors not technically qualified will be rejected and the same will be communicated to those vendors with reasons.

e) No deviation or change from the Tender conditions will be allowed and BHEL reserves the right to reject such offers.

M] Evaluation of Price Bid

i) The rates quoted shall be evaluated on Item wise landed cost to BHEL basis only.

ii) If the rates of Two vendors are equal resulting in same ranking, among the equal ranked vendors, the sub-ranking will be done to decide the L1-vendor eligible for negotiation.

The sub-ranking will be done in-the-order by providing lower ranking for vendors

- (1) Nearer to BHEL by location
- (2) Earlier date of commencement of activity as in MSME certificate and/or
- (3) Become Sole-L1 for more number of items,
- (4) Not having listed as defaulter,
- (5) Draw of lots as a final measure (in presence of such vendors, who may like to be present).



iii) Tenderer contacted in this tender does not automatically qualify for consideration just because they are found to be the lowest in Tender. BHEL reserves the right to reject any offers without assigning any reasons. BHEL also reserves the right to negotiate or counter offer the rates to any of the parties at their discretion.

iv) If the L1 rate against any item is found not acceptable to BHEL, then the L1 firms may be called for negotiation before finalizing the rate.

v) BHEL has the right to refloat or short-close the Tender if L1 price is not the lowest acceptable price, or for other reasons.

vi) *Higher ranked (H1) vendors for each item will not be considered under any circumstances for ordering.*

vii) The rates shall be quoted only in the Price Bid format both in words and figures. Wherever there is a difference between the words and figures, the following guidelines will be followed.

a) If there is a difference between unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of BHEL there is an obvious misplacement of decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.

b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.

c) If there is a discrepancy between word and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

d) If there is such discrepancy in an offer, the same will be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of BHEL, the bid is liable to be ignored.

viii) All bidders shall submit their offers by filling-in the format of the BHEL tender documents. Offers received in any other format are liable to be rejected. Offers are asked in BHEL's format for purpose of standardisation - to help in the offer evaluation.

ix) Offer with any pre-conditions (like conditional discounts) for price are liable for rejection.

x) BHEL reserves the right to reject without assigning any reasons 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.

xi) In case of any discrepancy between the description of the Item, quantities, specifications, drawings and for other tender documents, the decision of BHEL in writing is final, binding and conclusive for the purpose of this tender.

xii) 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.

xiii) BHEL reserves the right to conduct negotiations on the "Price" and "Other Commercial Terms and Conditions" with the lowest ranked offeror and

xiv) If so required by BHEL, Supplier may have to share their cost data / costing sheet with BHEL.

N] Abnormally Low Offers

If the prices offered by L1 Bidders are found to be unrealistic, unworkable with respect to BHEL's estimate or prevailing market rates, BHEL will ask for justification also demand the break up cost element for such rates from the vendors with appropriate documentary evidence and if not submitted it will be construed that the



vendor has offered the rates with an intention to sabotage BHEL Tender process/ tamper Tendering procedure, affecting the ARC process. In such cases, BHEL will have the discretion to reject the offer in line with BHEL procedures. Hence the bidders are advised to exercise abundant care in submitting a correct genuine offer.

O] Counter offer - vacant

P] Placement of Orders and Loading

Purchase orders will be issued after finalizing rate on L1 vendor. 100% of the enquiry Qty will be placed on L1 ranked vendor on overall cost basis. Discrepancy in the PO's if any, has to be settled immediately then and there within 10 days from the date of release of PO.

M] Execution of the Order

- a) Once the order is released, vendor can view the orders in B2B portal of BHEL, Ranipet. However vendor has to collect hard copies of the Purchase order, IP (issue position), Engineering Drawings and relevant documents from BHEL through their authorised representative.
- b) Vendor has to collect Raw materials / Components from BHEL stores / Shop to their works on clearance..
- c) Vendor has to study the Drawings, Standard Quality Plan (SQP), any Customer Hold Points (CHP), any stage inspection requirement etc. carefully before start of manufacture.
- d) During manufacturing, wherever stage inspection is required, vendor has to offer for inspection to BHEL QC / BHEL approved Inspection Agencies for clearance to proceed further.
- e) All measuring Instruments to be calibrated as per standards at BHEL Metrology / any approved Labs on chargeable basis and manufacturing / inspection will be carried out with calibrated instruments only.
- f) On completion of Job, final inspection is to be offered to BHEL QC / BHEL approved Inspection Agencies with relevant Dimensional Report (DR). After clearance from the above agencies, Inspection Report (IR) has to be obtained for the same.
- g) Despatch the items to BHEL, Stores / Shipping along with Delivery Chelan (DC), Inspection Report (IR), and Dimensional Report (DR) each 6 copies and shall get Inward Entry on Delivery Chelan (DC) from the Gate In charge. BHEL will arrange vehicle for collection of finished components from vendor works.
- h) On delivery, authorised representative of vendor shall follow Stores /Shipping to control the DC's/Stores Receipt Voucher(SRV).
- i) Intimation of controlled DC's/SRV will be mailed by Finance to vendors for submitting the Invoices.
- j) Vendors have to submit the invoice and relevant documents to finance in stipulated time for the release of payments.
- k) In case of new vendors, The Inspection report on **First-of-trial** of First-addendum-PO shall be submitted. Further loading of jobs will only be considered after the successful completion of the First-addendum-PO.
- l) The Vendors are responsible till the finished components are safely deposited with BHEL / Ranipet. They should carefully pack, Load, and stack as per QWIs, for avoiding damages during transit and lash the consignment properly at the time of dispatch so that the consignment reach the destination safely.

O] Termination of Inquiry / Orders:

- a) BHEL reserves the right to cancel any inquiry before opening of the tender, without assigning any reason.
- b) BHEL reserves the right to cancel any tender and refloat a fresh tender, at any time after opening of the tender, in case it finds the response to its tender as not meeting its requirement. This shall be at the sole discretion of BHEL.

c) 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.

d) In the event of the non-performance of the contract, by the Supplier, the rights of BHEL include, in addition to cancelling the order, to take alternate action at the cost and risk of the supplier. The additional expenditure to be incurred by BHEL in such alternate action would be to the account of the supplier.

e) BHEL reserves the right to cancel the order for delay in supply beyond penalty period without any monetary or legal obligations and at the risk and cost of the Supplier. and

f) 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%. Delivery for purpose of L.D, will be reckoned as the date of clearance of the equipment for dispatch by BHEL.

P) Suspension of Business Dealings with vendors

The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.

1.0 Integrity commitment, performance of the contract and punitive action thereof:

1.1. Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the tender process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.

1.2. Commitment by Bidder/ Supplier/ Contractor:

1.2.1. The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under provision of the Indian Penal Code, 1860 or any other law in force in India.

1.2.2. The bidder/ supplier/ contractor 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 and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.

1.2.3. The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation to BHEL.

If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extant guidelines of the company available on [www. bhel.com](http://www.bhel.com) and/or under applicable legal provisions”.

Q] Force Majeure

i) 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.

ii) If as a result of difficulty in procurement of raw materials or due to force majeure reasons or any other reasons what-so-ever the contractor is unable to keep the delivery schedule of the contractee, extension of time may be granted by the contractee at their discretion as may be necessary to the extent considered necessary should there be delay in supply beyond the extended date of delivery, it shall be open to the contractee to terminate the contract in part or full and make other arrangements for executing fabrication elsewhere at the cost and risk of the contractor.

R] Others

a) The Firms are advised to study and understand the scope of work and the entire process of Contract execution involved before quoting. Any technical clarifications required can be sought in person or by e-mail three days before the due date of Tender opening.

b) In case of any contradiction in the terms and conditions given here and elsewhere in the other documents of the tender or any omissions in the Tender documents or for any clarifications in the tender conditions, it shall be the responsibility of the tenderer to get it clarified from BHEL. The officer authorized to provide such clarifications is the Manager / Contracts, Outsourcing Department, Phone: 04172 – 284030, e-mail bsmanian@bhel.in, ssvasan@bhel.in

c) 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. Such changes, if any, would be communicated in writing and / or hosted in the BHEL web-page.

d) BHEL will conclude that the offer has been submitted by the firm fully understanding all the requirements both explicit and implied and other conditions and accepting the same. After tender opening, the bidders are not allowed to change / alter any of the conditions either partly or fully. Offers of any such firms doing so, will be rejected.

e) Conditional and late Tenders, Tenders which are incomplete or otherwise considered defective with respect to Tender conditions and Tenders not in accordance with the Tender conditions herein contained and the Tenders not in original shall be rejected out rightly, at any point of time during the Tender processing.

f) Should the tenderer or the vendor have a relation or relations in the case of a firm or company of Vendors, one or more of its shareholders or relations or relations of the share holders employed in BHEL or any ex-employee who has retired / resigned within a period of two years as on date of quotations or at any subsequent date after the award of the contract, the authority inviting the Tender shall be informed of the fact at the time of submission of the tender and there after as applicable and obtain the clearance of BHEL for such engagement failing which, BHEL may in its own discretion reject the tender or rescind the contract.

g) If a Bidder is found to have given false information / documents as a part of their offer, such offers shall be rejected / the contract shall be terminated and the firm shall be banned from getting business from all BHEL units.

h) 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.

- i) The laws governing this transaction shall be the laws in India.
- j) The tenderer shall acquaint himself with the conditions/limitations and official regulations under which or conforming to which the jobs are to be performed and shall examine carefully at the information as may be furnished to them in writing from time to time.
- k) The tenderer shall acquaint himself with applicable Acts.
- l) As a policy BHEL is not registering any power of attorney issued by Vendors/Vendors in favour of their bank for the collection of Invoice amounts on behalf of Vendors/Vendors and merely because BHEL had acted upon any such request by the party or their bankers does not constitute any legal right or binding on BHEL for any acts of omissions and commissions or failure to act upon it or for any payment made directly to the party. If any banker includes BHEL also as a party to any such dispute between the banker and the party, all legal and incidental expenses thereof will be recovered from the concerned parties only.
- m) 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.
- n) The offer/s of such of those bidders who do not accept for levy of liquidated damages (LD) for delay in delivery and who do not accept for submission of the BG for the value and period specified herein above is likely to be summarily rejected. No correspondence would be entertained by BHEL in this regard, on this subject. BHEL specifically draws the need of this mandatory requirement to the notice of all Bidders. The Price Bid of such of those offerers failing to meet this requirement, would not be considered for the Price-Bid Opening.*
- o) The language in the tender 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 specifications 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 not be allowed to participate in future tenders of BHEL.*

S] General :

1.0 Definitions : Throughout these conditions and in the specifications the terms :

- (a) **"The Contractee"** means the Bharat Heavy Electricals Limited, acting through the Additional General Manager, Outsourcing Department ,Boiler Auxiliaries Plant, Ranipet – 632 406 unless the context otherwise provides.
- (b) **"The Contractor"** means the person, firm or company with whom the order for machining / fabrication is placed and shall be deemed to include the Contractor's successor (approved by the Contractee), representatives, heirs, executors and administrators, as the case may be, unless excluded by the terms of the Contract.
- (c) **"The Drawings"** means the drawings exhibited or provided for the guidance of the Contractor.

2.0 Execution :

The whole contract is to be executed in the most approved substantial and workman like manner to the entire satisfaction of the contractee, or the inspecting officer, who shall have power to reject any of the fabrication of which he may disapprove; and his decision thereon and on any question as to the true intent and meaning of the specifications of drawings or of the work necessary for the proper completion of the contract, shall be final and conclusive. The contractee may require alterations if any to be made during the

progress of machining /fabrication, and should these alterations be such that either partly to the contract considers an alteration in the changes justified such alteration shall not be carried out until amended cost of machining /fabrication charges have been submitted by contractor and accepted to fabricate without obtaining the consent of the contractee in writing to an amended cost of machining /fabrication charges, the contractor shall be deemed to have agreed to execute fabrication at such charges as may be considered reasonable by the contractee.

3.0 Interpretation :

Any dispute or difference of opinion in respect of the interpretation, effect or application of this particular condition of the contract or of the amount recoverable here under from the contractor shall be decided by the contractee and the decision shall be final and conclusive.

4.0 Book Examination Clause :

(a) The contractor shall, whenever required, produce or cause to be produced for examination by any officer of the contractee authorized in that behalf any cost or other account book or account voucher, receipt letter, memorandum, paper or writing or any copy of extract from any such document and also furnish information and returns verified in such a manner as may be required in any way relating to the execution of this contract or relevant for verifying, ascertaining, the cost of execution of this contract (the decision of such officer of the contractee on this question or relevancy of any document, information or return being final and binding on the parties). The obligation imposed by this clause is without prejudice to the obligation of the contract/Job-Work-Order or under any statutory rules or orders binding the contractor.

(b) The contractor shall, if the authorized officer of the contractee so requires (whether before or after the prices have been finally fixed), afford facilities to the officer of the contractee concerned to visit the contractor's works for the purpose of examining the process of manufacture and estimate of ascertaining the cost of production of the articles. If any portion of the work be carried out by a Contractor or any subsidiary or an allied firm or company, the authorized officer of the contractee shall have power to secure the books of such Contractor or any subsidiary or an allied firm or company shall be open to this inspection.

5.0 Set – Off Clauses :

Payment shall be subject to the deduction of any amount, for which the contractor is liable under this contract, or any contract in respect of which Bharat Heavy Electricals Limited, Ranipet 632 406, Tamilnadu **or any other Unit/ Office of BHEL** is the **Contractee**.

6.0 Laws Governing the Contract :

(a) The contract shall be governed by the laws of Government of India in force.

(b) Irrespective of the place of execution of the contract, place of delivery, place of payment under the contract, the contract shall be deemed to have been made at Ranipet.

7.0 The Global Compact :

Global compact is a signature initiative of United Nations Security General and four United Nation Agencies

- Office of the High Commissioner for Human rights
- International Labour Organization
- United Nations Environment Programme
- United Nations Development programme

This is a board based initiative and engages:

- Individual Companies
- Business Associations

- International Labour
- Human Rights, Environment and development Organisations
- Academic & Public Policy Instructions and United Nations

The Contractee (BHEL) is a member of this Global Compact. As a participating Company, We have the obligation to

- ** Support and respect Human rights with in our spheres of influence.
- ** Make sure we are not complicit in Human right abuses.
- ** Make sure we are not employing forced or compulsory labour.
- ** Refrain from employing child labour
- ** Eliminate discrimination in our hiring and firing policies
- ** Support a precautionary approach to Health, Safety of employees and society and environmental challenges.
- ** Undertake initiatives to promote greater environmental responsibility
- ** Encourage development and diffusion of environmentally friendly technologies.

Contractor shall also ensure to fall in line with the above principles.

8.0 Occupational Health and Safety Management System (OHSAS 18001) and Environmental Management System (EMS 14001)

BHEL/BAP/RANIPET got accreditation Occupational Health and Safety Management System (OHSAS 18001) and Environmental Management System (EMS 14001). As per this, OS Contractors are requested to meet the requirements of EHS (Environmental Health & Safety) guidelines (mentioned below), while engaging and using Vehicles for incoming/outgoing transportation.

- To have valid Driving licence and RC book for the Transports
- To load the vehicle/bullock cart within the Safe Working Load (S.W.L.) The S.W.L. is to be displayed/painted on the vehicle/bullock cart.
- To load the material in such a way that it should not project outside the dimensions of the Vehicle/bullock cart.
- To stack the material in a manner that the material should not slide/fall during transportation.
- During manual lifting with an Adult, the weight should not exceed 50 kg.
- To attempt to adopt OHSAS 18001 / ISO 14001 requirements in their manufacturing process at Contractor's work place.
- To comply with applicable provisions of the Central Motor Vehicles Rules 1989 (Rule:136 and if any). List of important Phone Nos: (given by OS) should be available with the driver while transporting BHEL materials.
- To train drivers to handle emergency situation during transportation.
- To follow the Various Acts/Rules and Regulations (particularity Factories Act 1948 and Tamil Nadu Factory Rules 1950) applicable to them.
- To maintain valid PUC (Pollution Under Control) certificates and produce while vehicle is in this company premises.

Contractors are requested to meet the requirements of OHSAS 18001 / ISO 14001 as given below:

- ** To adopt OHSAS 18001 / ISO 14001 requirements in their manufacturing process at Contractor's work place.



- ** To comply with applicable provisions of the Central Motor Vehicles Rules 1989 (Rule: 136 and if any).
- ** To follow the applicable Acts/Rules and Regulations (like Factories Act 1948 and Tamil Nadu Factory Rules – 1950) applicable to them.
- ** In addition to this, they should follow the day to day communication of OS on this regard.

 An ISO Company	BHARAT HEAVY ELECTRICALS LIMITED (A Government of India Undertaking) BOILER AUXILIARIES PLANT, Indira Gandhi Industrial Complex, RANIPET- 632 406 (Tamil Nadu)	Ph: 04172-284030, 284158,284323, 241170 Email: bsmanian@bhel.in ssvasan@bhel.in
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BHEL-BAP-Chimney shell- Enquiry : 658021E **dt 08/05/2020**

SECTION – V

BANK GUARANTEE DETAILS

(Instructions to Fill the Bank Guarantee Format to be issued by BHEL)

Minimum Separate base BG value of Rs. 10 Lakhs should be provided by the vendor before release of Purchase order.

1. Bank Guarantee shall be issued by any one of BHEL's Bankers or any Nationalized Bank. Please refer to List of BHEL's Bankers enclosed.
 - a. If it is not possible, then BG can be issued by a Scheduled Commercial Bank with the prior approval of BHEL.
 - b. BG from Co-operative Banks are not acceptable.
2. Pre-printed BG Form of BHEL only shall be used. Should not retype the format.
 - a. Only the relevant information like Supplier Name, BG Value, Contract No., Validity etc. shall be typed in the pre-printed form and executed by Bank.
 - b. Special adhesive stamp of the required value shall be affixed on the 1st page of the Form.
 - c. If Special Adhesive stamps are not available, then applicable stamp duty shall be paid at the Bank / Agency nominated by the concerned State Government to collect stamp duty, who" will affix their signature, date and seal in the first page of the BG Form clearly marking it as "SPECIALADHESIVE" & "STAMP DUTY".
 - d. Stamp Duty for the BG shall be at the rate as applicable in the State where the BG is executed.
 - e. Bank seal shall be affixed on the special adhesive stamp.
3. The executing officer of the Bank shall indicate his name, designation and power of attorney number/signing power number etc. on the BG.
 - a. Any correction / overwriting on the BG shall be duly authenticated under the Seal and signature of the executing officer of the Bank.
 - b. Each page of the BG shall be duly signed/initialed by the executing officer of the Bank and the last page is to be signed with full particulars under the seal of the Bank.
 - c. Fax number, e-mail Address, contact person, phone number and complete postal address shall be indicated in the covering letter of the BG from Bank.
4. The validity of the BG shall cover a period of 12 months (or such other period as per purchase Order, if otherwise specified) from the last date of dispatch as per Purchase Order or actual date of last dispatch under the Purchase Order, whichever is later.

- a. The BG shall have a claim period of 3 months. If no separate claim period is indicated in the BG, then the validity shall be 18 months (or such other period as per Purchase Order, if otherwise specified) plus 3 months.
 - b. No clause of the BHEL BG Form shall be altered, deleted or new clauses added by the issuing Bank under any circumstances. Bank Guarantees with altered/deleted/added clauses will not be accepted by BHEL under any circumstances.
 - c. If the issuing bank wants to add any additional clauses, it shall be intimated to BHEL well in advance with exact text of clause, which shall be subject to approval by BHEL Law department. Those clauses specifically accepted by BHEL- Law department can be added in the last page of the BG form and executed by Bank.
5. Bank Guarantee shall be forwarded by issuing Bank directly to AGM(OS)/BHEL/BAP/Ranipet-632406.
 - a. If it is not directly forwarded to BHEL due to unavoidable circumstance, then the issuing bank shall sent a letter directly to BHEL conforming the issue of the BG enclosing a photocopy of the original BG
 - b. The bank guarantee should not be routed through Bank along with other dispatch documents under any circumstances.
 6. In case of any extension of BG the same shall be executed on non-judicial stamp paper of the required value.
 - a. Only the due date and claim period shall be extended
 - b. The extension should not result in alteration of any material facts of the BG.
 7. Bank Guarantees executed as per the above instruction only shall be accepted at our end. Hence kindly ensure compliance with the above instructions for yearly processing of the bills and to avoid hold up of the bills

List of Bankers from whom Bank Guarantee is to be obtained.

	Nationalised Bank
1	Allahabad bank
2	Andhra bank
3	Bank of Baroda
4	Canara Bank
5	Corporation bank
6	Central bank
7	Indian Bank
8	Indian Oversea Bank
9	Oriental bank of Commerce
10	Punjab National Bank
11	Punjab & Sindh Bank
12	State Bank of India

13	State Bank of Hyderabad
14	Syndicate Bank
15	State Bank of Travancore
16	UCO Bank
17	Union Bank of India
18	United Bank of India
19	Vijaya Bank
	Public Sector Banks
20	IDBI
	Foreign bank
21	CITI Bank N.A
22	Deutsche Bank AG
23	The Hongkong and Shanghai

	Banking Corporation Limited
24	Standard Chartered Bank
25	The Royal Bank of Scotland N.V.
26	J P Morgan
	Private bank
27	Axis Bank
28	The Federal Bank Limited
29	HDFC
30	Kotak Mahindra Bank
31	ICICI
32	Indusind Bank
33	Yes Bank

Bank Guarantee No : Date..... Banker Name :

Bank Guarantee Value Rs.....Lakh(s)

FIRM CODE :

Please affix Rs.80/- Non Judicial
Stamp here

1. THIS DEED OF GUARANTEE made this.....day of.....20.....
by (hereinafter called the Bank) in favour of
M/s. BHARAT HEAVY ELECTRICALS LIMITED, BOILER AUXILIARIES PLANT,
RANIPET-632 406 having its Registered Head office at BHEL HOUSE, SIRI FORT, NEW DELHI,
Pin - 110 049.
2. WHEREAS M/s. BHARAT HEAVY ELECTRICALS LIMITED, hereinafter called the "COMPANY"
have placed Purchase Orders / Work Orders which are pending as on date and also future
Purchase Orders / Work Orders to be placed by the company upto the expiry of this Guarantee
(hereinafter called the "CONTRACT") for machining fabrication supply of pressure and non-
pressure parts with
..... (hereinafter called the
CONTRACTOR/SUPPLIER) and the said machining / fabrication / supply of pressure and non-
pressure parts shall be made from the supply of raw materials and components by the company
to the Contractor / Supplier in pursuance of the Contract(s) already placed but pending execution
as on date and the Contract(s) to be placed from time to time by the company on the contractor/
supplier.
3. AND WHEREAS one of the conditions for placing such Contract(s) is that contractor / supplier
shall provide the company with a Bank Guarantee to the extent of Rs.....
(Rupees.....) as a security for the raw
materials and components supplied and to be supplied in pursuance of the contract(s) already
placed and pending as on date/and the contract(s) to be placed from time to time upto the
expiry of this Guarantee and also for the satisfactory performance and completion of work/supply
and the terms and conditions of the said contract.
4. AND WHEREAS the contractor/supplier have approached the Bank and at their request and in
consideration of arrangements arrived at between the said contractor/supplier and the said
Bank. We, the Bank have agreed to give such guarantee as hereinafter mentioned in favour of
the aforesaid company.

Sign & Seal of issuing Bank

Bank Guarantee Value Rs.....Lakh(s)

5. NOW, THEREFORE, these present witness that we, the Bank by the hand of Branch Manager its lawfully and duly constituted attorney, do hereby undertake irrevocably and unconditionally to pay without demur to the aforesaid company a sum of Rs..... (Rupees.....) on demand being made by the said company and to keep the said company indemnified to the extent of Rs..... (Rupees.....) by virtue of this guarantee against any loss/damage caused to/suffered by the said company, by reason of any breach by the aforesaid contractor/supplier of any of the terms and conditions, stipulations or undertakings or any one of them contained in the said contract(s) and the tender documents if any attached there to and for the payment of any money payable by the said Contractor/Supplier to the said company under the terms and conditions of the said contract(s) (the decision regarding the breach, loss, damage or payment due being solely in the discretion of said company). We further undertake to pay the aforesaid amount in lumpsum on demand without demur or such part thereof as the company may demand from time to time, irrespective of the fact whether the said Contractor/Supplier admits or denies such claim or questions its correctness in any court, Tribunal Arbitrations proceedings or before any authority. The liability or obligation of Bank 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. It shall not be necessary for the said company to proceed against the Contractor / Supplier before proceeding against the Bank and its Guarantee herein contained shall be enforceable notwithstanding any security, which the said company may have obtained or obtain from the Contractor / Supplier. Further any payment made by the Bank to the company under this guarantee shall be deemed to have been duly and lawfully made.
6. The liability under this guarantee is a continuing one covering all contracts, already placed and pending as on date to be placed upto the expiry of this Guarantee and should any loss or damage occur on account of the breach of the terms and conditions of the said Contract(s) by the Contractor/Supplier or should any surplus raw materials and components become due to the Company under Contract(s) and remain undelivered to company, the Bank shall indemnify the Company for loss/damage for the value of raw materials and components, to an extent of Rs..... (Rupees.....) and this is without prejudice to any other remedies which may be otherwise available to the company against the Contractor/Supplier by way of deduction from any sum due or any sum which at any time hereafter become due from the Contractor/Supplier under this or any other contracts.

Sign & Seal of issuing Bank

Bank Guarantee Value Rs Lakh(s)

7. THE AFORESAID Guarantee will remain in force and the Bank shall be liable under the same irrespective of any concession or time being granted by the said company to the Contractor/Supplier in or for fulfilling the said contract(s) between Contractor/Supplier and the Company and the guarantee will remain in full force irrespective of any change of terms, conditions or stipulations or any variations in the terms of the said Contractor(s) and irrespective of whether notice of such change and/or variation is give to us or not and claim to receive such notice of any change and/or variation is given to us or not and claim to receive such notice of any change and /or variation of the terms and /or conditions of the said Contract(s) is hereby specially waived by us. Further, we shall not be released from this guarantee by any forbearance or the exercise or non exercise of any of the power or rights under the said contract(s) by the said company against the Contractor/Supplier irrespective of whether, notice of such forbearance enforcement or non enforcement of any powers or rights, modifications or changes made in the said contract(s) or concession shown to Contractor/Supplier by the Company is given to us or not.
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/Supplier and shall in all respects and for all purposes be binding and operative until all payments of all money due or that may hereafter become due to the said company are settled irrespective of any liability or obligation of the Contractor/Supplier under the said Contract(s).
9. A REFERENCE to this Bank Guarantee in the contract(s) placed already and pending as on date and to be placed upto the expiry of this Guarantee shall be sufficient to bind the Bank in respect of their liability under this Bank Guarantee and this Bank Guarantee shall be read as an integral part of the contract(s) already placed but pending as on date and to be placed upto the expiry of this Guarantee.
10. WE, THE 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 contract(s) and that it shall continue to be enforceable till all the dues of the company under or by virtue of the said contract(s) have been fully paid and its claims satisfied that the terms and conditions of the contract(s) have been fully and properly carried out by the said Contractor/Supplier and accordingly discharge the Guarantee, subject, however to the condition that the company shall have no rights under this guarantee unless a claim or demand in writing in respect of this guarantee has been preferred by the company with the Bank on or before/...../..... (including a claim period of 3 months). For the purpose of this clause any letter making the demand on the Bank by M/s.BHEL despatched by R.P.A.D. or by telegram or by FAX or by any electronic media addressed to the above mentioned address of the Bank shall be deemed to

Sign & Seal of issuing Bank

Bank Guarantee Value Rs.....Lakh(s)

be the claim/demand in writing referred to above irrespective of the fact as to whether or when the said letter reached the Bank, as also any letter containing the said demand or claim is lodged with the Bank personally.

11. Any CLAIM OR DISPUTE arising under the terms of this document shall only be enforced or settled in the Courts at Ranipet, Vellore District only.
12. THE BANK undertake not to revoke this Guarantee during the currency except with the previous consent of the Company in writing.
13. THE BANK declares that it has powers to issue this Guarantee 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.
14. Notwithstanding anything contained herein before, our liability under this guarantee shall be limited to a sum of Rs..... and stand completely extinguished and discharged if no demand or claim is made upon us in writing on or before/...../..... (including a claim period of 3 months).

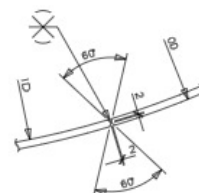
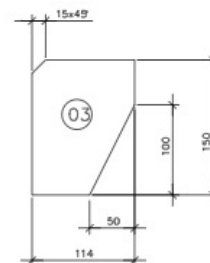
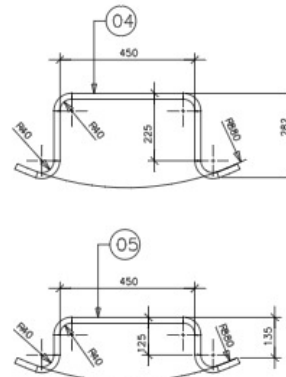
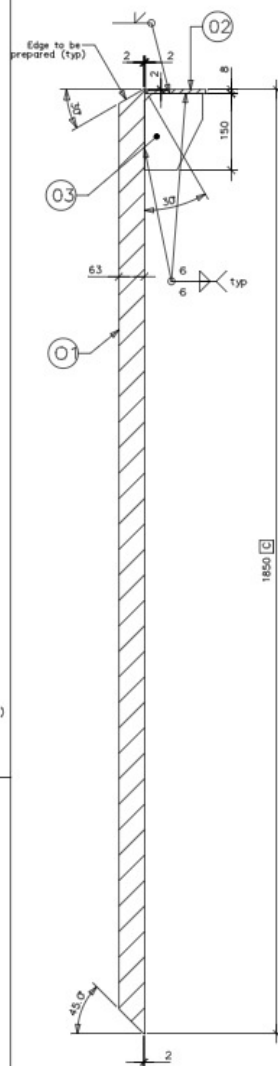
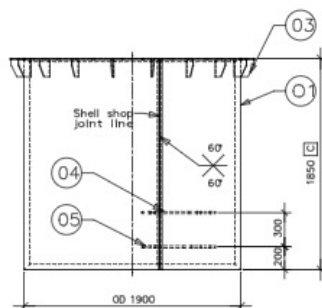
DATE THIS..... DAY OF20

Seal of the Bank

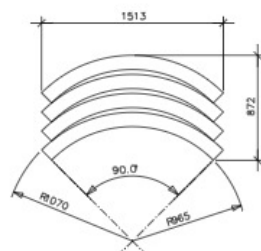
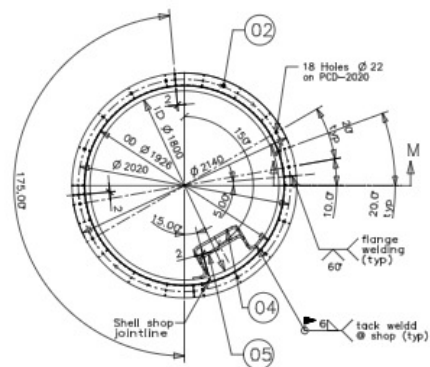
Signature of the Bank Manager

SECTION VI

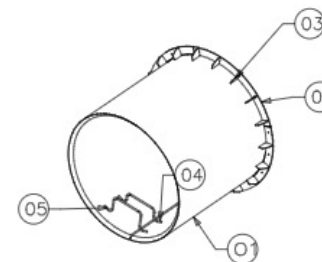
All dimensions are in millimetres



Shell vertical joint detail



Development of item-02



Perspective view

Notes

01. Manufacturing shall be done as per relevant CQR.
 02. For surface preparation and painting refer relevant CQR.
 03. The shell shall be match marked properly.
 04. This shell shall be trial assembled and match marked with chimney base prior to despatch at works.
 05. For end stiffener welding details refer dpg. 2-87-100-81546.
 06. For lifting eye welding details refer dpg. 3-87-100-80075.
 07. ☒ For critical dimensions.
 08. This Shell outside is insulated.
- Use electrode E-6013 for carbon steel to carbon steel welding.
E-7018 for carbon steel to carbon steel welding.
E-8018 for carbon steel to carbon steel welding.

[illegible]

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	TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
1.	Product A
2.	Customer X
3.	Project Y



BHARAT HEAVY ELECTRICALS LTD.
UNIT: BOILER AUXILIARIES PLANT.
RANIPET - 632 406.

DEPT	AGCS	GRADE OF
CODE	862	UNTOL DIM
		PR: QA: 500

TITLE	Shell-01
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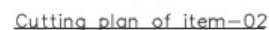
DRN	NAME	SKN	DATE	NO. O VAR
	Adarsh		28Mar2019	
CHD	M.K.Nishak			
appp	C. Ganesh			-

WT (KG).	REF. TO ASSY/CLD DRG.	ITEM NO.	NO. OF ITEMS
03.220	1-87-100-80806	02	07

CARD CODE	DRAWING NO.	REV
11 01	2-87-100-81569	01

REV	DATE	ALTERED	KRAJ
01	06.03.2020	CHECKED	MAHENDRAN
ZONE	WELDING ELECTRODE ADDED IN NOTE NO. 09 FOR CORTEN STEEL TO CORTEN STEEL WELDING		

Section M-M



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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	
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BHARAT HEAVY ELECTRICALS LTD.
UNIT: BOILER AUXILIARIES PLANT.
RAIPUR - 832 406.

HEAVY ELECTRICAL
BOILER AUXILIARIES PLANT
BANDNET - 632-406

DRN	Adarsh
CHD	M.K.Nah
	G. G...

2	SUN
ok	

	DA
	28M

2019	NO. OF VAR.
	-

DEPT	AGCS	GRADE OF	UNTOL DIM
CODE	865.2	PR: CM: 500	

	SCALE
	N.T.S.

	WEIGHT (KG).	APPO
	3766.619	

REF. TO ASSY/OLD DR	1-87-100-80
---------------------	-------------

G.	m
806	

ITEM NO.	NO. OF ITEMS
-	05

TITLE	Sh
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cell-3

	CARD CODE
	U 01

DRAWING NO.	2-87-100
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-81532

	REV
	01

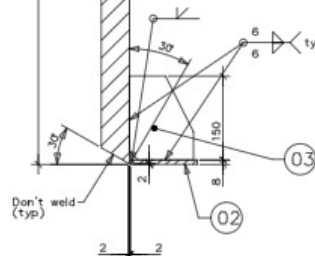
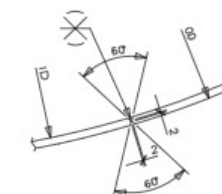
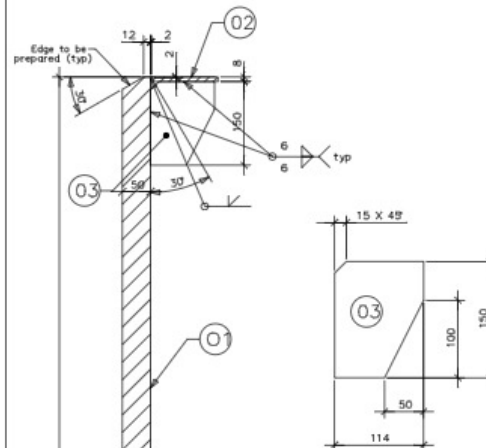


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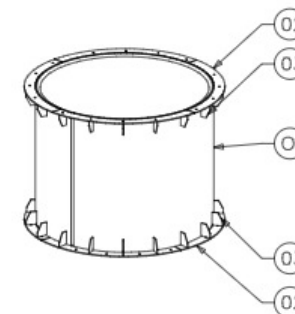
01. Manufacturing shall be done as per relevant QCR.
02. For surface preparation and painting refer relevant QCR.
03. The shell shall be match marked properly.
04. This shell is to be trial assembled prior to despatch at works.
05. For end stiffener welding details refer drg. 2-87-100-81544.
06. For lifting eye welding details refer drg. 3-87-100-80075.
07. ☒ For critical dimensions.
08. This Shell outside is insulated.
09. Use electrode E-6013 for carbon steel to carbon steel welding,
E-7018 for carbon steel to carbon steel welding &
 E-8018 for carbon steel to carbon steel welding.

[illegible]

 SHARAT HEAVY ELECTRICALS LTD. UNIT: BOILER AUXILIARIES PLANT. RAIPUR - 832 406.				DRN APP CHD	NAME M.K.Nahak C. Ganesha	SIGN	DATE 28/8/82	NO OF VARS
DEPT	AGCS	GRADE OF UNTO, DIM	SCALE	WEIGHT (KG)	REF. TO ASSY/OLD DRG.			REV
CODE	662	PR-QA: 500	N. T. S	3766.619	1-87-100-80806			REV
TITLE Shell-3				CARO CODE U 01	DRAWING NO. 2-87-100-81532			REV 01



Section Z-Z



Perspective view

Notes

01. Manufacturing shall be done as per relevant CQR.
02. For surface preparation and painting refer relevant CQR.
03. The shell shall be match marked properly.
04. This shell is to be trial assembled prior to despatch at works.
05. For end stiffener welding details refer drg. 2-87-100-81544.
06. For lifting eye welding details refer drg. 3-87-100-80075.
07. ☒ For critical dimensions.
08. This Shell outside is insulated.
09. Use electrode E-6013 for carbon steel to carbon steel welding.
E-7018 for carbon steel to carbon steel welding &
E-8018 for carbon steel to carbon steel welding.

[illegible]

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	
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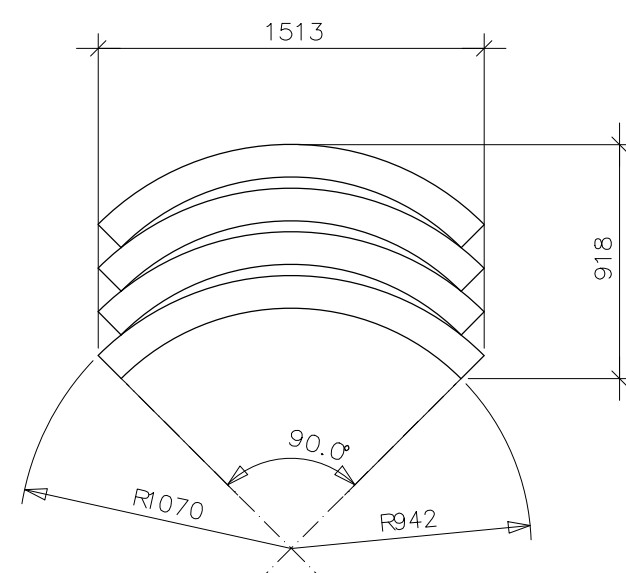
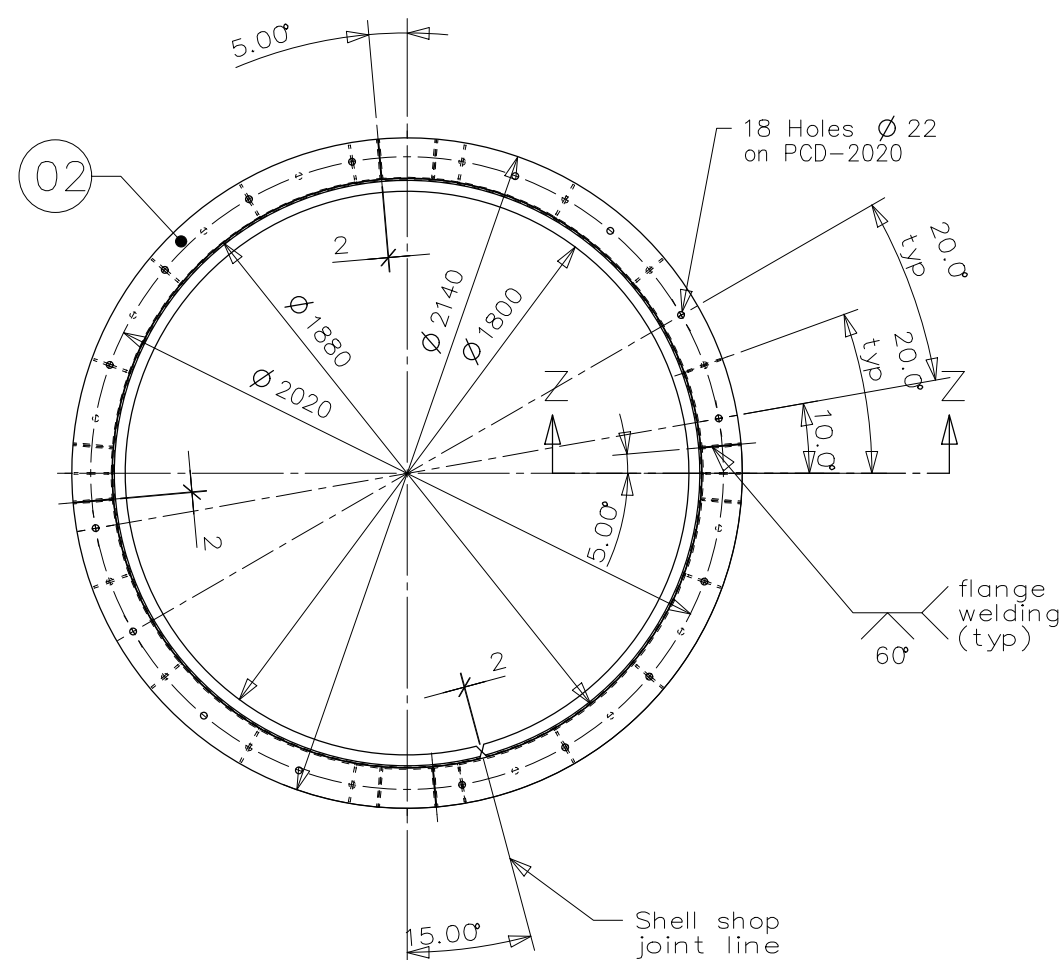
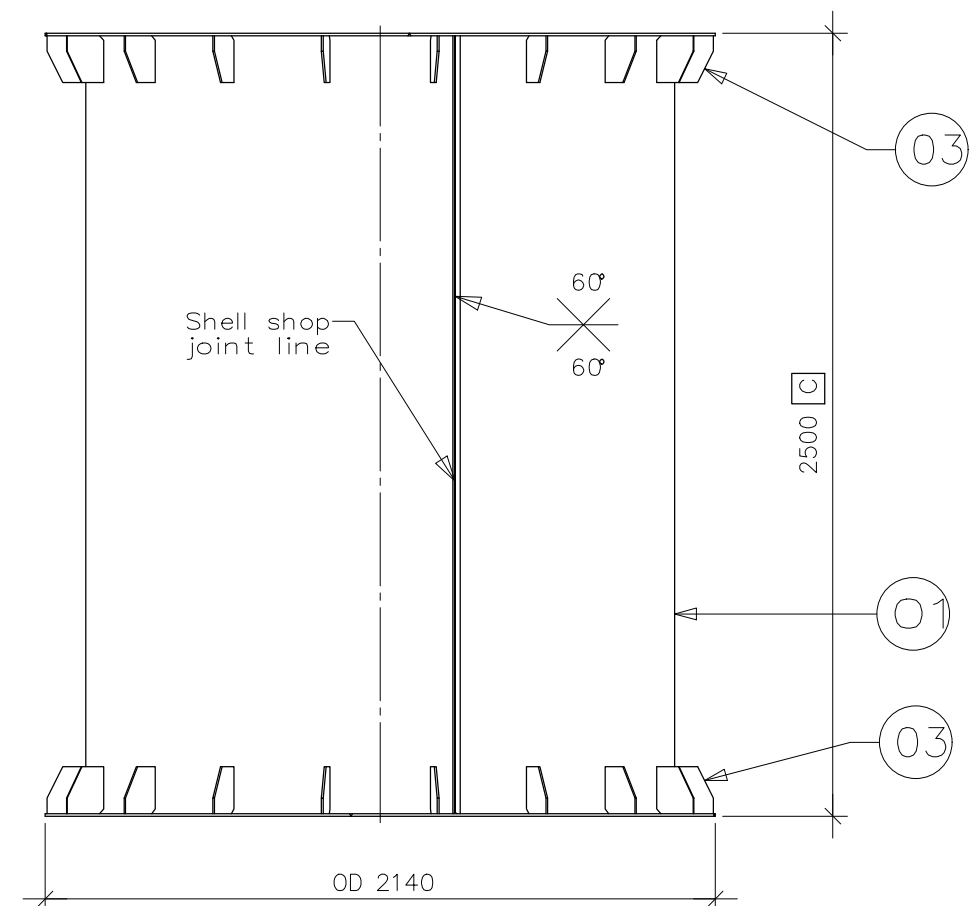
		BHARAT HEAVY ELECTRICALS LTD.		DRN	NAME	SIGN	DATE	NO
		UNIT: BOILER AUXILIARIES PLANT. RANIPET - 632 406.		APP	Adarsh		28/8/2019	28
				CHD	M.K.Nahak			-
					C. Ganeshi			-
DEPT	ACCS	GRADE OF UTL/DIM	SCALE	WEIGHT (KG)	REF. TO ASSY/OLD DRG.			ITEM NO
CODE	662	PR QA: 500	N.T.S	3766.619	1-87-100-80806			-
TITLE				CARD CODE	DRAWING NO.			RE
Shell-4				U 01	2-87-100-81533			0

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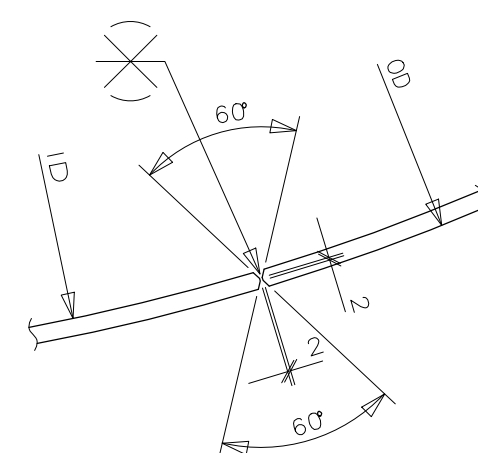
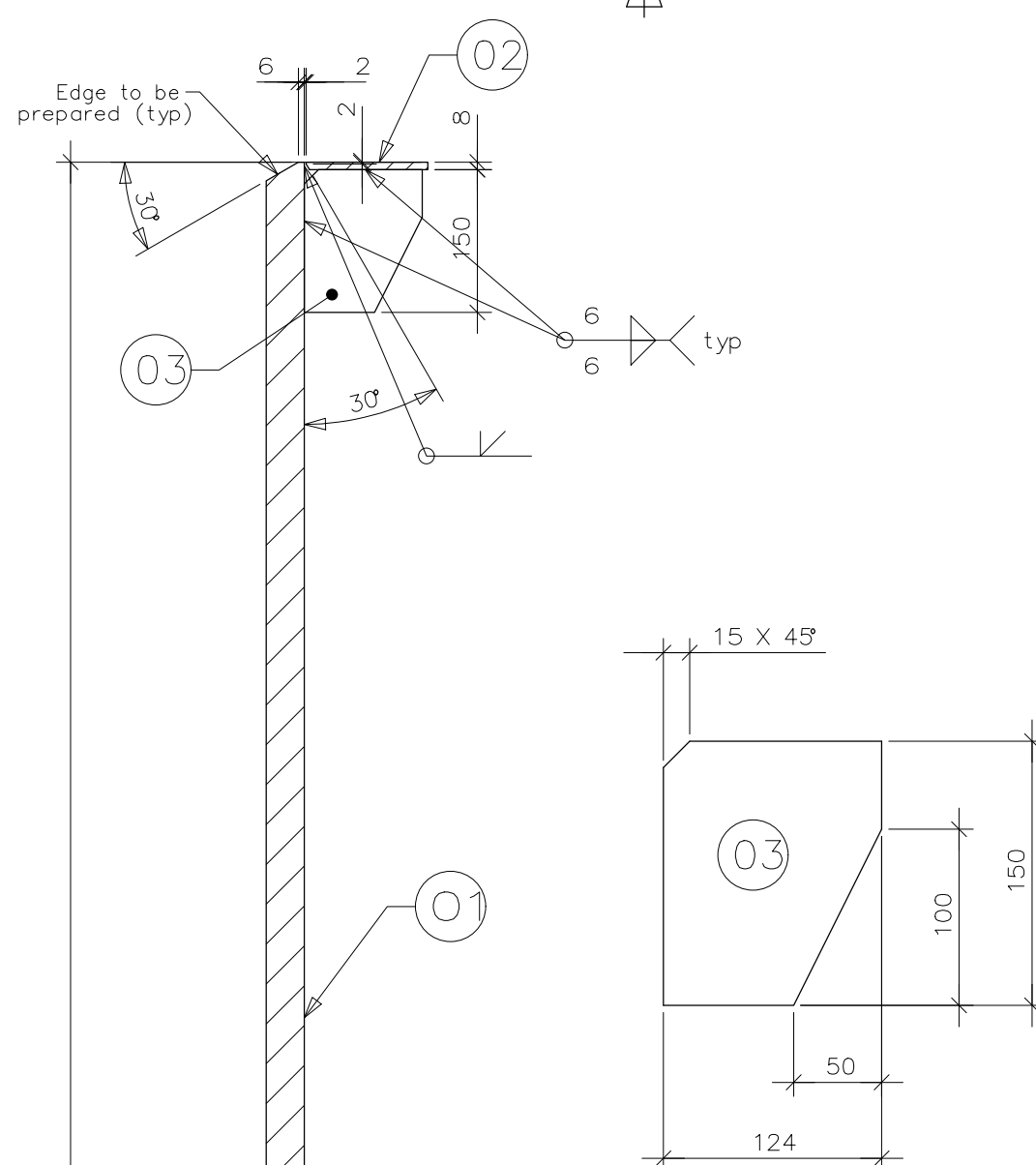
REV	DATE	ALTERED	K.RAJ
01	06.03.2020	CHECKED	MAHEN
ZONE  WELDING ELECTRODE ADDED IN 09 FOR CORTEN STEEL TO CO STEEL WELDING			

Size A2

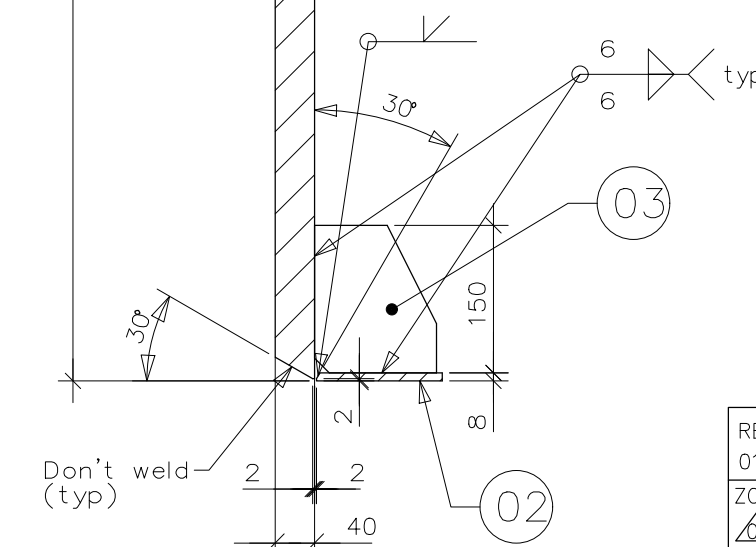
All dimensions are in millimetres



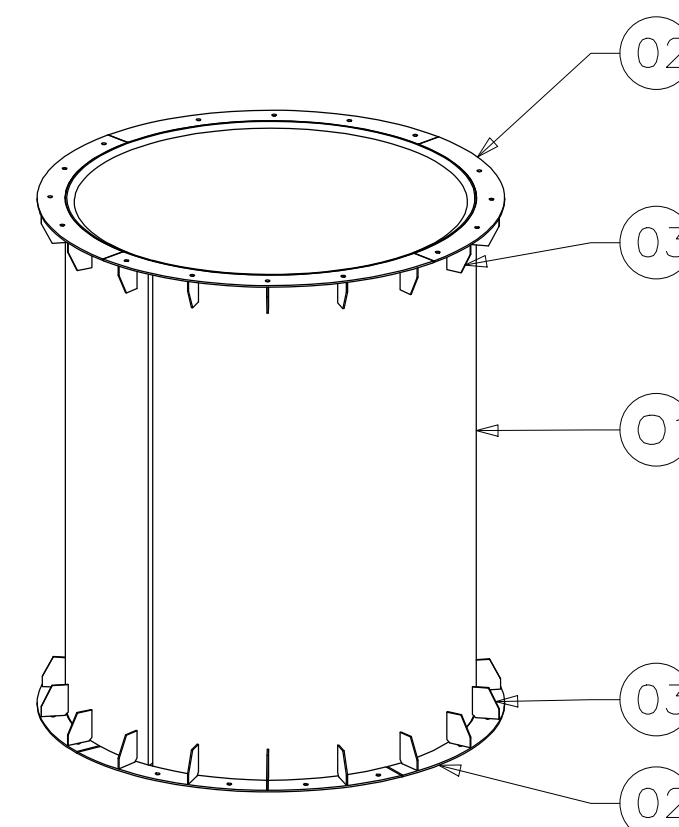
Cutting plan of item-02



Shell vertical joint detail



Section Z-Z



Perspective view

Notes

01. Manufacturing shall be done as per relevant CQR.
02. For surface preparation and painting refer relevant CQR.
03. The shell shall be match marked properly.
04. This shell is to be trial assembled prior to despatch at works.
05. For end stiffener welding details refer drg. 2-87-100-81544.
06. For lifting eye welding details refer drg. 3-87-100-80075.
07. C For critical dimensions.
08. This Shell outside is insulated.
09. Use electrode E-6013 for carbon steel to carbon steel welding ;
E-7018 for carbon steel to corten steel welding &
E-8018 for corten steel to corten steel welding.

[illegible]

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	
---	--



BHARAT HEAVY ELECTRICALS LTD.
UNIT: BOILER AUXILIARIES PLANT.
RANIPET - 632 406.

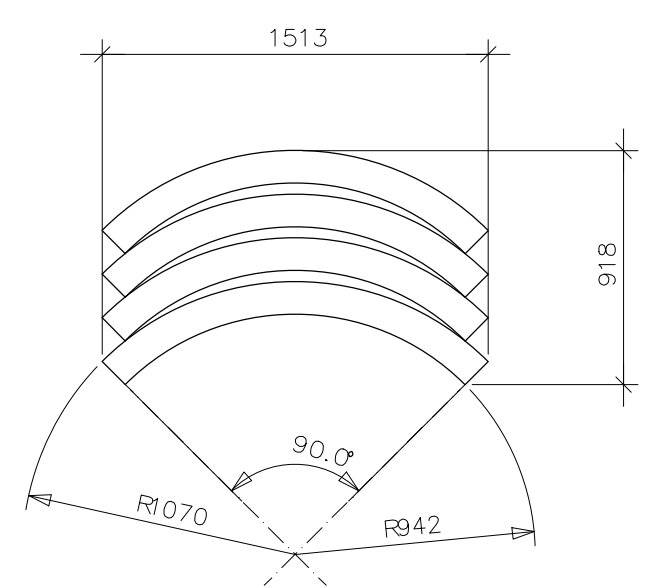
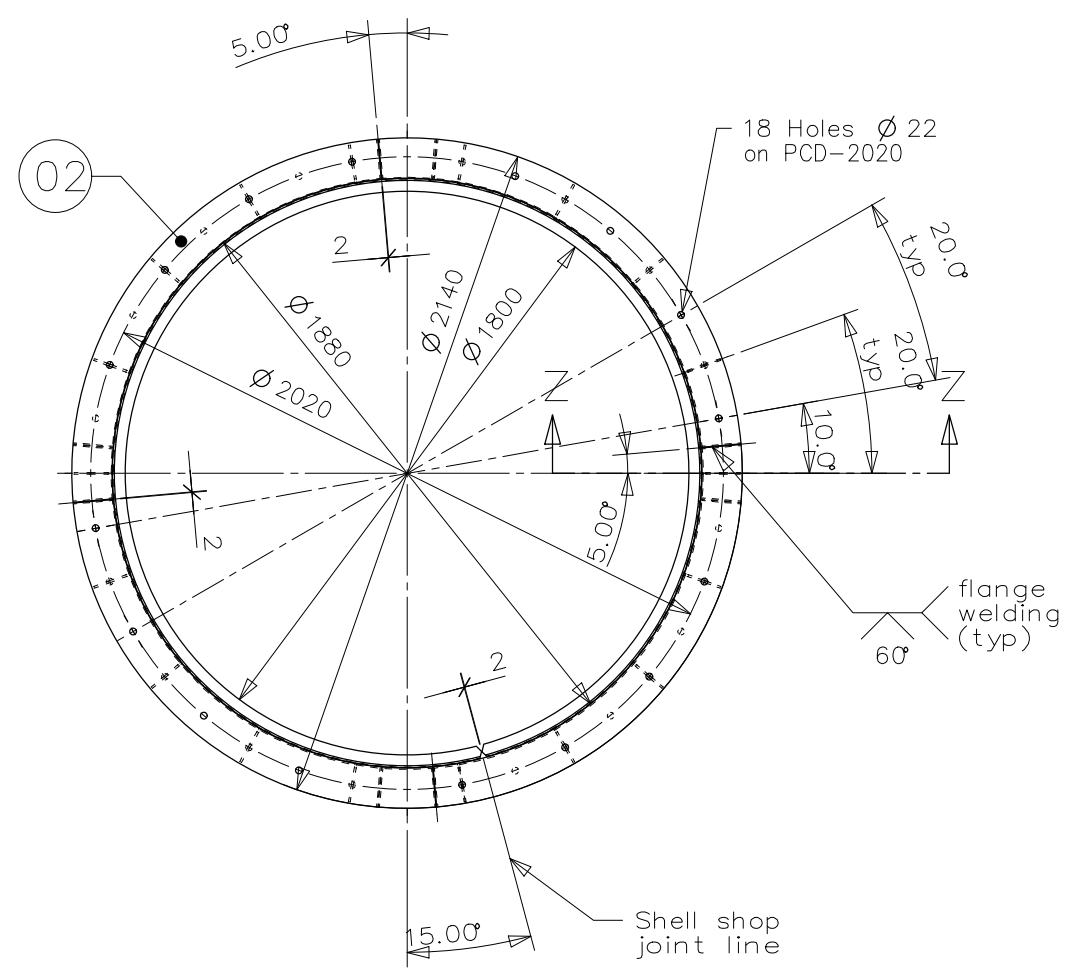
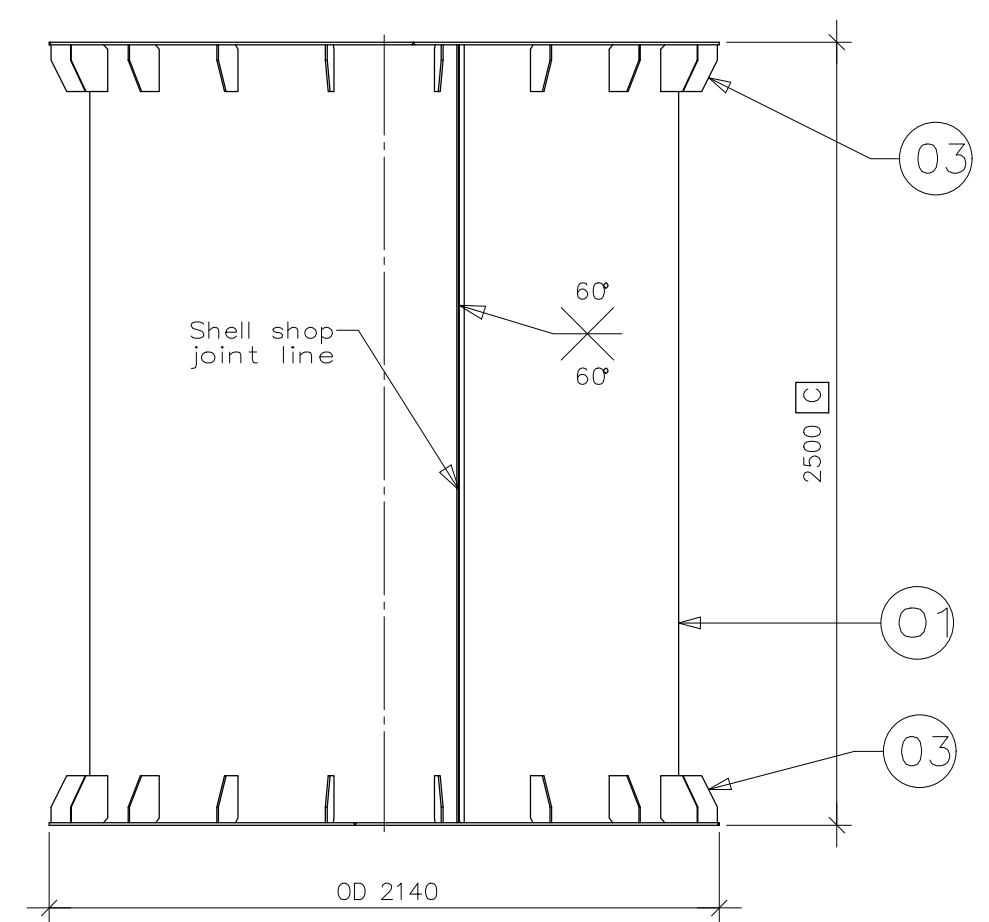
DRN	NAME Adarsh	SIGN	DATE 28Mar2019	NO. VA
CHD	M.K.Nahak			-

DEPT	AQCS	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG.)	REF. TO ASSY/OLD DRG.	ITEM NO.	NO. OF ITEMS
CODE	800	BB: 0A: 500		N.T.S	4790.826	1-87-100-80806	-	05

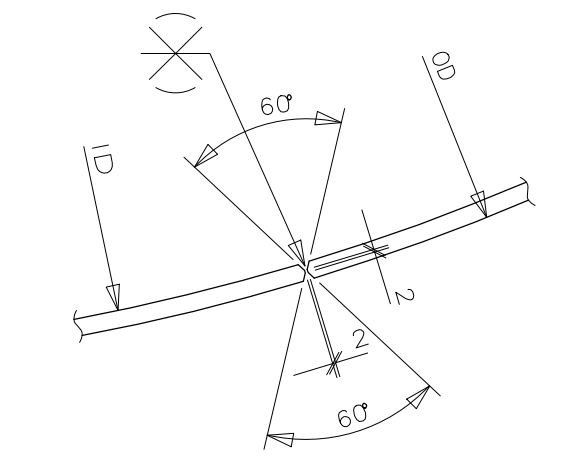
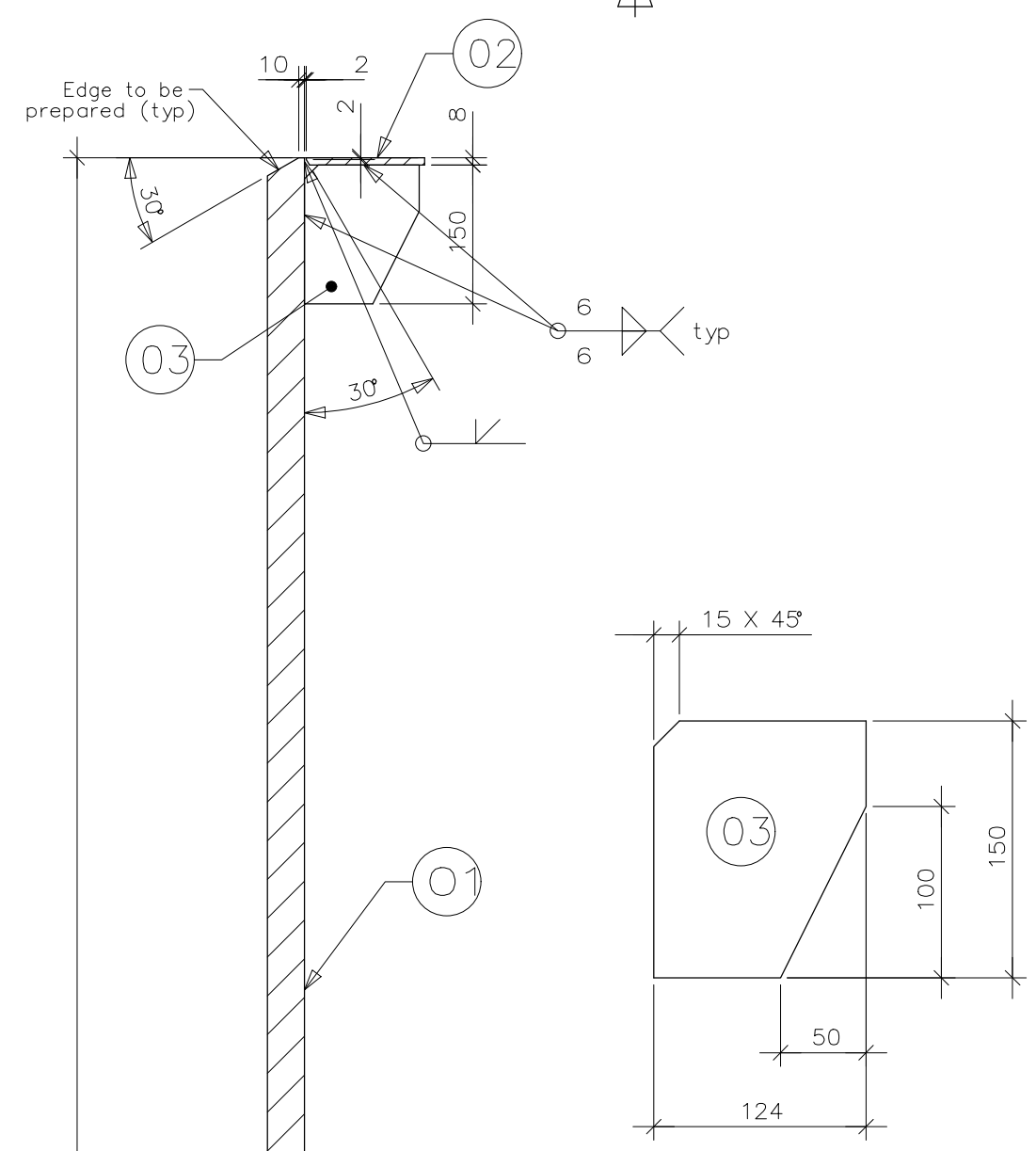
TITLE	CARD CODE	DRAWING NO.	REVISION
Shell-5	U 01	2-87-100-81534	0

DRAWING NO. 2-87-100-81535

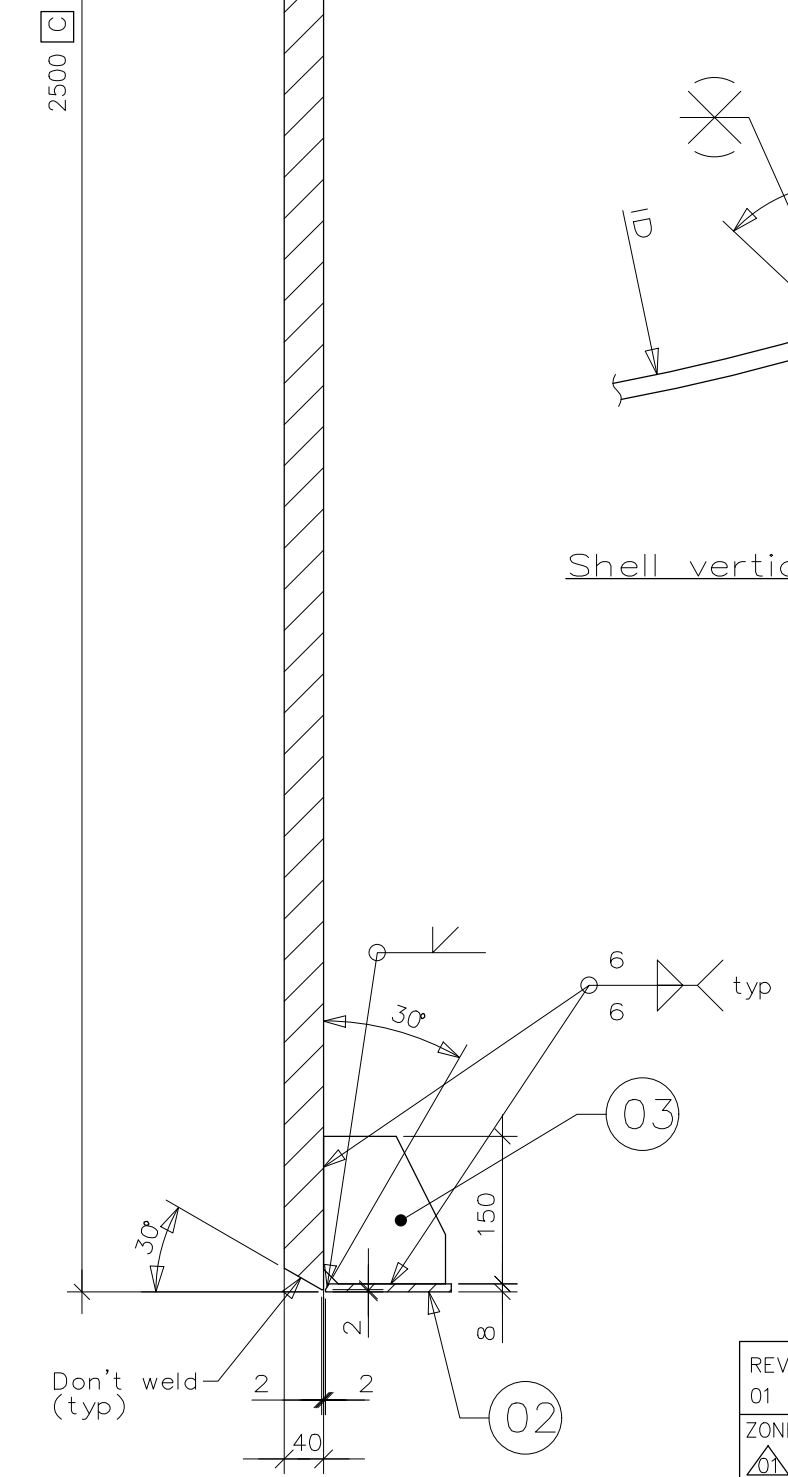
All dimensions are in millimetres



Cutting plan of item-02

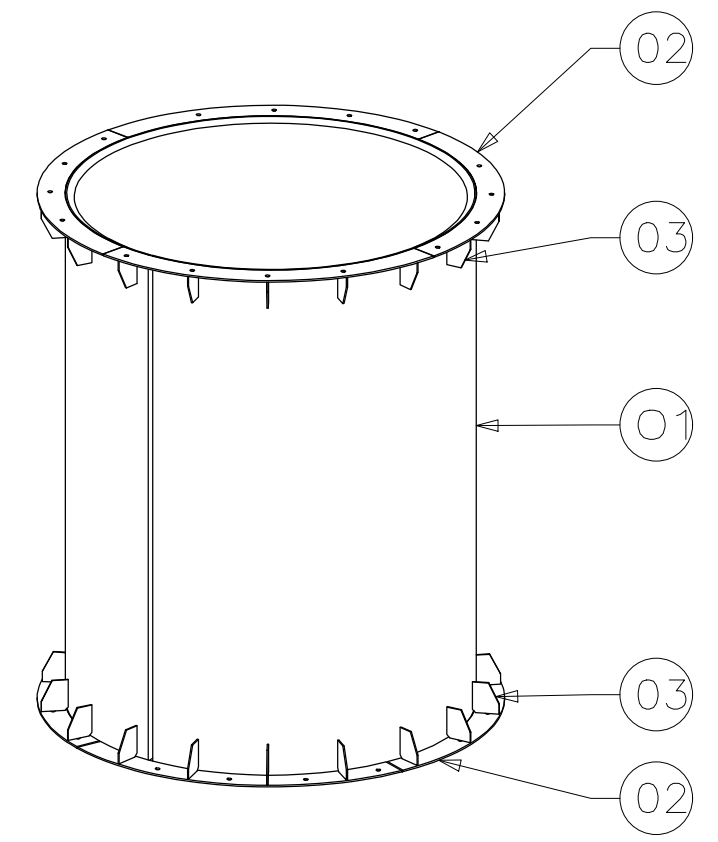


Shell vertical joint detail



Section Z-Z

REV	DATE	ALTERED	K.RAJI
01	16.03.2020	CHECKED	MAHEN
WELDING ELECTRODE ADDED IN NOTE NO 09 FOR CORTEN STEEL TO CORTEN STEEL WELDING			



Perspective view

- Notes
01. Manufacturing shall be done as per relevant CQR.
 02. For surface preparation and painting refer relevant CQR.
 03. The shell shall be match marked properly.
 04. This shell is to be trial assembled prior to despatch at works.
 05. For end stiffener welding details refer drg. 2-87-100-81545.
 06. For lifting eye welding details refer drg. 3-87-100-80075.
 07. C For critical dimensions.
 08. This Shell outside is insulated.
 09. Use electrode E-6013 for carbon steel to carbon steel welding ,
E-7018 for carbon steel to corten steel welding &
 Δ E-8018 for corten steel to corten steel welding.

VAR No	ITEM No	DESCRIPTION	UNIT	DRAWING NUMBER	ITEM No.	MATL. CODE	A	UNIT	UNIT WT.	QTY.	ZONE
	05	Lifting eye Dia-80		3-87-100-80075					3.140		
	04	End stiffener		2-87-100-81545					116.840		
	03	PL 6x124x150			159421030100	Corten-A			.758		
	02	PL 8x918x1513			159421040100	Corten-A			50.810		
	01	PL 40x2498x5779			159423430000	ASTM A588 Gr.A			4532.518		

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
UNIT: BOILER AUXILIARIES PLANT.
RANIPET - 632 406.

DEPT AQCS CODE 862

GRADE OF UNTOL.DIM PR: QA: 500

SCALE N.T.S

WEIGHT (KG) 4790.826

REF. TO ASSY/OLD DRG. 1-87-100-80806

DRAWING NO. 2-87-100-81535

NAME Adarsh

SIGN

DATE 28Mar2019

NO.OF VAR. -

DRN CHD APPD

M.K.Nahak

C.Ganesh

ITEM NO. 05

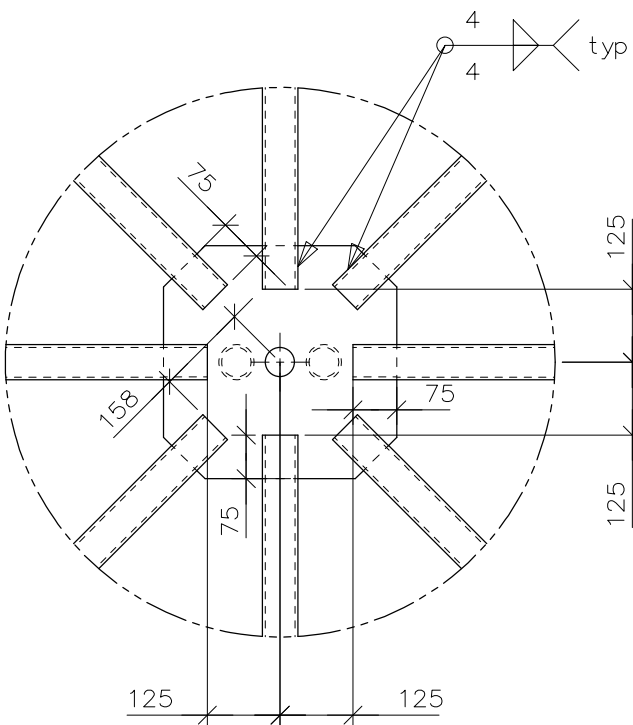
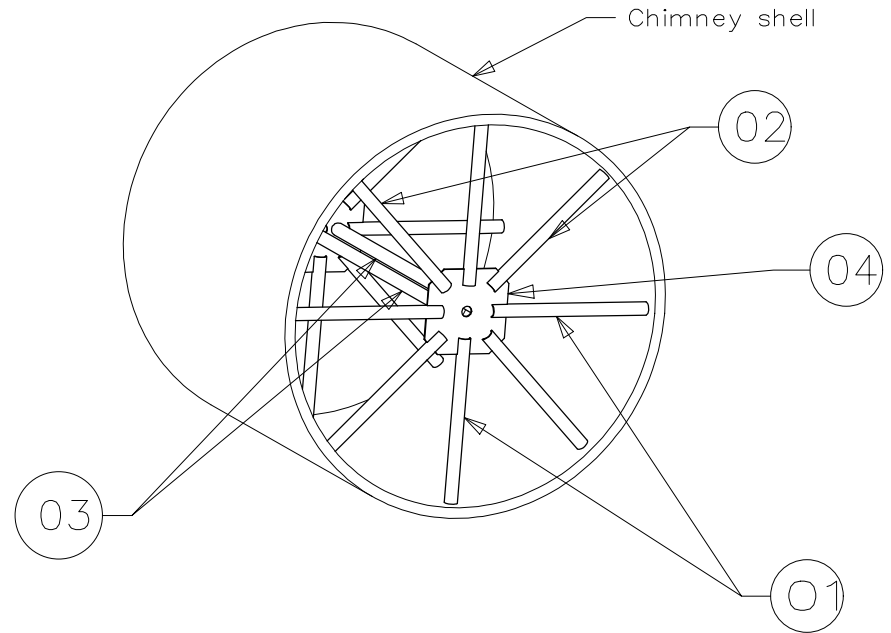
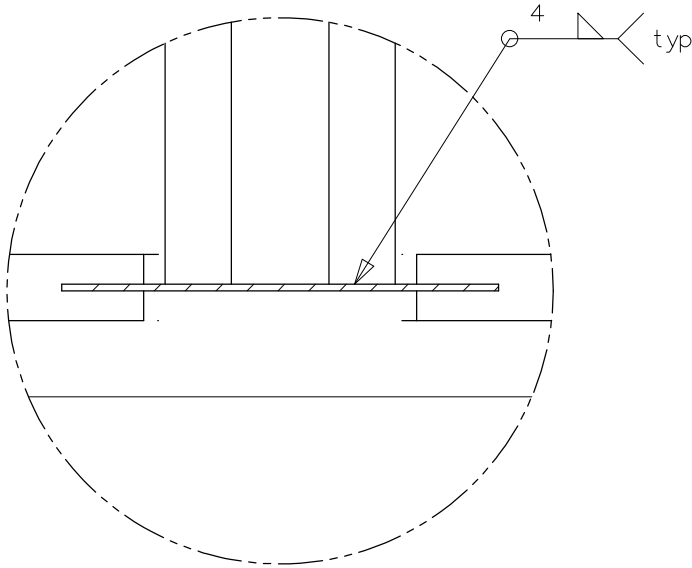
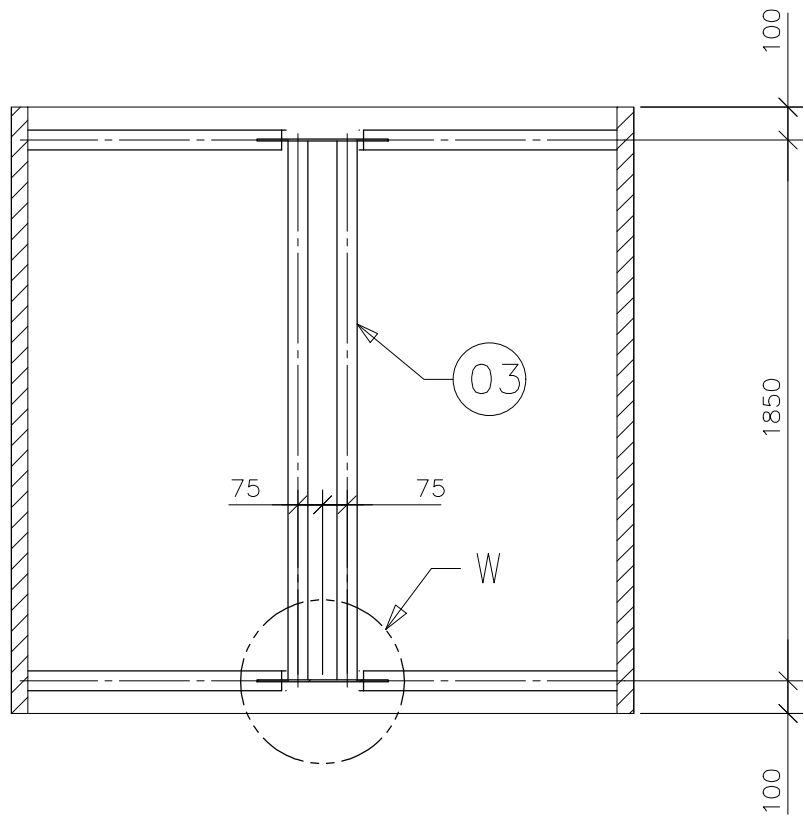
NO. OF ITEMS

REV 01

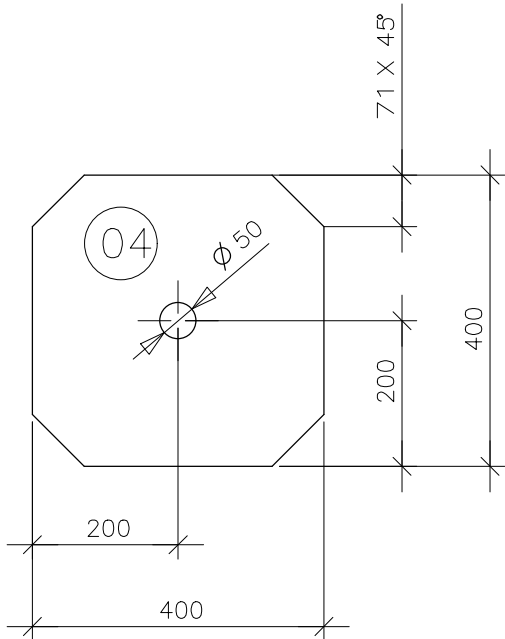
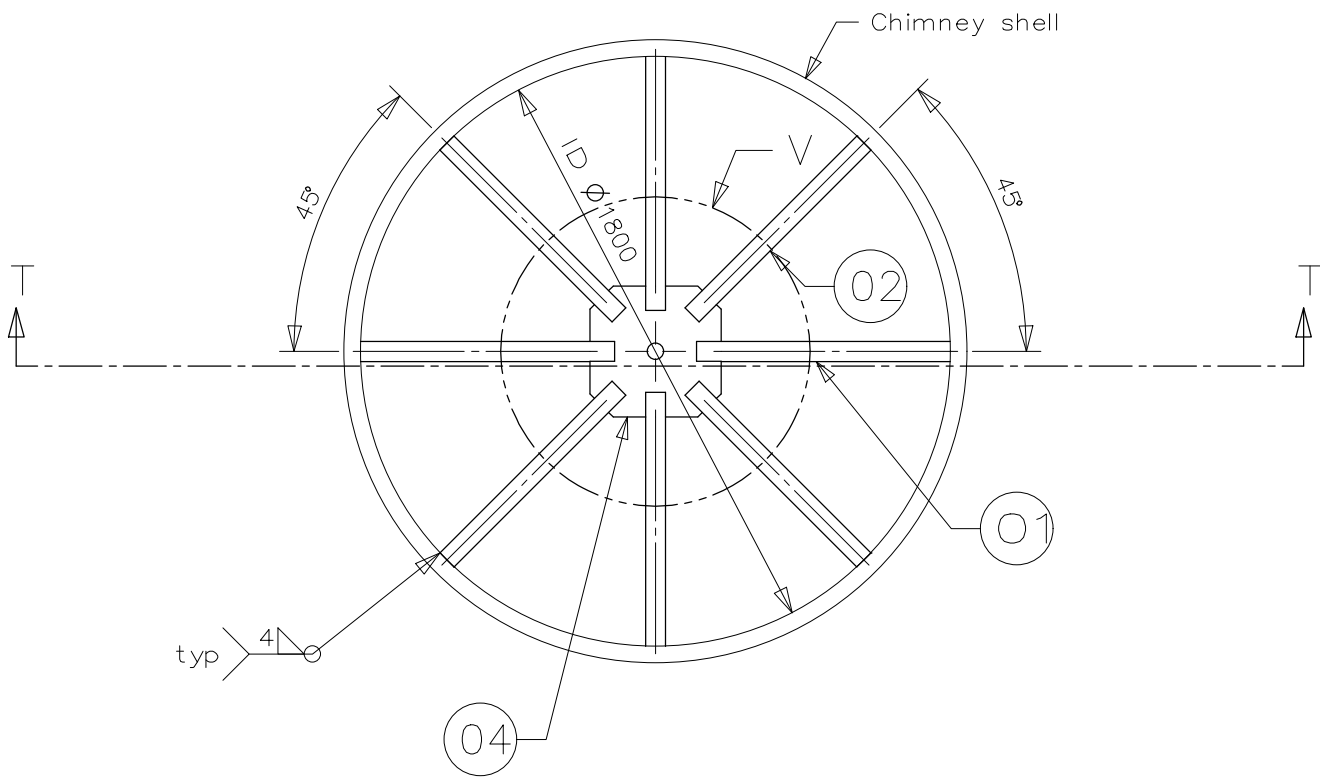
Shell-6

DRAWING NO. 2-87-100-81546

All dimensions are in millimetres



Detail V



REV	DATE	ALTERED	K.RAJI
01	16.03.2020	CHECKED	MAHEN
ZONE	WELDING ELECTRODE ADDED IN NOTE NO 09 FOR CORTEN STEEL TO CORTEN STEEL WELDING		
01			

Notes

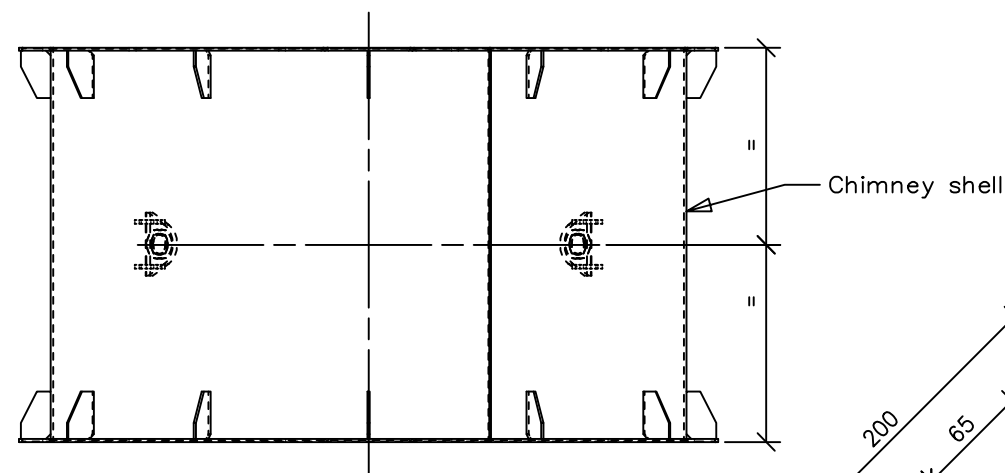
- Manufacturing shall be done as per relevant QWL.
- For surface preparation and painting refer relevant QCP.
- End stiffener shall be painted with yellow paint & this shall be removed at the time of erection.
- Use electrode E-6013 for carbon steel to carbon steel welding , E-7018 for carbon steel to corten steel welding & E-8018 for corten steel to corten steel welding.

VAR No	ITEM No	DESCRIPTION	STD	DRAWING NUMBER	ITEM No. VAR No.	MATL. CODE	A UNIT	UNIT WT. QTY.	CS	ZONE
	04	PL 6x400x400				AA1011808030		6.970		
	03	tube dia 60x4.5-1644				IS 2062 Gr.A		2		
	02	tube dia 60x4.5-742				150380190001		10.176		
	01	tube dia 60x4.5-775				IS 1161		2		
						150380190001		4.593		
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						150380190001		4.797		
						IS 1161		8		

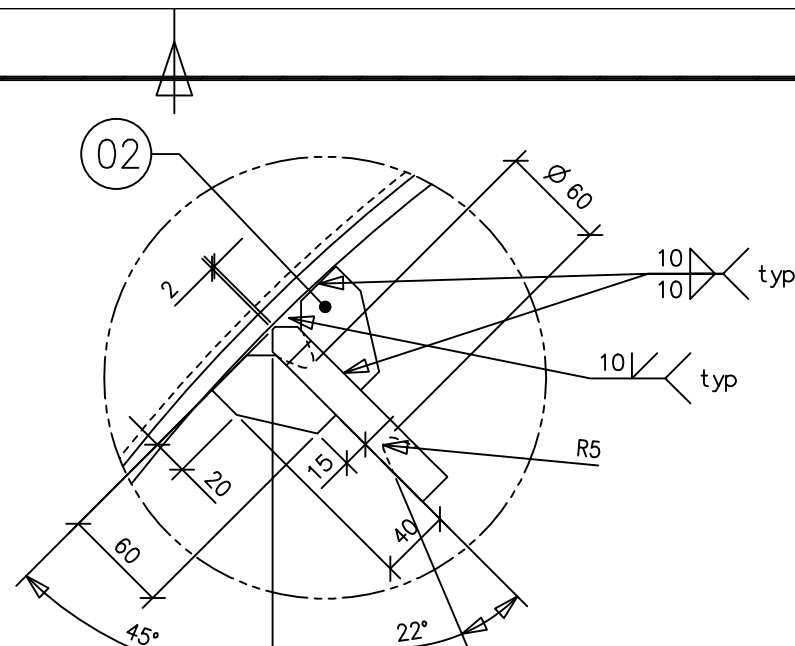
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.	TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT									
	BHARAT HEAVY ELECTRICALS LTD. .				DRN	NAME	SIGN	DATE	NO. OF VAR.	
	UNIT: BOILER AUXILIARIES PLANT. RANIPET - 632 406.				CHD	M.K.Nahak			-	
					APPD	C.Ganesh				
DEPT	AQCS	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY/OLD DRG.				ITEM NO.	NO. OF ITEMS
CODE	862	PR: QA: 500	N.T.S	109.412	1-87-100-80806				-	04
TITLE					CARD CODE	DRAWING NO.				REV
End stiffener (Chimney ID-1800)					U 01	2-87-100-81546				01

3-87-100-80075
DRAWING NO.

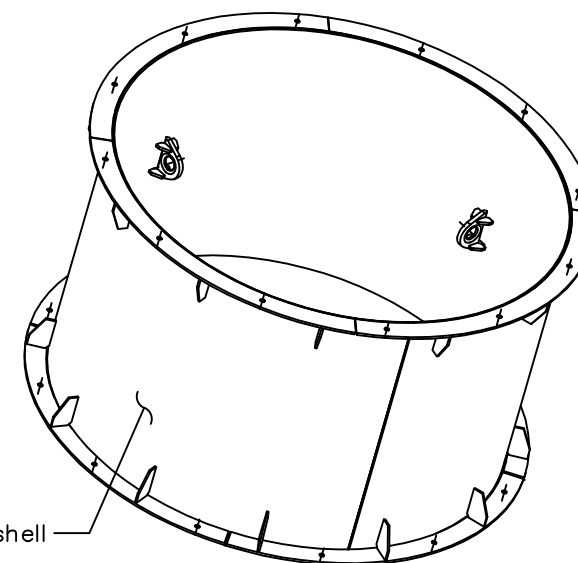
All dimensions are in millimetres



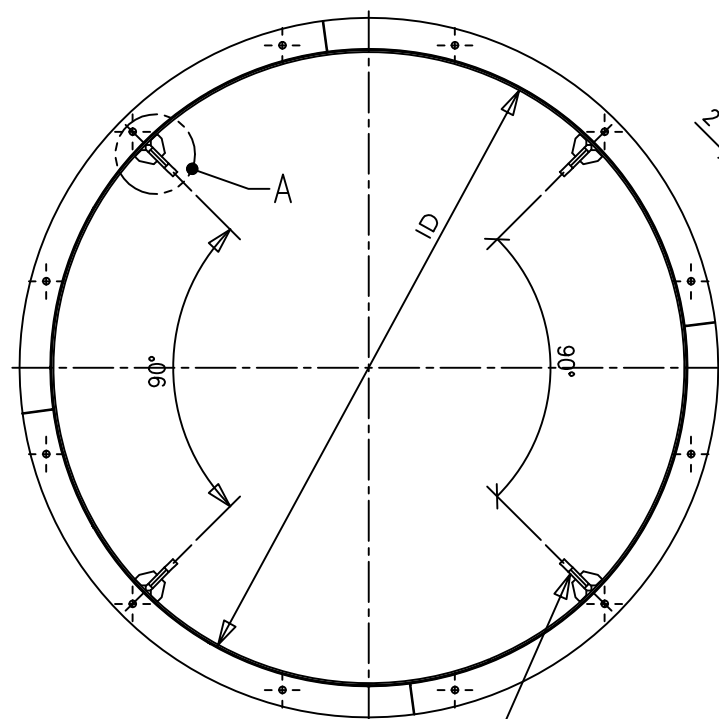
Chimney shell



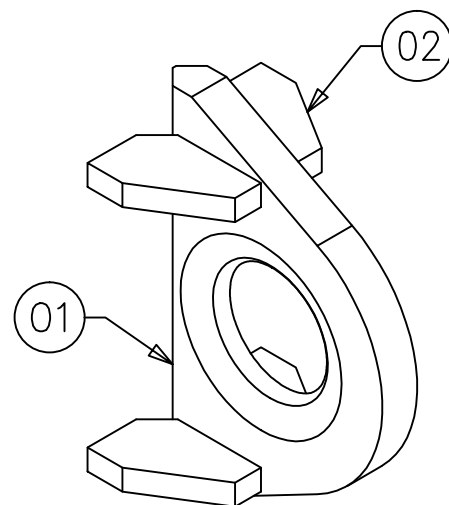
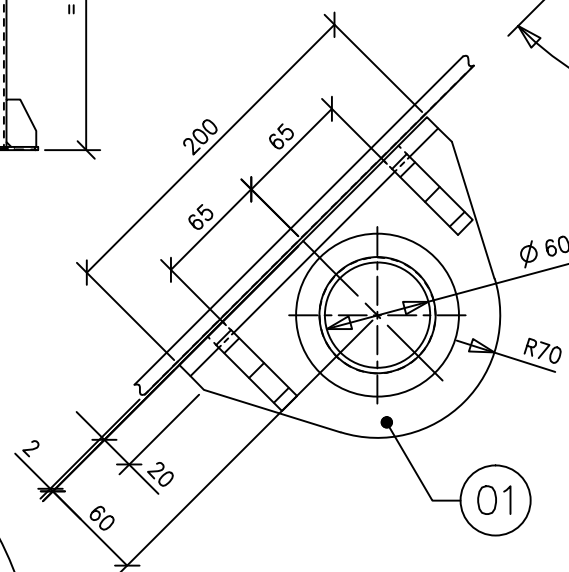
Detail-A



Chimney shell



Lifting eye shall be removed after erection



Notes

01. Manufacturing shall be done as per QCP:I:001 Rev. 03.
02. Application for lifting of equipment and shells by 'D' or 'S' shackles or by direct rope hoisting with the help of cranes.
03. Lifting eye shall be welded to the shell such that the direction of lifting of load lies in a plane with max. angle of 22° from the vertical face of the eye as shown in the figure.
04. Welding of lifting eye shall be positioned so as to avoid interference or overlap with any other welding of the shell or equipment and also to avoid deformation due to lifting.
05. When it is required to weld the lifting eye on to cylindrical surfaces, the seating surface shall be prepared to a suitable radius. wherever possible seating of lifting eye on surface which are cylindrical along the plane of the ribs shall be avoided.
06. For surface preparation and painting refer PR:QA:590.

VAR No	ITEM No	DESCRIPTION	STD	DRAWING NUMBER	ITEM No.	MATL. CODE	A	UNIT	UNIT WT.	CS	ZONE
	02	PL 12x40x60			AA1011808099				0.160		
					IS 2062 Gr.A				4		
	01	PL 20x130x200			AA1011808137				2.500		
					IS 2062 Gr.A				1		

REV	DATE	ALTERED	BY	REV	DATE	ALTERED	BY
01	16.03.2020	CHECKED	MAHEN	01	22Mar2014	CHECKED	C.Ganesh
				02			

WELDING ELECTRODE ADDED IN NOTE NO 09 FOR CARBON STEEL TO CARBON STEEL WELDING

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bharat Heavy Electricals Ltd.		DRN	A.Kamaraj	SIGN	DATE	NO. OF VAR.
		UNIT: BOILER AUXILIARIES PLANT. RANIPET - 632 406.		CHD	A.Kamaraj			-
				APPD	C.Ganesh			
DEPT	AQCS	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY/OLD DRG.	ITEM NO.	NO. OF ITEMS	
CODE	862	PR: QA: 500	N.T.S	3.140	-	-	02	
TITLE				CARD CODE	DRAWING NO.	REV		
Lifting eye ϕ 60				U 01	3-87-100-80075	03		

03	22.02.2018	Revised Issue- Changes made as per TCS dtd 22.02.18	MRM	RA	RA
02	05.02.2018	Revised Issue- Changes made as per TCS dtd 05.02.18	MRM	RA	RA
01	25.11.2017	Revised Issue- QP layout modified and Fictner's comments incorporated	MRM	RA	RA
00	16.06.2017	Fresh Issue	AG	RA	RA
REV	DATE	DESCRIPTION / NOTE	PRD	CHD	APD

REVISIONS

TITLE :

QUALITY PLAN FOR CHIMNEY FOR AUXILIARY BOILER

OWNER / PROJECT:



BANGLADESH-INDIA FRIENDSHIP POWER
COMPANY PVT. LTD, DHAKA, BANGALADESH 2x660
MW MAITREE STPP, RAMPAL, BANGLADESH

CUSTOMER CONSULTANT :

FICHTNER

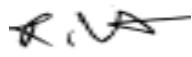
M/s FICHTNER GmbH & Co KG,
Stuttgart, GERMANY

EPC CONTRACTOR :



BHARAT HEAVY ELECTRICALS LTD.
BOILER AUXILIARIES PLANT, RANIPET

	NAME	DATE	
PREPARED BY	RAJAMANICKAM.M	22.02.2018	STATUS : <i>FOR APPROVAL</i>
CHECKED BY	R ARUNACHALAM	22.02.2018	BHEL CUST NO : R4N2
APPROVED BY	R ARUNACHALAM	22.02.2018	BHEL DOC NO : MAIT: 451
			REV NO : 03
			QP CAT. : Cat. I as per Vol. I.B
			KKS NO: HNE for Chimney
			SHEET NO : 1 OF 1
CUSTOMER DRG./DOC NO.: MAITREE-1-HNE-MQA-200321-RPT-A			

 RANIPET		MANUFACTURER'S NAME AND ADDRESS M/S BHEL: BAP: RANIPET 632 406 TAMIL NADU & BHEL APPROVED VENDORS		MANUFACTURING QUALITY PLAN			PROJECT : 2X660MW MAITREE STPP PACKAGE : AUX. BOILER CUST NO. : R4N2 CONTRACT NO : BIFPCL/EPC-MAIN PLANT/2016/215 MAIN-SUPPLIER: BHEL, RANIPET							
				ITEM: AUX. BOILER SUB-SYSTEM: CHIMNEY KKS NUMBER CHIMNEY- HNE		QP NO.: MAIT: 401 REV. NO.:03 DATE: 22.02.2018 PAGE: 01 OF 03 QP CATEGORY: CAT-I AS PER VOL. I.B								
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C / B				D*	M	C	B	
1.	2.	3.	4.	5.	6.		7.	8.	9.	D*	** 10.			11.
1.0	RAW MATERIALS													
1.1	PLATES & STRUCTURAL	Chemical and Tensile properties (*)	Major	Chemical and Tensile test	Each heat	Each Heat	Respective material specification	TC			P	V	V	(*) Typical TCs for plates of thk>40mm will be submitted to customer for verification
		Soundness of plates thk>40mm	Major	UT	100%	100%	Test certificate	TC			P	V	V	
2.0	IN-PROCESS CONTROL	Welders are qualified to AWS D1.1 & procedures are pre-qualified as per AWS D1.1- WPS, PQR										V	V	
2.1	Welding	Weld Size& Finish	Major	Visual	100%	100%	Drawing	R			P	W	--	
2.2	Butt weld	Soundness of weld	Major	RT /MPI*	Note-1	Note-1	BHE: NDT: RP: RT: 01 Latest	R	√		P	W	--	*- Check of NDT qualification certificates
2.3	Fillet weld	Soundness of weld	Major	MPI / LPI*	100%	10%	BHE: NDT:RP: MT:01 Latest	R	√		P	W	--	
2.4	Chimney Shells	Overall dimensions& Alignment of shells#	Major	Measurement	100%	100%	Drawing& Procedure	R	√		P	W	W*	
 MANUFACTURER/ SUB-SUPPLIER  MAIN-SUPPLIER LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER, B: BIFPCL P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: BIFPCL SHALL IDENTIFY IN COLUMN "B" AS 'W' TC- TEST CERTIFICATE, R- REPORT FOR BIFPCL USE														
SIGNATURE								DOC. NO.:		REV..... CAT.....				
								REVIEWED BY		APPROVED BY		APPROVAL SEAL		

 RANIPET	MANUFACTURER'S NAME AND ADDRESS M/S BHEL: BAP: RANIPET 632 406 TAMIL NADU & BHEL APPROVED VENDORS	MANUFACTURING QUALITY PLAN		PROJECT : 2X660MW MAITREE STPP PACKAGE : AUX. BOILER CUST NO. : R4N2 CONTRACT NO : BIFPCL/EPC-MAIN PLANT/2016/215 MAIN-SUPPLIER: BHEL, RANIPET
		ITEM: AUX. BOILER SUB-SYSTEM: CHIMNEY KKS NUMBER CHIMNEY- HNE	QP NO.: MAIT: 401 REV. NO.:03 DATE: 22.02.2018 PAGE: 02 OF 03 QP CATEGORY: CAT-I AS PER VOL. I.B	

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C / B					M	C	B	
1.	2.	3.	4.	5.	6.		7.	8.	9.	D*	** 10.			11.
3.0	FINAL INSPECTION													
3.1	Painting & preservation & identification of shells	Surface preparation, Proper Painting, Preservation & Identification	Major	Visual/ DFT measurement	100%	100%	As per Approved Painting Schedule		R	√	P	W	V	

Notes:

Note:1: Inspection reports will be submitted for Owner's review of NDT requirements as per BHEL standard NDT procedure for chimney specified in Note-1 of this QP.

- (1) Chimney Base plate butt welds more than 50mm- 100% UT/ RT
- (2) Chimney shell plate butt welds 100% MPI (both sides of joint)
- (3) All back gouged area 100% LPI
- (4) Fillet welds 100% visual and 10% LPI
- (5) BHEL standard NDT procedure referred from following for procedure and acceptance criteria,
 - 1) RT- ASME Sec. V, AWS D1.1
 - 2) MT- ASME Sec. V, AWS D1.1
 - 3) PT- ASME Sec. V, AWS D1.1

Note: 2: All other items of Chimney other than mentioned above like Hand rails, Platform, Ladder, Ducts, Stiffeners etc will be inspected by BHEL/ BHEL's AIA and dispatched.

 MANUFACTURER/ SUB-SUPPLIER	 MAIN-SUPPLIER	LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER, B: BIFPCL P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: BIFPCL SHALL IDENTIFY IN COLUM "B" AS 'W' TC- TEST CERTIFICATE, R- REPORT	FOR BIFPCL USE	DOC. NO.:		REV..... CAT.....		
				REVIEWED BY		APPROVED BY		APPROVAL SEAL

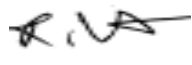
 RANIPET	MANUFACTURER'S NAME AND ADDRESS M/S BHEL: BAP: RANIPET 632 406 TAMIL NADU & BHEL APPROVED VENDORS	MANUFACTURING QUALITY PLAN		PROJECT : 2X660MW MAITREE STPP
		ITEM: AUX. BOILER SUB-SYSTEM: CHIMNEY KKS NUMBER CHIMNEY- HNE	QP NO.: MAIT: 401 REV. NO.:03 DATE: 22.02.2018 PAGE: 03 OF 03 QP CATEGORY: CAT-I AS PER VOL. I.B	PACKAGE : AUX. BOILER CUST NO. : R4N2 CONTRACT NO : BIFPCL/EPC-MAIN PLANT/2016/215 MAIN-SUPPLIER: BHEL, RANIPET

Note: 3:

- Inspection and tests shall be in compliance with BHEL document/ approved quality control procedure for the product.
- Welding shall be carried out by qualified welders with traceable WPQ in line with approved WPS and qualified PQR, as per AWS.
- NDT shall be carried out by qualified personnel with compliance to approved NDT procedures and acceptance norms as per ASME section V.
- Gauges and measuring instruments, with valid calibration only shall be used.
- Cleaning and painting of products shall be carried out as per approved painting schedule as applicable.
- Finished products shall be packed to comply with approved packing schedule.
- Latest revision of standards & specification shall apply.

RECORD OF REVISION

REV NO	EFFECTIVE DATE	DETAILS OF REVISION MADE
REV.00	16.06.2017	Original Issue- First submission
REV.01	23.11.2017	Revised issue- Changes made as per TCS dtd 22.11.2017
REV.02	05.02.2018	Revised issue- Changes made as per TCS dtd 05.02.2018
REV.03	22.02.2018	Revised issue- Changes made as per TCS dtd 22.02.2018

 MANUFACTURER/ SUB-SUPPLIER	 MAIN-SUPPLIER	LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER, B: BIFPCL P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: BIFPCL SHALL IDENTIFY IN COLUMN "B" AS 'W' TC- TEST CERTIFICATE, R- REPORT	FOR BIFPCL USE	DOC. NO.: REV..... CAT.....		
				REVIEWED BY	APPROVED BY	APPROVAL SEAL

AWS D1.1- WELDING PROCEDURE SPECIFICATION (WPS)

WPS No. : 111 R

REV No. : 00

DATE: 30/11/18

SUPPORTING PQR No. : 74

BASE METALS	SPECIFICATION	TYPE OR GRADE	BASE METAL THICKNESS	As Welded	With PWHT
Base Material	ASTM A 588	Corten Gr.A	CJP Groove Welds	3mm to unlimited	NA
Welded To	ASTM A 588	Corten Gr.A	CJP Groove w/CVN	NA	
Backing Material	NA		PJP Groove Welds	NA	
Other			Fillet Welds	Unlimited	
			DIAMETER	NA	

JOINT DETAILS

Groove Type	Single V
Groove Angle	60° +10° / -5°
Root Opening	2 to 3 mm
Root Face	2 to 3 mm
Backgoughing	yes
Method	Back Grinding

POSTWELD HEAT TREATMENT

Temperature	NA
Time at Temperature	NA
Other	

JOINT DETAILS (SKETCH)

Refer Production Drawing

PROCEDURE

Weld Layer(s)	Root	Hot	Further					
Weld Pass(es)	1	2	3 to n					
PROCESS	SMAW	SMAW	SMAW					
Type (Manual, Mechanized)	Manual	Manual	Manual					
POSITION	3G	3G	3G					
Vertical Progression	NA	NA	NA					
FILLER METAL (AWS Spec.)	A5.5	A 5.5	A5.5					
AWS Classification	E 8018W2	E 8018W2	E 8018W2					
Diameter	3.15 mm	4mm	5mm					
Manufacturer / Trade Name								
PREHEAT TEMPERATURE								
Upto 38 mm	Nil	Nil	Nil					
Above 38 - Min ° C	120°	120°	120°					
Interpass Temperature	Max 300°C							

ELECTRICAL CHARACTERISTICS

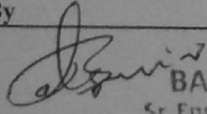
Current Type & Polarity	DCEP	DCEP	DCEP					
Amps	110-140 A	150- 180A	220-260A					
Volts	22-26V	22-26V	22-26V					
Travel Speed	NA	NA	NA					
Maximum Heat Input	NA	NA	NA					

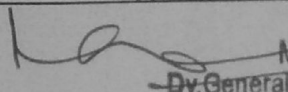
TECHNIQUE

Stringer or Weave	Stringer	Stringer	Stringer					
Multi or Single Pass (per side)	Multi	Multi	Multi					
Interpass cleaning	Chipping	Chipping	Chipping					
	Grinding	Grinding	Grinding					

Prepared By

Reviewed and Approved By


N. BALAMURUGAN N.
 Sr. Engineer/ Production/WTC
 BHEL:BAP:RANIPET - 632 406


M. VALAVAN
 Dy. General Manager / Production
 BHEL:BAP:RANIPET - 632 406

03	04.06.2018	Revision 03	YS	KSB	JPS
02	05.03.2018	Revision 02	YS	KSB	JPS
01	16.12.2017	Revision 01	YS	KSB	JPS
00	09.10.2017	FRESH ISSUE	YS	KSB	JPS
	DATE	DESCRIPTION/ NOTE	PRD	CHD	APD

REVISIONS

TITLE:

PAINTING SCHEDULE FOR ENTIRE PLANT

OWNER/ PROJECT: BANGLADESH-INDIA FRIENDSHIP POWER PVT. LTD, DHAKA,
BANGLADESH 2x660 COMPANY MW MAITREE STPP,
RAMPAL, BANGLADESH



OWNER CONSULTANT: M/s FICHTNER GmbH & Co KG,
FICHTNER Stuttgart, GERMANY

EPC CONTRACTOR :



BHARAT HEAVY ELECTRICALS LTD.

	NAME	DATE	
PREPARED BY	YS	04/06/2018	STATUS: FOR APPROVAL
CHECKED BY	KSB	04/06/2018	REV 03
APPROVED BY	JPS	04/06/2018	

DOC NO.: MAITREE-0-BFA-FF-100000-GEN	Rev 03
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Index

1. Scope & Philosophy
2. General Requirements
3. Codes & Standards
4. Surface Preparation and Cleaning of Surfaces in the Shop
5. Cleaning to be performed on site
6. Cleaning of prime and intermediate coats (if required)
7. Application procedure
8. Galvanizing
9. Appendix-A

1. Scope & Philosophy

This document covers the Painting Scheme including Corrosion Protection, Coating and Galvanizing requirements applicable for the entire power plant packages, equipment, structures, piping etc. and any other surfaces.

Corrosion Protection, Coating and Galvanizing requirements shall conform to Contractual requirement stipulated in B0.6.5.

This documents contains list of annexure (mentioned at appendix-A) for Painting Scheme to be followed for various packages, equipment, items and structures.

Painting scheme shall be approved item/ equipment wise and not package wise i.e Painting scheme once approved for any equipment, items and structures etc shall be applicable for all similar equipment, items and structures in entire power plant.

2. General Requirement

Coating material shall only be supplied by manufacturers with international experience and their products can be obtained internationally.

It is the responsibility of the Contractor to ensure that, for all supplied equipment (including that from sub suppliers):

- The protection system is perfectly suitable for the Site conditions and for the specific purpose.
- The shop paints provide a sufficient protection during transport, storage and erection.
- The shop paints are suitable for handling and erection conditions (slinging, Site welding works etc.) and are compatible with the Site finishing coats
- All necessary precautions are taken in order to prevent damage to paints during storage, handling, welding.
- The necessary repairs are carefully executed as soon as possible.
- The colour RAL number of the finishing coat has been approved by the Employer, including identification code for piping.
- All items/equipment shall be painted as per the specification.

3. Codes and standards

Corrosion Protection, Coating and Galvanizing requirements will conform to the below mentioned applicable standards or equivalent:

- Product data of coating manufacturer
- DIN 2403 Indication of pipe-lines according to flowing material
- DIN 4762 Surface roughness
- ISO 8503 Surface roughness

- DIN 8201 Part 1-9 tight blasting agents
- DIN 50976 Corrosion protection, hot dip batch galvanizing of single parts, requirements and testing
- DIN 55928 Part 1-9 corrosion protection of structural steel work through protective coatings and topcoats
- ISO 8501 Preparation of steel substrates before application of paints and associated products
- ISO 12944 Paints and varnishes corrosion protection of steel structures by protective paint systems
- RAL Colour card
- ISO 8501-1 Preparation of steel substrates before application of paints and related products
- SSPC Vol. 1 and 2 Steel structure painting council

4. Surface Preparation and Cleaning of Surfaces in the Shop

All surfaces to be painted will be thoroughly cleaned of all grease, oil, paint residues, welding splashes, loose mill scale, dust, rust and any other foreign matter. Mechanical cleaning by power tool and scrapping with steel wire brushes will be adopted to clear the surfaces. However, in certain locations where power tool cleaning cannot be carried out, sand scrapping may be permitted with steel wire brushes and/or abrasive paper. Cleaning with solvents will be resorted to only in such areas where other methods specified above have not achieved the desired results. Cleaning with solvents will be adopted only after written approval of the Purchaser/Consultant.

Sharp edges have to be rounded off. Contaminations caused by salts, acids and alkali solutions shall be eliminated by rinsing with water up to a pH value of 6-8. Soluble salt contamination is to be tested using the Weber Reilly test method (or similar approved) and pH is to be tested using universal indicator paper strips prior to continuation with the blasting.

The preparation of substrates shall be carried out on the basis of the specifications of ISO 12944 part 4 and ISO 8501. The preparation of steel before application of paint and related products shall be in line with ISO 11124 for metallic blast cleaning abrasives and ISO 11126 for non-metallic blast cleaning abrasives. No recycled blast grit may be utilised.

After blasting, an anchor profile of 25 - 50 µm shall be achieved. Blasted surfaces have to be provided with a prime coat of the approved coating system immediately within 4 hours of blasting. All blasting and priming must take place outside of the high humidity periods of the day (i.e. maximum relative humidity of 80%).

5. Cleaning to be performed on site

Steel work protected by shop primer after arrival on site must be cleaned of salt, sand, oil, etc. before the first coat of paint is applied on site. Shop primer damaged during transport must be rectified by blast-cleaning and coating before application of the site coats. Wood surfaces shall be sanded clean. All nail holes shall be puttied and sanded

before priming, unless the specific coating system allows for coating onto damp concrete, in which case only with approval from the Employer.

If a protective coating of concrete is required, concrete shall be allowed to cure before painting. Transport and erection damages, as well as damages which result out of additional welding have to be repaired as soon as possible. The damaged areas have to be derusted with rotating or steel brushes, abrasive wheels, and abrasive blasting according to DIN ISO 8501-1.

6. Cleaning of prime and intermediate coats (as required)

To prevent contamination by mineral oil products, areas with prime and intermediate coat have to be treated with suitable cleaning agent. Cleaning has to be done free of residues, e.g. with alkaline detergents and thorough washing done with fresh water. Rusty spots have to be removed according to required purity. Metallic areas which are provided with temporary corrosion protection have to be cleaned. No oxidation products shall remain on the surface. Further care shall be taken that on hot components, no destructive or reaction products will be released when heating which could injure insulation.

7. Application procedure

When using the provided coating material, strict adherence to all application instructions given in product data of coating manufacturer is necessary. To obtain the maximum performance, technical data as well as application instructions for the individual coating material have to be strictly followed.

For a multi-layer coating system each layer has to have a different colour shade in order to clearly identify number of coats applied. The last finish coat has to be applied in the specified colour shade.

All paintings shall be performed according to ISO 12944. The durability of all paintings shall be high which corresponds to 15 years.

The interval between applying the different coats has to follow according to suppliers specifications. Each layer shall be cleaned and released from spray dust before the next layer will be applied. Prior to applying a further layer, the last one has to be repaired. All coatings have to be applied without retarding.

Following application procedures are allowed:

- prime coats by airless spray
 - areas like disconnections, angles, corners, etc. which are difficult to be reached can be applied by brush or roller
- finish coats
 - at works by airless spray, roller or brush
 - at site by roller or brush or airless spray.

Control areas in accordance with the coating supplier's instructions have to be applied. For this procedure, a schedule for control areas has to be prepared by the

Contractor and coating supplier which corresponds with the requirements of the warranty agreement.

Number and performance of the control areas have to be done in accordance with ISO 12944 part 7 and have to be documented in writing. No application shall take place either in the condition of the relative humidity not within the given limit or in case of poor weather conditions such as fog, dust, rain, snow, hail or when it can be assumed that such conditions of poor weather will arise within 2 hours after application. Temperature of the coated parts has always to be above 5 °C and 3 K above dew point.

All specified dry film thicknesses (DFT) are minimum thicknesses. Welding seams executed at site have to be taped with an adhesive tape of about 30-50 mm after surface preparation (blasting or manual derusting) and prior to application in the manufacturing plant and to be coated with stripping coat.

Chequered plates, nap plates, etc. have not to be covered with adhesive tape, but have to be coated with stripping coat in a dry film thickness of at least 150 µm. Edging lines on steel structure have to be taped prior to application and after blasting in sufficient width or have to be protected with varnish before application. Thickness of prime coat may be 50 µm maximum. During repairing works at site on shop-primed structures, it is important that different coats will have different colour shades. Numbers of layers have to be the same as the original coating system to be used.

Application of temporary primer on structures which have to be insulated has to be in accordance with a sufficient corrosion protection for the period of storage respectively erection time.

8. Galvanizing

Galvanizing work shall conform in all respects to ISO 1461 or equivalent standards and shall be performed by the hot dip process unless otherwise specified.

It is essential that details of steel members and assemblies which are to be hot-dip galvanized should be designed to suit the requirements of the process. They should be in accordance with ISO 12944.

Vent holes and drain holes shall be provided to avoid high internal pressures and air locks during immersion and to ensure that molten zinc is not retained in pockets during withdrawal. Careful cleaning of welds is necessary before welded assemblies are dipped.

All defects of the steel surface including cracks, surface laminations, laps and folds shall be removed in accordance with BS 4360. All drilling, cutting, welding, forming and final fabrication of unit members and assemblies shall be completed, where feasible, before the structures are galvanized.

The minimum coating thickness shall be as specified in Table 1 of BS 729. Structural steel items shall be first grit-blasted to BS 4232, second quality, (Sa 2 1/2) or pickled in a bath, and the minimum average coating weight on steel Sections 5 mm thick and over shall be 900 g/m², on steel Sections 2 – 5 mm thick 600 g/m².

Galvanized contact surfaces to be joined by high-tensile friction-grip bolts shall be roughened before assembly so that the required slip factor is achieved. Care shall be taken to ensure that the roughening is confined to the area of the mating faces.

Protected slings must be used for off-loading and erection. Galvanized work, which is to be stored at the works or on site shall be stacked so as to provide adequate ventilation for all surfaces to avoid wet storage staining (white rust).

Small areas of the galvanized coating damaged in any way shall be restored
by:

- cleaning the area of any weld slag and thorough wire brushing to give a clean surface
- The application of two coats of zinc-rich paint, or the application of a low melting point zinc alloy repair rod or powder to the damaged area, which is heated to 300 °C or the treatment with suitable cold galvanizing paint, such as ORAPI n.z.a.b 706. All zinc rich paint used for such repairs must contain a minimum of 81% by mass of zinc in the dry film.

Connections between galvanized surfaces and copper, copper alloy or aluminium surfaces shall be protected by suitable tape wrapping.

Appendix-A

#	Painting Schedule for	Document No.	Remarks
1.	Steam Generator & Aux	MPS-1	
2.	Turbogenerator, Steam Turbine, Condenser, Turbine Integral System, Auxiliaries, Control Instrument of STG & Associated Auxiliaries.	MPS-2	
3.	Fire Protection System	MPS-3	
4.	Flue Gas Desulphurization (FGD) System	MPS-4	
5.	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures	MPS-5	
6.	Air Pre Heater (APH), Electrostatic Precipitator (ESP) FAN and Gates & Dampers	MPS-6	
7.	MISC TANKS – SITE FABRICATED I.E. CONDENSATE STORAGE TANKS, DM WATER STORAGE TANKS, SERVICE WATER STORAGE TANKS AND DESALINATED WATER STORAGE TANK	MPS-7	
8.	Low Pressure Piping	MPS-8	
9.	Ash Handling Plant	MPS-9	These packages shall comply with Painting specifications as per contractual specifications
10.	Pumps, Mills & Auxiliaries		
11.	Drain Cooler, LP Heaters, Deaerator, HP Heaters And Oil Cooler		
12.	Coal Handling Plant		
13.	Limestone & Gypsum Handling Plant		
14.	RE Joint		
15.	Mill Reject System		
16.	Chimney		
17.	D/G EOT Cranes		
18.	Sewage Treatment Plant		
19.	Pre Treatment Plant		
20.	Fuel Oil Handling System		
21.	Weigh Bridge		
22.	Electrical & Associated Systems		
23.	Other Balance of Plant Packages		

Coating System (refer Contract Book No.3 Clause B0.6.5)

Coating System (refer Contract Book No.3 Clause B0.6.5)									
									MPS-4
System No.	Surface location	Item Description/ PGMA details	Temp in Celsius	Surface Preparation	Coating systems	No. of coats	Generic type	Dry film thickness (DFT) per coat micro m	Total DFT (Micro m)
1	Structural steel works, piping, vessels, tanks INDOOR	Indoor surfaces (Structural steel works, piping, vessels, tanks) of FGD system	upto 120	SA 2.5	Primer	1	Zinc-Epoxy	80	80
					Finish	1	Epoxy High Solid	80	80
									160
2	Structural steel works, piping, vessels, tanks OUTDOOR	Outdoor surfaces (Surface exposed to atmosphere of Structural steel work, piping, vessel, tanks) of FGD system	upto 120	SA 2.5	Primer	1	Zinc-Epoxy	80	80
					Intermediate	1-2	Epoxy High Solid	160	160
					Finish	1	2-Comp Polyurethane	50	50
									290
3	Piping, tanks, etc INDOOR and OUTDOOR, Insulated	Piping, Tanks Indoor and Outdoor (Insulated) of FGD system	upto 120	SA 2.5	Primer	1	Zinc-Epoxy	50	50
4	Pump, motors, other equipment OUTDOOR	Pumps, motor and other equipment (Outdoor) of FGD system	upto 120	SA 2.5	Primer	1	Zinc-Epoxy	80	80
					Intermediate	1	Epoxy High Solid	110	110
					Finish	1	2-Comp Polyurethane	50	50
									240
5	Pump, motors, other equipment INDOOR	Pumps, motor and other equipment (Indoor) of FGD system	>120	SA 2.5	Primer	1	Zinc-Epoxy	80	80
					Finish	2	Epoxy High Solid	50	100
									180
6	Piping, reactors OUTDOOR Insulated	Piping, reactors Outdoor (Insulated) of FGD system	<120	SA 2.5	Primer	1	Zinc-Ethysilicate	75	75
7	Stack OUTDOOR	FGD System components does not fall under this category	<120	SA 2.5	Primer	1	Zinc-Ethysilicate	75	75
					Finish	2	Silicone Acrylic	50	100
									175
8	Steel Surfaces Uninsulated	FGD System components does not fall under this category	200-450	SA 2.5	Primer	1	Zinc-Ethysilicate	75	75
					Finish	2	Silicone Aluminium	25	50
									125
9	Galvanized Surfaces	Floor grills, Hand rails and Step Treads (As specified in drawing; if not specified, system 2.0 to be followed for painting)- Hot dip galvanizing to a coating weight of 610 gm per sq.M (minimum) and to a coating thickness of 85 microns (min) on steel sections 2-5mm thick and 900 gm per sq.M (minimum) for steel sections more than 5mm thick.	upto 120	Mechanical cleaning from contaminants and zinc salts by means of washing or steam jetting or sweep-blasting with fine stand	There is no finish coat on galvanized surfaces as there is no sea climate with chloride exposure	-	-	-	-
10	Steel Surfaces permanently in contact with water, also river water splash zone	Steel surfaces permanently in contact with water such as process water tank and Emergency water tank of FGD system	medium temp upto 60 degree Celsius	SA 2.5	Prime and finish coat in one	1	Glassfake reinforced High Solid Epoxy	500	500
11	Plant/Cooling Water pipes	Plant / cooling water pipes of FGD system	GRP, or steel lined concrete pipes with cathodic protection and coating according to AWWA C 203						
* Additional 1 x Finish Coat 2-Comp. Polyurethane, 50 micro m, when exposed to UV or weathering conditions and color retention is required									

PAINTING SCHEM E FOR
Power House Structures, Bunker Shells, AHP/ CHP Structures, RODM & Sub Station Structures

M PS-5

Coating System (refer Contract Book No.3 Clause B0.6.5)									
System No.	Surface location	Item Description/ PGMA details	Temp in Celsius	Surface Preparation	Coating systems	No. of coats	Generic type	Dry film thickness (DFT) per coat micro m	Total DFT (Micro m)
1	Structural steel works, piping, vessels, tanks INDOOR	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures does not fall under this category	upto 120	SA 2.5	Primer	1	Zinc-Epoxy	80	80
					Finish	1	Epoxy High Solid	80	80
									160
2	Structural steel works, piping, vessels, tanks OUTDOOR	Structural steel of AHP/ CHP, PHS, RODM Structures & Bunkers and supporting structures	upto 120	SA 2.5	Primer	1	Zinc-Epoxy	80	80
					Intermediate	1-2	Epoxy High Solid	160	160
					Finish	1	2-Comp Polyurethane	50	50
									290
3	Piping, tanks, etc INDOOR and OUTDOOR, Insulated	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures does not fall under this category	upto 120	SA 2.5	Primer	1	Zinc-Epoxy	50	50
4	Pump, motors, other equipment OUTDOOR	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures does not fall under this category	upto 120	SA 2.5	Primer	1	Zinc-Epoxy	80	80
					Intermediate	1	Epoxy High Solid	110	110
					Finish	1	2-Comp Polyurethane	50	50
									240
5	Pump, motors, other equipment INDOOR	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures does not fall under this category	>120	SA 2.5	Primer	1	Zinc-Epoxy	80	80
					Finish	2	Epoxy High Solid	50	100
									180
6	Piping, reactors OUTDOOR Insulated	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures does not fall under this category	<120	SA 2.5	Primer	1	Zinc-Ethysilicate	75	75
7	Stack OUTDOOR	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures does not fall under this category	<120	SA 2.5	Primer	1	Zinc-Ethysilicate	75	75
					Finish	2	Silicone Acrylic	50	100
									175
8	Steel Surfaces Uninsulated	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures does not fall under this category	200-450	SA 2.5	Primer	1	Zinc-Ethysilicate	75	75
					Finish	2	Silicone Aluminium	25	50
									125
9	Galvanized Surfaces	Floor grills, Hand rails, Step Treads and Switchyard Structures (As specified in drawing; if not specified, system 2.0 to be followed for painting)- Hot dip galvanizing to a coating weight of 610 gm per sq.M (minimum) and to a coating thickness of 85 microns (min) on steel sections 2-5mm thick and 900 gm per sq.M (minimum) for steel sections more than 5mm thick.	upto 120	Mechanical cleaning from contaminants and zinc salts by means of washing or steam jetting or sweep-blasting with fine sand	There is no finish coat on galvanized surfaces as there is no sea climate with chloride exposure	-	-	-	-

APPROVED ON CONDITION
Checked and approved subject to
necessary corrections.

Date: 15-Jun-2018

*Approval doesn't absolve the EPC contractor of it's responsibility as specified in the Contract.

10	Steel Surfaces permanently in contact with water, also river water splash zone	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures does not fall under this category	medium temp upto 60 degree Celsius	SA 2.5	Prime and finish coat in one	1	Glassfibre reinforced High Solid Epoxy	500	500
11	Plant/Cooling Water pipes	Power House Structures, Bunker Shells, AHP/CHP Structures, RODM & Sub Station Structures does not fall under this category	GRP, or steel lined concrete pipes with cathodic protection and coating according to AWWA C 203						



Ranipet

**Painting schedule for APH, ESP FAN and Gates & Damper for Maitree
Super Thermal Power Project, Rampal District –Bagerhat, Bangladesh
India Friendship Power Company(Pvt.) Limited(BIFPCL)
(BHEL WO NO: R676-R677,R4M8-R4M9,R4N2 & R4N0))**

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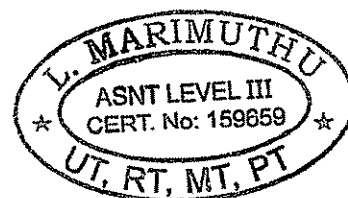
SI No	Description	Surface preparation	Primer/ DFT	Intermediate DFT	Finish DFT	Total DFT
1.0	Indoor surfaces (Structural steel works, piping, vessels, tanks, pump, motor, other parts/equipment of APH, ESP, FAN, Gate and Damper, etc)	Blast cleaning SA2.5	One coat of Epoxy zinc phosphate, 80 μ m per coat	NIL	One coat of Epoxy high solid paint, 80 μ m per coat	160 μ m (min)
2.0	Outdoor surfaces (Surface exposed to atmosphere of APH, ESP, FAN and Gates & Damper, etc)	Blast cleaning SA2.5	One coat of Epoxy zinc phosphate, 80 μ m per coat	One/two coats of epoxy high solid, total dft of 160 μ m	One coat of 2-component polyurethane paint, 50 μ m per coat	290 μ m (min)
3.0	Insulated parts of indoor/outdoor surfaces	Blast cleaning SA2.5	One coat of Epoxy zinc phosphate, 80 μ m per coat	NIL	NIL	80 μ m (min)
4.0	Uninsulated steel surfaces of temperature 200-450 deg celsius	Blast cleaning SA2.5	One coat of Inorganic ethyl zinc silicate, 75 μ m per coat	NIL	Two coats of Silicone Aluminium, 25 μ m per coat	125 μ m (min)
5.0	Outdoor stacks	Blast cleaning SA2.5	One coat of Inorganic ethyl zinc silicate, 75 μ m per coat	NIL	Two coats of Silicone Acrylic, 50 μ m per coat	175 μ m (min)
6.0	Floor grills, step treads, Hand rails, etc of ESP and other items	Hot dip galvanizing to a coating weight of 610 gm per sq.M (minimum) and to a coating thickness of 85 microns (min)				

1. Painting of APH, ESP, Fan and G&D commissioning spares and Mandatory spares shall be as per respective items as above.
2. No painting for SS, Aluminium and Galvanized items.
3. All components covered under different SL no. are to be painted. In case any component is left out, the same shall be deemed to be included under the relevant section.



PROCEDURE FOR LIQUID PENETRANT EXAMINATION (Visible Method)

Prepared by	Reviewed by	Approved by
Kaushal Kumar Engineer Level II	M S Ravikumar Sr. Manager Level II	Level III
		



Effective Date 30 08 2016



1. RECORD OF REVISION

Revision No.	Date of Revision	Reason for Revision
01	28 07 1999	Revision in entirety
02	14 08 2003	Clause 2.1,2.2,2.3,12.1.2.2,12.1.3.1,12.13.2 and 13.1.2.1 modified Clause 8.2 added
03	30 08 2016	Revised in entirety based on latest standards.



1.0 SCOPE

- 1.1 This procedure defines the method, techniques and acceptance standards for liquid penetrant Examination of all shapes of ferrous and Non-ferrous product forms in Boilers, Boiler Auxiliaries, pressure vessels, Heat Exchangers and structural.
- 1.2 In pressure vessels the Examination shall include all welds around openings; attachment welds with a throat thickness over 6mm and on finished surfaces of welds as required by referencing code. The examination includes base material 13mm on each side of the weld.

2.0 REFERENCE

- 2.1 ASME Section VI Article 6, I & VIII (Division 1 &2) -2015
- 2.2 ASME B 31.1 /2015
- 2.3 AWS D 1.1 /D1.1M: 2015

3.0 EQUIPMENT

- 3.1 The term 'penetrant materials' as used in the procedure is intended to include all liquid penetrants, solvents (penetrant removers) or cleaning agents, developers etc used for 'Liquid penetrant Examination'.
- 3.2 Penetrant used shall be of solvent removable type and have a color contrast, which can be seen, readily in daylight or under normal interior illumination.
- 3.3 The cleaner used for the surface cleaning shall be an organic chemical such as Acetone or Trichloro Ethylene.
- 3.4 Developer shall be of non-aqueous suspendible type. When the developer dries, it shall form a white coating of fine powder on the part.
- 3.5 The Chemicals used for the examination of austenitic stainless steel or nickel base alloys shall be analysed for sulphur and total halogens. The residual amount of total sulphur and chlorine content shall not exceed 1% by weight.

4.0 SURFACE PREPARATION

- 4.1 In general satisfactory results may be obtained when the surface is as welded, as rolled, as forged or as cast condition. When the surface irregularities might mask the indications of unacceptable discontinuities, the surface shall be prepared by grinding or machining or any other suitable method.
- 4.2 The surface to be examined and all adjacent areas within at least 25mm shall be dry and free of any dirt, grease, lint, scale, welding flux, weld spatter, rust, paint, oil or any other extraneous matter that could obscure surface openings or otherwise interfere with the examination by preventing the penetration.



- 4.3 Shot blasting may close discontinuities at the surface and should not be used before conducting penetrant examination. If the component is shot blasted, the surface is to be etched before conducting penetrant examination.
- 4.4 Prior to the application of the penetrant, the surface is recleaned with typical industrial cleaning agents such as Acetone.

5.0 DRYING AFTER PREPARATION

After cleaning, drying of the surface shall be accomplished by normal evaporation and ensure that the cleaning solution has evaporated. The minimum time required for the cleaner to dry from the surface 60 seconds and maximum time shall be 10 minutes depending on the position.

6.0 TECHNIQUES

- 6.1 Color contrast (visible) penetrant shall be used with solvent removable penetrant process.
- 6.2 The temperature of the penetrant and the surface of the part shall not be below 5°C and not above 52°C throughout the examination period. Local heating or cooling is permitted provided the part temperature remains in the range of 5°C to 52°C during the examination.

7.0 TECHNIQUE RESTRICTIONS

- 7.1 Intermixing of penetrant materials from different families or different manufacturers is not permitted.
- 7.2 Fluorescent penetrant examination shall not follow a color contrast penetrant examination.

8.0 EXAMINATION

8.1 Penetrant Application

- 8.1.1 The penetrant shall be applied by brushing, spraying or dipping after the surface is dried. For spraying a handpump or an aerosol spray cans will be used.

8.2 Penetration time

The penetrant shall be remaining wet on the minimum and maximum period (dwell time) as given in Table 2 or as qualified by demonstration for specific application.

Table 2

MATERIAL	FORM	MINIMUM TIME	DWELL	MAXIMUM TIME	DWELL
----------	------	-----------------	-------	-----------------	-------



Alumimium, Magnesium, steel, Brass, Bronze, Titanium		TEMPERATURE RANGE	TEMPERATURE RANGE
		10 TO 52°C	10 TO 52°C
	Casting and Welds	10 Minutes	20 Minutes
	Wrought materials- Extrusions, Forging and Plates.	10 Minutes	20 Minutes

8.2.1 If the penetrant has completely dried up during the dwell time, then the surface shall be recleaned and reexamined.

8.3 REMOVAL OF EXCESS PENETRANT

8.3.1 After the required dwell time has elapsed, the excess penetrant remaining on the surface shall be removed by wiping with a lint free cloth, repeating the operation until most traces of penetrant have been removed. Final left out penetrant shall be remove by wiping with a clean cloth moistened with the solvent. Excessive application of the cleaner shall be avoided to prevent the possibility of removing the penetrant from discontinuities causing a decrease in the sensitivity of the test. **FLUSHING THE MATERIAL SURFACE WITH THE SOLVENT FOLLOWING THE APPLICATION OF PENETRANT AND PRIOR TO DEVELOPING IS PROHIBITED.**

8.3.2 Drying after excess penetrant removal.

8.3.2.1 After the removal of excess penetrant the surface shall be dried by normal evaporation. The minimum time required for the surface to get dried by normal evaporation is 60 seconds and maximum shall be 10 minutes. Drying of developer shall be by normal evaporation.

8.4 DEVELOPING

8.4.1 The developer shall be applied by spraying to provide uniform coating as soon as possible to the dry surface after the removal of excess penetrant. Insufficient coating thickness may not draw penetrant out of discontinuities. Excessive coating thickness may mask indications.

8.5 WET DEVELOPER APPLICATION

8.5.1 Prior to applying suspension type wet developer to the surface the developer must be thoroughly agitated too ensure adequate dispersion of suspended particles. The developer shall be applied by spraying using spray pump or aerosol spray can. The developer shall be applied over the surface in such a manner to assure complete



coverage of the part with a thin, uniform film of developer. Drying of developer shall be by normal evaporation.

8.6 DEVELOPMENT TIME

8.6.1 The surface shall be closely observed during the application of the developer to monitor the behavior of the indication, which tends to bleed-out. Developing time for final interpretation begins as soon as a wet developer coating is dry. The minimum developing time shall be 10 minutes and maximum shall be 60 minutes.

9.0 INTERPRETATION

9.1 Final interpretation shall be made within 10 to 60 minutes after the wet developer coating is dry. If the bleed - out does not alter the examination results longer periods are permitted.

9.2 The surface shall be examined in increments if the surface to be examined is large enough to complete the inspection within the prescribed time.

A minimum light intensity of 100 foot candle (1000 lux) is required to ensure adequate sensitivity during the examination and evaluation of indications, which can be achieved by a hand lamp or torch light positioning at a distance of 300mm. The light intensity shall be measured with white light meter prior to evaluation of indications or verified light source shall be used. Verification of light sources is required to be demonstrated only one time, documented, and maintained.

10.0 EVALUATION

10.1 Flaws at the surface will be indicated by bleed out of the penetrant. However localize surface irregularities such as machining marks or other surface conditions may produce false indications. Broad areas of pigmentation which would mask indications are not acceptable and such areas shall be cleaned and reexamined.

10.2 The surface shall be examined in increments if the surface to be examined is large enough to complete the inspection within prescribed time.

10.3 An indication of an imperfection may be large than the imperfection that causes it however, the size of the indication is the basis for acceptance evaluation.

10.4 Relevant indications area are those which result from mechanical discontinuities (imperfection).

10.5 Only indications with major dimension greater than 1.5mm shall be considered relevant.



- 10.6 Any indication which is believed to be non-relevant shall be regarded as a defect until the indication is either eliminated by surface conditioning or it is evaluated by other non-destructive testing and proved to be non-relevant.
- 10.7 Linear indications are those indications in which the length is more than three times the width.
- 10.8 Rounded indications are those which are circular or elliptical with the length equal to or less than three times the width.
- 10.9 Any questionable or doubtful indications shall be reexamined to determine whether they are relevant, or not.

11.0 ACCEPTANCE STANDARD

11.1 Welds and Materials (as per ASME Sec 1 and VIII Div 1&2)

11.1.1 All surface to be examined shall be free of

11.1.2 A) Relevant linear indications.

B) Relevant rounded indications greater than 5mm.

C) All relevant indications shall be investigated to assure that no leak-path exists in welds joining nipples to drums, dished-ends and headers.

11.1.3 Four or more relevant rounded indications in a line separated by 1.5mm or less edge to edge.

11.1.4 In attachment welds of non-load carrying class, indications from crack or due to material separation are unacceptable

11.2 For Power Piping(as per ASME B31.1)

11.2.1 Indications whose major dimensions greater than 2.0mm shall be considered relevant.

11.2.2 The following relevant indication are unacceptable:

- a. Any crack or linear indications.
- b. Rounded indication whose dimensions greater than 5.0mm.
- c. Four or more rounded indication in a line separated by 2.0mm or less edge to edge.
- d. Ten or more rounded indication in any 3870mm² of surface with the major dimensions of this area not to exceed 150mm with the area taken in the most unfavorable location relative to the indications being evaluated.



12.0 WELDS MADE TO STRUCTURAL WELDING CODE AWS D 1.1

12.1 For statically and cyclically loaded non-tubular connections made to AWS code the acceptance of any discontinuity shall be based upon a visual examination of the discontinuity after the removal of developer medium and evaluated for its nature and size. Where the discontinuity cannot be seen after removal of the developer medium either directly or using magnifying glass evaluation shall be based on the size and nature of liquid penetrant indication.

13.0 ACCEPTANCE STANDARD (AS PER AWS)

13.1 Statically loaded non-tubular connections.

13.1.1 Indications from cracks, lack of penetration and lack of fusion are not acceptable.

13.2 Porosity.

13.2.1 Complete joint penetration groove welds in butt joints transverse to the computed tensile stress shall have no visible piping porosity.

13.2.2 For all other groove welds and for fillet welds, the sum of the visible piping porosity of 1.0 mm or greater in diameter shall not exceed 10 mm in any linear 25 mm of weld and shall not exceed 20 mm in any 300 mm length of weld.

13.3 Undercut

13.3.1 For material less than 25 mm thick, undercut shall not exceed 1.0 mm except that a maximum 2.0 mm is permitted for an accumulated length of 50 mm in any 300 mm

13.2 For material equal to or greater than 25 mm thick undercut shall not exceed 2.0 mm for any length of weld.

14.0 Cyclically loaded non-tubular connections.

14.1 Indications from Cracks, Lack of penetration and lack of fusion are not acceptable in any welds.

14.2 Porosity

14.2.1 Complete joint penetration groove welds in butt joints transverse to the direction of computed tensile stress shall have no piping porosity. For all other groove welds, the frequency of piping porosity shall not exceed one in 100mm of length and the maximum diameter shall not exceed 2.5 mm.

14.2.2 The Frequency of piping porosity in fillet welds shall not exceed one in each 100mm of weld length and the maximum diameter shall not exceed 2.5mm. EXCEPTION for fillet welds connecting stiffeners to web, the sum of the diameter of piping porosity



shall not exceed 10mm in any linear 25mm of weld and shall not exceed 20mm in any 300mm length of weld.

14.3 Undercut.

- 14.3.1 In primary members, undercut shall not be more than 0.25mm deep when the weld is transverse to tensile stress under any design loading condition. Undercut shall not be more than 1mm deep for all other cases.

15.0 REPAIR AND RE-EXAMINATION

- 15.1 Whenever an imperfection is repaired by chipping or grinding the excavated area shall be blended into the surrounding surface so as to avoid sharp notches, crevices or corners.
- 15.2 After a defect is thought to have been removed and where welding is required after repair, the area shall be examined for removal of defects, area cleaned and repair carried out. The repaired area shall be blended into the surrounding surface as in 14.1 and re-examined by the liquid penetrant or any other NDT methods originally required for the affected area.

16.0 PERSONNEL QUALIFICATION

- 16.1 Wherever penetrant examination is required by the referencing code, the same shall be conducted by Level I and evaluated by a personnel qualified to minimum Level II as per ASNT SNT-TC-1A Edition 2006.

17.0 POST CLEANING

- 17.1 After the examination and evaluation is completed all penetrant testing material shall be removed from the surface, so that it will not interfere with the subsequent processing or service requirements.

18.0 REPORTING

- 18.1 Where penetrant test is mandatory, a copy of the report signed by personnel certified to minimum Level-II will be issued in format R49-720B or equivalent, after completion the examination.



BHARAT HEAVY ELECTRICALS LIMITED
RANIPET - 632406
NON - DESTRUCTIVE TESTING

BHE:NDT:RP:PT:01
REVISION 03
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BHARAT HEAVY ELECTRICALS LIMITED

BAP / RANIPET 632 406

R49-720/B

NON-DESTRUCTIVE TESTING
LIQUID PENETRATION TEST

REPORT NO : REQ DT :
REF NO : BAY :
WORK ORDER : DU :
CUSTOMER :
PART NAME :
PART NUM : QTY :
DRAWING NO. : REV :
STAGE OF TEST :
MATERIAL SPECIFICATION : CHP :
SURFACE CONDITION :
QP REFERENCE :
REMARKS :
QC-INSPECTOR NAME :
DATE OF TEST :
PROCEDURE REFERENCE :
TYPE OF PENETRANT :
PENETRANT REMOVER :
TYPE OF DEVELOPER :
TEMPERATURE :
DEWELL TIME :
REMARKS :

(LEVEL-II)

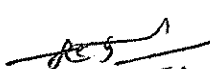
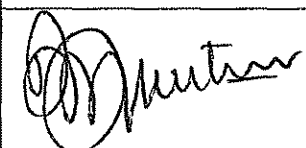
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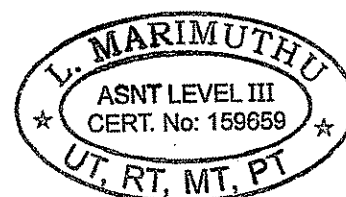
APPROVED BY NDT

APPROVED BY EXTERNAL I



PROCEDURE
FOR
MAGNETIC PARTICLE EXAMINATION
OF
FERRITIC MATERIALS AND WELDED COMPONENTS

Prepared by	Reviewed by	Approved by
K Velladurai Dy. Engineer Level II	Kaushal Kumar Engineer Level II	Level III
		



Effective Date: 30.08.2016



RECORD OF REVISION

Revision NO	Date of Revision	Reason for Revision
01	28 07 1999	Revision in entirety
02	14 08 2003	Clause modified Clause 8.2 added
03	30 08 2016	Revised in entirety based on latest standards.



1.0 SCOPE

- 1.1 This procedure describes the method, techniques and acceptance standards for Magnetic particle Examination of all shapes of ferromagnetic product forms in Boiler components Boiler Auxiliaries, pressure vessels, Heat Exchangers and Structural.
- 1.2 The examination shall include all Gas cut openings, attachment welds with a throat thickness over 6mm and on finished surface of welds as required by referencing code/section. The examination includes base material 13mm on each side of the welds.

2.0 REFERENCE

- 2.1 ASME Section V (Article 7), I & VIII (Division 1 & 2) - 2015
- 2.2 ASTM B31.1- 2012
- 2.3 ANSI / AWS D 1.1 (2010)

3.0 EQUIPMENT

- 3.1 Equipment generating half-wave rectified alternating current employing prods at the end of magnetizing cables shall be used for examination by circular magnetization method.
- 3.2 Direct / alternating current electromagnetic yokes shall be used to detect discontinuities that are open to the surface of the part by longitudinal magnetization method and to examine the surface where arcing is not permitted or prod method is not practicable.

4.0 EXAMINATION MEDIUM

- 4.1 The ferromagnetic particles used as examination medium shall be either wet or dry. Wet Particles shall be non - fluorescent type.
- 4.2 Dry magnetic particles black, gray or red in color shall be used as examination medium for examination of welds and other product forms to provide adequate contrast with the surface being examined. Particle shall be used within temperature range limitation set by the manufacturer of the particle.
- 4.3 Non fluorescent wet particles will be black or reddish brown in color that provide adequate contrast with the surface being examined. Wet particles shall be suspended in kerosene for application to the test surface by flowing or spraying. Suitable conditioning agents shall be added to the water to provide proper wetting and corrosion protection for the parts being examined.
- 4.4 The bath concentration shall be determined by measuring the settling volume through the use of pear-shaped centrifuge tube. The settling volume shall be within 1.2 ml to 2.4



ml for non- fluorescent particles per 100mL bath sample and for 0.1 to 0.4mL for fluorescent particle in 100mL bath sample.

5.0 SURFACE CONDITIONING

5.1 Preparation

5.1.1 As welded, as rolled, as cast or as forged surface is generally acceptable provided the surface irregularities will not mask the indication due to discontinuities. Otherwise surface preparation by grinding or machining may be necessary. Undercuts, Overlaps or abrupt ridges and valleys in the welds and opening shall be smoothly merged with the parent metal.

5.1.2 Prior to magnetic particle examination, ensure that the surface to be examined and adjacent area within at least 25mm of the area of interest shall be dry and free of any dirt, grease, lint, scale, welding flux, spatter, oil or other extraneous matter that would interfere with the examination.

5.1.3 Cleaning may be accomplished by detergents, organic solvents, descaling solution and paint removers, sand or grit blasting method.

5.1.4 Thin nonconductive coating such as painting will not normally interfere with the formation of indications. If nonmagnetic coatings are left on the part in the area being examined, it shall be demonstrated that indications can be detected through the existing maximum coating thickness applied.

5.2 Surface contrast Enhancement

5.2.1 When coating are applied temporarily to enhance particle contrast or if coating are left on the part being examine, it must be demonstrated that indications can be detected through the enhanced coating thickness on a test plate with machined grooves as in 16.0

5.2.2 If indications of required sensitivity could not be detected, the coating shall be removed.

6.0 METHOD OF EXAMINATION

6.1 Examination shall be made by continuous method.

6.1.1 Dry continuous magnetization method : The magnetizing current remains on while the examination medium (Dry particle) is being applied and while the excess of the examination medium is being removed.



- 6.1.2 Wet continuous magnetization method: The magnetic particle application involves bathing the surface of the part with examination medium and terminating the bath application immediately prior to cutting off the magnetizing current with two or more shots given to the part. The duration of the magnetizing current is typically on the order of 1/2 seconds.

7.0 TECHNIQUES

- 7.1 One of the following magnetization techniques shall be used.

- a) Prod Technique
- b) Yoke Technique
- c) Head shot and Coil Technique

8.0 TYPE OF CURRENT FOR MAGNETISATION

- 8.1 Single phase half-wave rectified current (HWDC) shall be employed for Testing with prod techniques.
- 8.2 The amperage required with single - phase Half-wave rectified current shall be verified by measuring the average current during the conducting half cycle only.
- 8.3 For Yokes, the current shall be either AC or DC.
- 8.4 For Head shot and Coil, the current shall be either HWDC or AC.

9.0 CALIBRATION

- 9.1 Ammeter of magnetizing equipment shall be calibrated as per NDT work Instruction at least once a year, or after each time it has been subjected to major electrical repair, periodic overhaul or damage. If equipment has not been in use for a year or more, calibration shall be done prior to first use.
- 9.2 Lifting power of yokes
- 9.2.1 The magnetizing power of yokes shall be verified prior to use each day the yoke is used. The magnetizing power of yokes shall be verified whenever the yoke has been damaged or repaired.
- 9.2.2 Each alternating current electromagnetic yoke shall have a lifting power of at least 4.5 kg and direct current / permanent magnetic yoke shall have a lifting power of 18.kg, at the maximum pole spacing that will be used or the pole distance shall be the spacing at which the yoke lifts the stipulated weight.
- 9.2.3 Each weight shall be weighed with a scale from a reputable manufacturer and stenciled



with the applicable nominal weight prior to first use. A weight need only be verified again if damaged in a manner that could have caused potential loss of material.

10.0 EXAMINATION

10.1 Direction of magnetization

10.1.1 At least two separate examination shall be carried out on each area. During the second examination the prods/poles are spaced so that the lines of flux are approximately perpendicular to those used during the first examination. A different technique for magnetization may also be used for the second examination.

10.2 Examination Coverage: Examination shall be made with sufficient overlap to assure 100% coverage of testing.

11.0 PROD TECHNIQUE: (Fig. 1,2&3)

11.1 Magnetizing procedure: The prod electrodes are pressed firmly against the surface in the area to be examined. In order to avoid arcing a remote control switch shall be built in to the prod handles, to permit the current to be turned on after the prods have been properly positioned and to be turned off before they are removed.

11.2 Magnetizing current

11.2.1 The current shall be 100(minimum) to 125 (maximum) amperes/25mm of prod spacing for sections 19mm thick or greater.

11.2.2 For sections less than 19mm thick, the current shall be 90 to 110 amperes / 25mm of prod spacing.

11.3 Prod spacing: Prod spacing shall not be less than 75mm nor exceed a maximum of 200 mm. The prod tips shall be kept clean and dressed and the contact areas of the test surface shall be free from dirt, scale, oil etc, to minimize electrical arcing. In the open circuit voltage of the magnetizing current is greater than 25 volts, Lead, steel or Aluminum rather than copper tipped prods shall be preferred to avoid copper deposits on the part being examined.

12.0 YOKE TECHNIQUE

12.1 The pole spacing shall be between 100 mm to 150mm. The field indicator will be used to check the direction of the part magnetization.

13.0 Head shot and Coil Technique



Head shot:

13.1 Magnetizing Procedure

For this technique, magnetization is accomplished by passing current through the part to be examined. This produces a circular magnetic field that is approximately perpendicular to the direction of current flow in the part.

13.2 Magnetizing current: The current shall be 12 A/mm to 31 A/mm of outer diameter.

Coil/Longitudinal Technique:

13.3 Magnetizing Procedure

For this technique, magnetization is accomplished by passing current through a multi-turn fixed coil (or cables) that is wrapped around the part or section of the part to be examined. This produces a longitudinal magnetic field parallel to the axis of the coil. If a fixed, prewound coil is used, the part shall be placed near the side of the coil during inspection.

13.4 Magnetizing current

A) Parts with L/D Ratios Equal to or Greater Than 4.

The magnetizing current shall be within 10% of the ampere-turn value determined as follows:

$$\text{Amperes Turn} = \frac{35,000}{L/D+2}$$

B) Parts with L/D Ratios Less Than 4 but Not Less Than 2

The magnetizing ampere-turns shall be within 10% of the ampere-turns' value determined as follows:

$$\text{Amperes Turn} = \frac{45,000}{L/D}$$

C) Parts with L/D Ratios Less Than 2. Coil magnetization technique cannot be used.

Where, L is Length of the Job to be tested and D is outside Diameter of the job.

14.0 APPLICATION OF DRY PARTICLES

14.1 The dry particles shall be applied in such a manner that a light uniform dust-like coating



Settles on the surface of the area being examined. The application technique shall be such that the particles are suspended in air and reaches the examination surface in a uniform cloud with a minimum force, using a hand powder applicators (Squeeze bulb) or specially designed mechanical blower or by a spray nozzle.

- 14.1.1 Dry particles shall not be applied to a wet surface nor when there is excessive wind. The particles shall not be applied by pouring, throwing, or spreading with fingers.
- 14.1.2 Any excess powder shall be removed while the magnetization current is on and shall be with a gentle air stream without removing or disturbing particles attracted by a leakage field that may prove to be a relevant indication.

14.2 APPLICATION OF WET PARTICLES

- 14.2.1 The application of wet particles involves the bathing of the area to be examined, by Spraying or flowing during the application of magnetizing current.
- 14.2.2 Two or more shots shall be applied, but the last shot shall be applied while the bath still remains on the area to be examined and after the particles flow has been stopped. Care shall be taken to cut off the bath application before removing the magnetic field, to prevent high-velocity particle flow that wash away or remove fine or weakly held indications.

15.0 MAGNETISING FIELD ADEQUACY AND DIRECTION

- 15.1 By using the Pie shaped Magnetic Field Indicator, the magnetizing field adequacy and direction may be verified.

16.0 LIGHTING

- 16.1 Visible Light Intensity
- 16.2 The examination and evaluation of indications shall be performed under minimum light intensity of 100 fc (1000 lx). The light intensity shall be measured with white light meter prior to evaluation of indications or verified light source shall be used. Verification of light sources is required to be demonstrated only one time, documented, and maintained.

17.0 SYSTEM PERFORMANCE CHECK (Fig. 4)

- 17.1 For prod magnetization with HWAC, performance sensitivity shall be checked at least once in a shift before start of the examination on a test plate that contains machined grooves to different depths. The indication of a groove at 3mm depth from the surface of the test plate will indicate adequate sensitivity.



- 17.2 If the part is to be tested with contrast coat, the sensitivity shall be checked with the contrast coat on the surface of the test block.
- 17.3 For electromagnetic yokes, the adequacy or direction of the magnetizing force shall be verified by positioning the 'Magnetic Field Indicator' on the surface to be examined. The pattern in the indicator should be clearly developed on the surface of the block.
- 17.4 For Head shot and coil, The Ketos (Betz) ring specimen shall be used in evaluating and comparing the overall performance and sensitivity of both dry and wet, fluorescent and nonfluorescent magnetic particle techniques using a central conductor magnetization technique.

18.0 DEMAGNETISATION

- 18.1 The job to be tested using Head shot and coil technique demagnetization to be carried out.
- 18.2 The job to be tested using Yoke/Prod no demagnetization is required.

19.0 EVALUATION OF INDICATION

- 19.1 Mechanical discontinuity at the surface would be indicated by the retention of the powder or medium.
 - 19.1.1 All the indication are not necessarily discontinuity indications since certain metallurgical discontinuities and magnetic permeability variation may produce similar unacceptable discontinuity indication. These non-relevant indications shall be reexamined by any other suitable NDT methods such as Liquid penetrant or macro etching.
- 19.2 Relevant indications are those which result from unacceptable mechanical discontinuities.
 - 19.2.1 Linear indications are those indications in which length is greater than three times the width.
 - 19.2.2 Rounded indications are circular or elliptical with the length equal to or less than three times the width.

20.0 ACCEPTANCE STANDARDS AS PER ASME (SEC I,VIII Div 1&2 and B 31.1) AND OTHERS

- 20.1 Welds and Materials
- 20.2 An indication of an imperfection may be larger than the imperfection that causes it: however, the size of the indication is the basis for acceptance for evaluation.



20.3 Only indications with major dimension greater than 1.5mm shall be considered relevant.

20.4 All surface to be examined, except as mentioned in 19.5, 19.6 and 19.7 shall be free of

20.4.1 Relevant linear indications

20.4.2 Relevant rounded indication greater than 5 mm

20.4.3 Four or more relevant rounded indications in a line separated by 1.5mm or less edge to Edge.

20.4.4 Ten or more rounded indications in any 3870 mm² (6 inch²) of surface with the major Dimension of this area not to exceed 150mm with the area taken in the most unfavorable location relative to the indication being evaluated.

20.5 Cut edges and openings:

20.5.1 All surface to be examined shall be free of

(a) Cracks

(b) Laminations exceeding 25mm in length.

20.6 In welds joining nipples to drums, spheres or headers, all slag or porosity indications Shall be investigated to assure that no leak - path exists.

20.7 In attachment welds of non-load carrying class, indications from crack or due to material separation are unacceptable.

21.0 ACCEPTANCE STANDARD FOR STRUCTURAL COMPONENTS AS PER AWS D1.1

21.1 The magnetic particle acceptance criteria is based on the size of the actual discontinuity and not the size of the discontinuity as indicated by the magnetic particle inspection medium. Where discontinuity cannot be visually seen (with magnification if required) after removal of the indicating medium, evaluation shall be based on size and nature of the magnetic particle indication.

21.0 Statically loaded Non tubular connections

21.1 Cracks, Lack of Fusion, and Incomplete penetration are not acceptable.

21.2 Undercut-for material with thickness less than 25mm undercut shall not exceed 1.0 mm, except that a maximum 2.0 mm is permitted for a accumulated length of 50mm in any 300mm. For material equal to or greater than 25.0 mm thick, undercut shall not exceed 2.0 mm for any length of weld.



21.3 Porosity - a complete joints penetration groove welds in butt joints transverse to the direction of computed tensile stress shall have no visible piping porosity. For all other groove welds and for fillet welds, the sum of the visible piping porosity 1 mm or greater in diameter shall not exceed 10mm in any linear 25mm of weld and shall not exceed 20mm in any 300mm length of weld.

22.0 Cyclically Loaded Non tubular Connections

22.1 Undercut - In primary members, undercut shall be no more than 0.25mm deep when the weld is transverse to tensile stress under any design loading condition. Undercut shall not be more than 1.0mm deep for all other cases.

22.2 Porosity - The frequency of piping porosity in fillet welds shall not exceed one in each 100 mm of weld length and the maximum diameter shall not exceed 2.5mm. Exception for fillet connecting stiffeners to web, the sum of the diameter of the piping porosity shall not exceed 10mm in any linear 25mm of weld and shall not exceed 20mm in any 300 mm length of weld.

22.3 Complete joint penetration groove welds in butt joints transverse to the direction of computed tensile stress shall have no piping porosity.

22.4 PIPING POROSITY - (General) is elongated porosity whose major dimension lies in a direction approximately normal to the weld surface. Frequently referred to as pin holes when the porosity extends to the weld surface.

23.0 EDGE DISCONTINUITIES IN CUT MATERIALS

23.1.1 No crack is acceptable.

23.1.2 Mill induced discontinuity

23.1.3 Length 25mm and less- Acceptable

23.1.4 Length over 25mm and depth up to 3mm- Acceptable

23.1.5 Length over 25mm and depth between 3mm and 25mm ~ indications to be removed.

23.1.6 Length over 25mm and depth greater than 25mm - indications to be removed to a depth up to 25mm.

24.0 REPAIR AND RE-EXAMINATION

24.1 Whenever an imperfection is repaired by chipping or grinding or and subsequent repair



by welding is not required, the excavated area shall be blended into the surrounding surface so as to avoid sharp notches, crevices, or corners.

24.2 After a defect is thought to have been removed and prior to making weld repairs, the area will be examined by suitable method to ensure that the defect has been removed or reduced to an acceptable size of an imperfection.

24.3 where welding is required after repair of an imperfection the area shall be cleaned and repair carried out. After repairs have been made the repaired area shall be blended into the surrounding surface so as to avoid sharp notches, crevices or corners.

24.4 After repairs have been made, the repaired area shall be re-examined by methods of examination that weld originally required for the affected area.

25.0 PERSONNEL QUALIFICATION

25.1 All personnel carrying out the examination and evaluation shall be qualified to minimum Level - II as per ASNT:SNT - TC -1A Edition 2006.

26.0 FINAL CLEANING

26.1 When the inspection is concluded, the magnetic particles shall be removed by any suitable means, leaving the product in a dry and clean condition.

27.0 REPORT

27.1 Copies of the report in a standard format R 49-719-B or equivalent duly signed by a Minimum Level - II personnel shall be issued after the test.

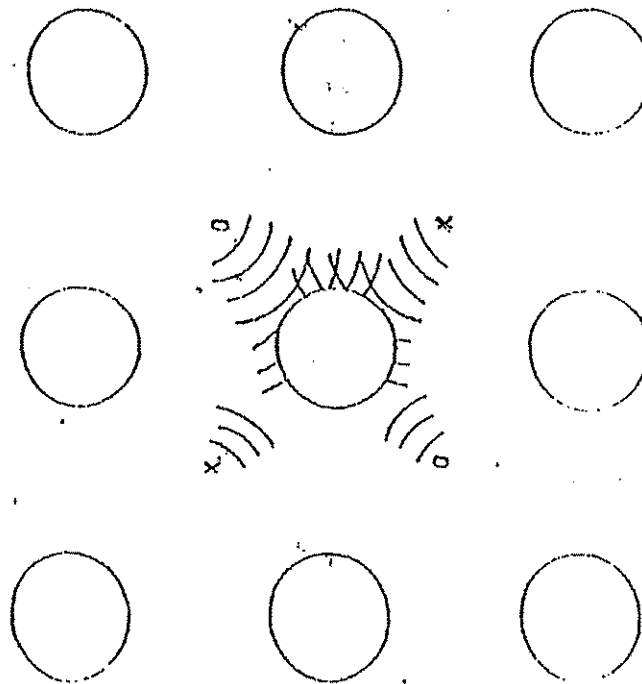


FIG (3). TECHNIQUES FOR EXAMINATION OF FILLET WELDS

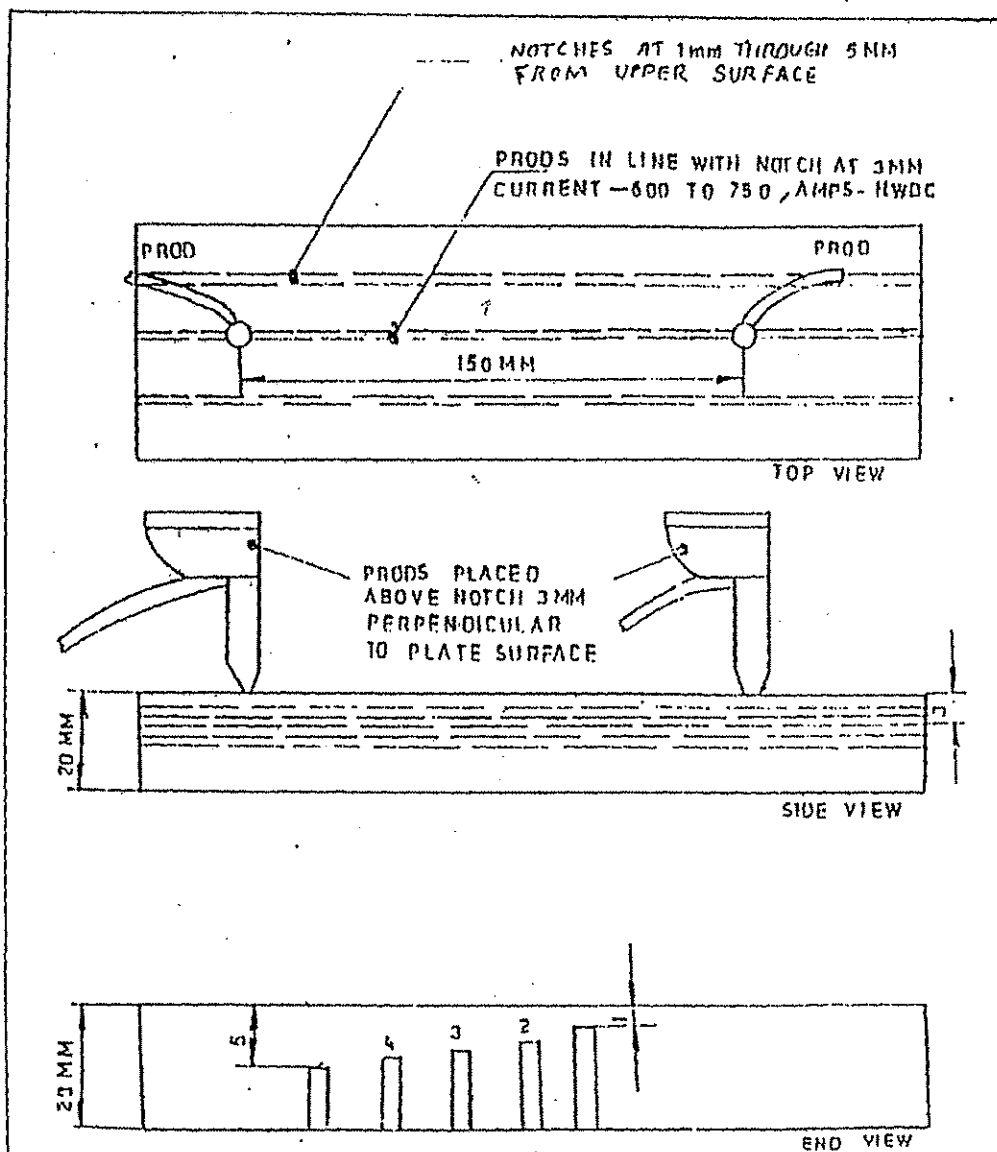
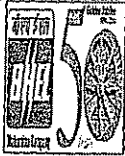
O - POSITION - 1

X - POSITION - 2

ARC BREAK LOCATION

NOTE :

- 1) PRODS must be placed on drum / header perpendicular to plate surface.
- 2) Inspection will be 100% of weld for each shot.



PERFORMANCE CHECK - EQUIPMENT AND DRY POWDER
COMBINATION PRIOR TO TEST

FIG (4)

VERIFICATION OF SYSTEM
PERFORMANCE FOR PROD TECHNIQUE



BHARAT HEAVY ELECTRICALS LIMITED
RANIPET - 632406
NON - DESTRUCTIVE TESTING

BHE:NDT:RP:MT:01
REVISION 03
PAGE 15 of 15

BHARAT HEAVY ELECTRICALS LIMITED

BAP / RANIPET - 632 406

NON - DESTRUCTIVE TESTING

MAGNETIC PARTICLE EXAMINATION

R49-719/B

REPORT NO

REF NUMBER

WORK ORDER

CUSTOMER

PART NAME

PART NUM

DRAWING NO.

STAGE OF TEST

MATL SPECIFICATION

WELDER NAME

SURFACE PREPARATION

QP NUMBER

INSPECTOR NAME

REMARKS

DATE OF TEST

PROCEDURE REFERENCE

METHOD

MAGNETISING CURRENT

TYPE OF MAGNETISATION

DEMAGNETISATION

REMARKS

REQ DT : 02-NOV-16

BAY :

DU :

QTY :

REV :

THICKNESS :

CHP:

PROD SPACING :

AMPERAGE :

(LEVEL-II)

OPERATOR NAME & LEVEL

ASNT LEVEL-II PT,MT,UT,RT

APPROVED BY EXTERNAL INS

BHEL/BAP - RANIPET

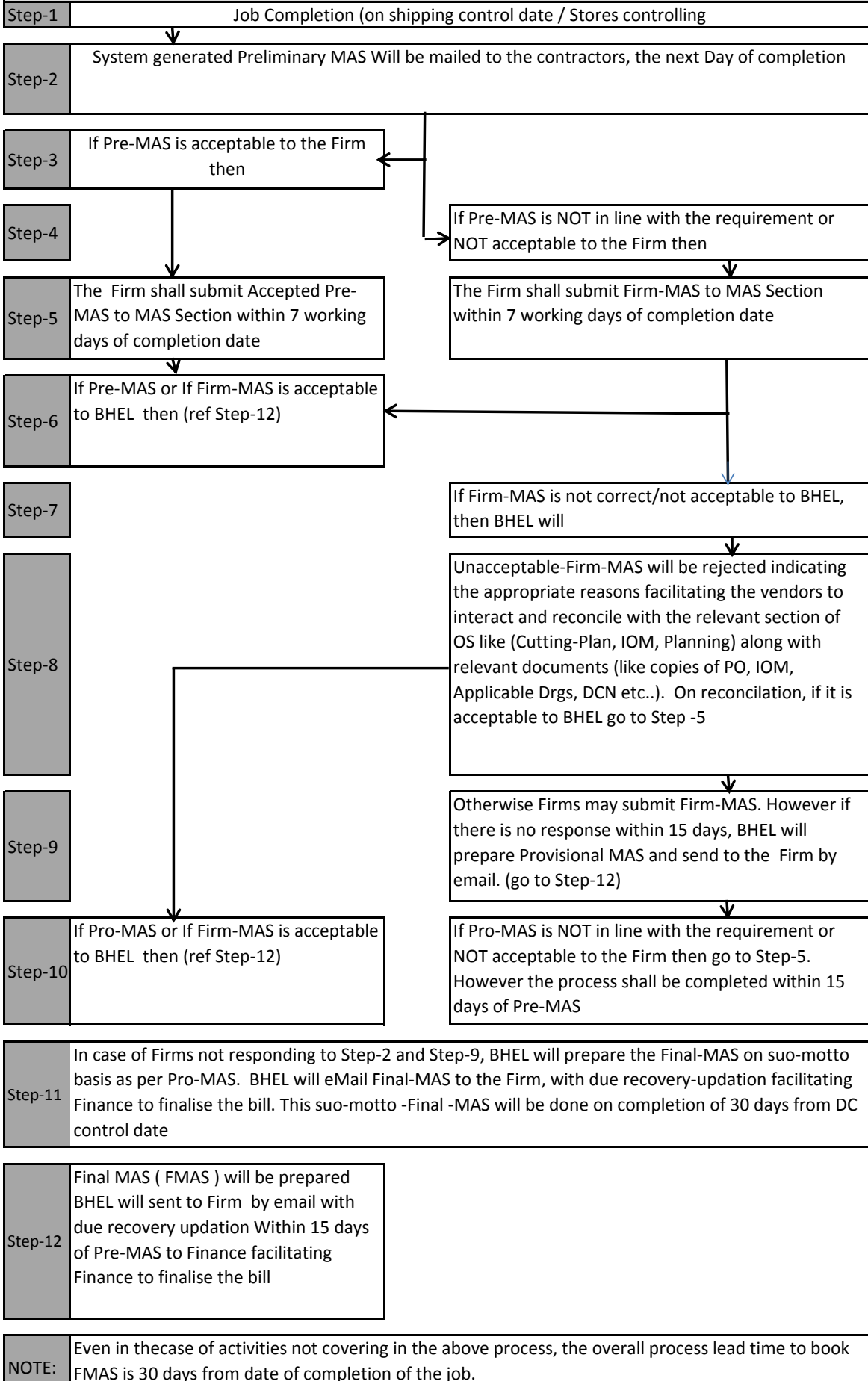
APPROVED BY NDT

Section-VII

Enquiry No.658021E

Dt.08.05.2020

Flow chart for processing of Material Account Statement (MAS)



SECTION - VIII
LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
DRMFL	WELDING FLUX-DRUM	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		11712	TAPADIA ENGINEERS & TRADERS P.LTD.	2, INDUSTRIAL ESTATE,BHANPURI, CHATTISGARH.RAIPUR	tet_tgirpr@rediffmail.com	0770 - 4090636
FINFL	WELDING FLUX-FIN	11712	TAPADIA ENGINEERS & TRADERS P.LTD.	2, INDUSTRIAL ESTATE,BHANPURI, CHATTISGARH.RAIPUR	tet_tgirpr@rediffmail.com	0770 - 4090636
		19371	NDT FLUXES.	SURAJ,35,VIVEKANANDA NAGAR,RAIPUR		
GVW01	WELDING ELECTRODES	11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
		80019	ESAB INDIA LTD.	KIRTI NAGAR		
		80018	D & H INDIA LIMITED	182/75, INDUSTRIAL AREA PH- 1CHANDIGARH	dnhindiachd@yao.co.in	0172- 2653063
		80020	HONAVAR ELECTRODES PVT LTD	Industrial Complex, 9, LBS Marg, Kurla (West)Mumbai	honavarelectrodes@gmail.com	9820249301
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		80291	Bharat Heavy Electricals Limited ,T	TiruvaramburTrichy		
		80218	M/s Modi Arc Electrodes Co.	G.T. Road, Oil Mill Gate, Modinagar		
		80126	Ador Welding Limited	C-116, Naraina Industrial Area, Phase-1New Delhi	delhi@adorwelding.com	1141411049
		10936	AHURA WELDING ELECTRODE MANUFACTURE	SF 139 & 144/3 THIRUMALAYAMPALAYAMPALGHAT ROADPALGHAT ROADCOIMBATORE	sunarc@md2.vsnl.net.in	0422 - 822232
GVW02	WELDING WIRE	80291	Bharat Heavy Electricals Limited ,T	TiruvaramburTrichy		
GVW03	WELDING ELECTRODE OT	80291	Bharat Heavy Electricals Limited ,T	TiruvaramburTrichy		
GVW04	COBALT POWDER	80291	Bharat Heavy Electricals Limited ,T	TiruvaramburTrichy		
GVWFX	WELDING FLUX	10785	ADOR WELDING LIMITED	CORPORATE MARKETING OFFICE,P.B. NO. 2, CHINCHWAD,PUNE	acegasindia@gamail.com	
		10015	ANITA FLUXES ALLOY SPECIALITY	24, 3RD PHASEPEENYA INDUSTRIAL ESTATEBANGALOREBANGALORE		080/ 839 4411
MIGA1	GMAW WIRE ER80S-B3L	20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680

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		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
MIGA2	GTAW WIRE FOR T92	20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
MIGA4	ER80S-B2 BPGMAW WIRE	21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
MIGN1	GMAWWIRE ERNiCRFe-7A	21991	SPECIAL METALS WELDING PRODUCTS	1401,BURRIS ROAD,NEWTON,NORTH COROLINA 28658	rphillips@smwpc.com	828-465-0352
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
MIGS1	GMW WIRE ER308H	20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
		20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
MIGS2	GMAW WIRE ER309LSi	20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
		20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	

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MIGS3	GMAW WIRE ER309L	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
MIGW1	ER 70S-A1 GMAW WIRE	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
MIGW2	ER 80S-B2 GMAW WIRE	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
MIGW3	ER 90S-B3 GMAW WIRE	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		21461	INDUSTRIA NAZIONALE ELETTRODI S.p.A	Via.FACCA 10,CITTADELLA, 35013ITALY.		
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
MIGW4	WELDG.WIRE-MIG ER347	22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
		11784	VENUS WIRE INDUSTRIES PVT LTD	19, RAGHUVANSHI MILL COMPOUNDS.B.MARG, LOWER PARELMUMBAI	sales@venuswires.com	022 - 4978840
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680

SECTION - VIII
LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
MIGW5	WELDG.WIRE-MIG ERNiC	22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
MIGW6	WELDG.WIRE-MIG ER90S	20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
		91270	VEEPEES INDIA,	C-52, 4TH AVENUE ROAD,GUINDY INDUSTRIAL ESTATE,GUINDY.CHENNAI	veepeesindia@gmail.com	044-43534354
		14428	SHAKUNT ENTERPRISES PRIVATE LIMITED	G.T.ROADSANWALKA BHAWANMILLER GANJLUDHIANA	shakunt@satyam.net.in	161 2538323
		18705	MODI HITECH INDIA LTD.,	1400,MODI TOWER98,NEHRU PLACE,NEW DELHI	gmmelectrode@gmail.com	011 4250 4577
		16661	KLINWELD WIRES PVT. LTD.,	207,TIMMY ARCADE,MAKWANA NAKA, ANDHERI (EAST)MUMBAI	wires@vsnl.net	022 28504848
		17841	PRASHANTH CYLINDERS PVT. LTD.,	35-B,VEERASANDRA INDL. ESTATE,19th K.M.HOSUR ROAD,ELECTRONIC CITY POST,BANGALORE		
		17842	PRECISION DRAWEL PVT., LTD.,	KHASARA NO.221&222/2,VILLAGE TEKADI,TAH. PARSEONI,NAGPUR		
		16548	WELD EXCEL INDIA LTD.,	D-230,PHASE VII,FOCAL POINT,LUDHIANA		
		11288	JAGSHAAN INDUSTRIES	94 FRIENDS COLONYKATOL ROADNAGPUR	jagshaan@nagpur.dot.net.in	0712 - 581557
		10758	ALPHA ARC INDUSTRIES,	B-5,SECTOR A5/6 TRONICA CITYLONIGHAZIABAD, UP	alphaarc@yahoo.com	0 99114 41441
		16662	NATIONAL ENGINEERING ENTERPRISES,	C-9,1st PHASE,INDUSTRIAL AREA,ADITYAPUR,JAMSHEDPUR	nationaljsr@redifmail.com	0657 6539875
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		13763	CLASSIC ELECTRODES (INDIA) LTD.,	1, BONFIELD LANE2 ND FLOORKOLKATA	classicelectrodes@yahoo.co.in	033 22429581

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LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
MIGW7	GMAW WIRE ER70S-6	13743	UNIQUE WELDING PRODUCTS PVT.LTD.,	PLOT NO.1205,G.I.D.C. PHASE-IVVITTHAL UDYOGNAGAR,ANAND-388121GUJARAT	ump_vvn@rediffmail.com	02692-236 092...
		11528	RAAJRATNA ELECTRODES LTD	11, SONAROOPA, OPP.LALBANGLOWC.G.ROAD, NAVARANGPURA AHMEDABAD	mktg@gnahd-rel.global.net.in	079 - 6445258
		14575	WELD ALLOY PRODUCTS,	C - 33, SECTOR - IV, NOIDANOIDA DIST.GAUTAM BUDH NAGAR (UP)	wap2005@airtelmail.in	0120-2557183
		17644	VARUN ELECTRODES PVT. LTD.,	H-56,INDUSTRIAL AREA,PANIPAT	kapoor@varunelectrodes.com	0180 2653085
		10737	SRI DHARAANI STEEL,	1060/463,SIVAKASI- VIRUDHUNAGARROAD,THIRUTHANGAL- 626130VIRUDHUNAGAR DIST.	wire@sridharaanisteel.com	98943-88857
		16575	STANDARD WIRE PRODUCTS	219, SIDCO INDUSTRIAL ESTATE,AMBATTUR,CHENNAI		044 26254946
		17813	K.M.CROWN WELDING CONSUMABLES PVT.,	BLOCK NO.16A,16B & 17A,INDUSTRIAL AREA NO.1,A.B.ROAD,DEWAS	kmcrownwelding@dataone.com	07272 259384578
		13911	ROYAL ARC ELECTRODES PVT. LTD	ROYAL HOUSE, PLOT NO.26,VILLAGE VALIV,VASAI (EAST)THANE	royalarc@vsnl.com	0250 2480520
		13693	RASI ELECTRODES LTD.,	21, RAJA ANNAMALAI ROAD,FLAT NO A / 14, THIRD FLOOR,CHENNAI	rele@airtelmail.in	044 26424523
		17814	CALCUTTA ELECTRODES PVT. LTD.,	SARDAR PATEL TIMBER MARKET,BHANPURI,RAIPUR	calcutta_electrodes2006@yahoo.com	0771 4090615
		13986	B&H ELECTRODES PVT. LTD,	VILLAGE SAIDPURA, BARWALA ROAD,DERABASSI,MOHALI		
		15085	VOLTARC ELECTRODES (P) LTD,	10-77, FIRST MAIN,ROYAL NAGAR,H.O.SURYAJYOTHI,R.C.ROAD, P.B.NO.33,TIRUPATHI	voltarc@rediffmail.com	0877 2241462
		14455	WIRE AND WIRE PRODUCTS	SIDCO INDUSTRIAL ESTATEAMBATTURCHENNAI	wwp@vsnl.net	044 26242378
		15810	NOUVEAUX INDUSTRIES (P) LTD.,	NO.2,SOWDAMBIGA NAGARTIRUPUR ROAD.KANGAYAM		
		14340	NALLI ARC INDUSTRIE,	SF NO. 340,NALLIPALAYAM,PADIYUR POST,KANGAYAM TALUKERODE Dt.	nalliar@yaho.com	04257 245185
		13906	MARUTI WELD LIMITED,	I-1, KIRTI NAGARNEW DELHI	marutiweld@marutiweld.com	25913411
		15101	PRECISION WELDARC LTD,	49,B.T. ROAD, PANIHATI24,PARGANAS (NORTH)KOLKATA.	pwires@yahoo.co.in	033 25634753
		15100	MANTEK WIRES	24,SIDCO INDUSTRIAL ESTATE,P.VADUGAPALAYAM,PALLADAMCOIMBAT ORE		

SECTION - VIII
LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		16166	EVERSHINE WIRES	178/2-A3, THURAIYUR ROAD,PULIVALAM,MUSIRI TALUK,TRICHY	evershinewires@rediffmail.com	04327 235527
		13549	ATHARVE WELDING TECHNOLOGIES (INDIA	PVT.LTD.,A 192,M.I.D.C.CHINCHOLI,SOLAPUR	atharv.wt@hotmail.com	0217-273 7029
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
		14791	ANAND ARC LTD.,	NO.22(OLD.31),RAILWAY COLONY,III STREET,AMINJIKARAI,CHENNAI		044 23746379
		10785	ADOR WELDING LIMITED	CORPORATE MARKETING OFFICE,P.B. NO. 2, CHINCHWAD,PUNE	acegasindia@gamil.com	
		13487	MAGNARC ELECTRODES PVT.LTD.,	PENDUTHIVISAGAPATNAM	magnarc@hotmail.com	0891-276 4381...
		13211	D&H INDIA LIMITED	PLOT 'A', SECTOR 'A'INDUSTRIAL AREA,SANWER ROADINDORE	dhindia@sancharnet.in	0731-4273501-...
		14458	M W WIRETECK PVT. LTD.	GF-9, GURU ARJUN DEV BHAWAN,RANJIT NAGAR COM. CMPLX,NEW DELHI.	wire@wireteck.in	011 4540 7712
		13690	GEE LIMITED,	PLOT E-1, ROAD NO. 7,WAGLE INDUSTRIAL ESTATETHANE		
MIGW8	GMAW WIRE ER80S-G	21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
MIGW9	GMAW WIRE ER90S-G	21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
MIGWA	GMWA WIRE FOR T23.	20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		

SECTION - VIII
LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
P91FL	WELDING FLUX-P91	22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
P92FL	SAWFLUX FOR SA335P92	20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
SAWA1	SAWWIRE FOR SA335P92	21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
SSOFL	WELD:SS-OVERLAY FLUX	10785	ADOR WELDING LIMITED	CORPORATE MARKETING OFFICE,P.B. NO. 2, CHINCHWAD,PUNE	acegasindia@gmail.com	
		10015	ANITA FLUXES ALLOY SPECIALITY	24, 3RD PHASEPEENYA INDUSTRIAL ESTATEBANGALOREBANGALORE		080/ 839 4411
		13833	SUN FLUX,	PUTHUKUDI ROAD,RAYAMUNDANPATTITANJORE		
		15082	ROYAL WELDING WIRES PVT. LTD.,	7,KARANAI PUDUCHERRY VILLAGE,VIA.URAPAKKAM,KANCHIPURAM DIST,	royal@royalwires.co.in	044-3741 1610
		12184	LAKSHMI CHEMICAL INDUSTRIES	D-52, DEVELOPED PLOT ESTATETHUVAKUDITIRUCHIRAPALLI	lakshmi.chem@yahoo.com	9842550538
		13534	RUPA INDUSTRIES,	2-2-105 to 180/10,GANESH CHAMBERSRANIGUNJ,SECUNDERABAD	rupaent@vsnl.net	040-2771 3714
		13484	OSCAR AUTO FLUX,	3/216,INAMKULATHUR ROAD,AMMAPETTAI,POOLANGULATHUPATTY(PO), TRICHY	oscarautoflux@gmail.com	0431-2914567
		13691	MANTEK WELDAIDFLUX CO.	32, FIRST STREETGANDHI NAGARTHIRUVERUMBURTIRUCHIRAPPALLI	mantek@eth.net	2501540
		14593	R.M.H.CHEMICAL INDUSTRIES	C-12-A,DEVELOPED PLOTS ESTATE,THUVAKUDY,TIRUCHIRAPALLY	rmhfbbricators@vsnl.net	2500498

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LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
STRFL	SAW FLUX STRUCT.WELD	14309	S.CHEMS & ALLIED PRODUCERS PVT LIMI	PLOT NO.197,JANKIDEVI SCHOOL ROAD,MHADA BUNGALOW CSHEME,Nr. VARSOVA TEL. EXCHANGE,ANDHERI (W)MUMBAI	s chems@yahoo.co.in	022 26368557
		11701	SUPER WELD PRODUCTS	91/1 THINNANUR ROADPULIVALAM,MUSIRI TKTIRUCHIRAPALLI		0431 - 765626
		19114	WELMET TECHNOLOGIES PVT. LTD.,	34,P.N.MAIDU INDUSTRIAL ESTATE,M.I.D.C. HINGNA,NAGPUR		
		10785	ADOR WELDING LIMITED	CORPORATE MARKETING OFFICE,P.B. NO. 2, CHINCHWAD,PUNE	acegasindia@gamil.com	
		15099	THERMIT ALLOYS (P) LTD,	PLOT NO.7, INDUSTRIAL ESTATE,B.H.ROAD,SHIMOGA	thermit@vsnl.net	08182 250431
		17381	NOUVEOFLUX CHEMICAL COMPANY	1 /B 83 & 85, TIRUPUR ROADKANGAYAM		
		13211	D&H INDIA LIMITED	PLOT 'A', SECTOR 'A'INDUSTRIAL AREA,SANWER ROADINDORE	dhindia@sancharnet.in	0731-4273501-...
		11712	TAPADIA ENGINEERS & TRADERS P.LTD.	2, INDUSTRIAL ESTATE,BHANPURI, CHATTISGARH.RAIPUR	tet_tgirpr@rediffmail.com	0770 - 4090636
		13486	A V WELDTECH PVT.LTD.,	NO.206/12,CIVIL LINES,NEAR G.P.O. SQUARENAGPUR.	products@aveasyweld.com	0712-252 1727
		11288	JAGSHAAN INDUSTRIES	94 FRIENDS COLONYKATOL ROADNAGPUR	jagshaan@nagpur.dot.net.in	0712 - 581557
		15084	DWEKAM ELECTRODES LTD,	TALAWALI CHANDA,A.B.ROAD, P.O.MANGILAINDORE (MP)	vk.khandelwal@dwekam.org	0731 422 9500...
		15085	VOLTARC ELECTRODES (P) LTD,	10-77, FIRST MAIN,ROYAL NAGAR,H.O.SURYAJYOTHI,R.C.ROAD, P.B.NO.33,TIRUPATHI	voltarc@rediffmail.com	0877 2241462
		19695	SUBMER FLUX TECHNOLOGIES,	178/2A1,THURAIYUR ROAD,PULIVALAM,TRICHY		
		10466	SUN AUTO WELD INDUSTRIES,	SF NO.137/2,GANAPATHY NAGAR,ARIYAMANGALAM,TRICHY		
		19735	RENUKA FLUXES COMPANY,	3-227 - A, SEMMANKUDAL (PO),OMALUR TALUK,SALEM		04290 313331
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		14791	ANAND ARC LTD.,	NO.22(OLD.31),RAILWAY COLONY,III STREET,AMINJIKARAI,CHENNAI		044 23746379
		15101	PRECISION WELDARC LTD,	49,B.T. ROAD, PANIHATI24,PARGANAS (NORTH)KOLKATA.	pwires@yahoo.co.in	033 25634753

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		11528	RAAJRATNA ELECTRODES LTD	11, SONAROOPA, OPP.LALBANGLOWC.G.ROAD, NAVARANGPURA AHMEDABAD	mktg@gnahd-rel.global.net.in	079 - 6445258
TIGA1	GTAW ROD - T92 / P92	21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
TIGA2	GTAW ROD ER80S-B3L	20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
TIGS1	GTAW ROD ER316H	20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
TIGS2	GTAW ROD ER309L	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
		20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
TIGS3	GTAW ROD ER308H	20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
TIGW1	ER 70S-A1 GTAW ROD	10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		15083	MARUTHI ELECTRODES (P) LTD.,	138,5TH FLOOR,MARUTHI TOWERAIRPORT ROAD,KODIHALU,BANGALORE	meplelec@bgl.vsnl.net.in	080 25275848
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
		22456	I.A.BARNES & CO. LTD,	UNIT E,GUNNELS WOOD PARK,GUNNELS WOOD ROAD,STEVENAGE, HERTFORDSHIRE, SG1 2BH,		
TIGW2	ER 80S-B2 GTAW ROD	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		21461	INDUSTRIA NAZIONALE ELETTRODI S.p.A	Via.FACCA 10,CITTADELLA, 35013ITALY.		
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
TIGW3	ER 90S-B3 GTAW ROD	21461	INDUSTRIA NAZIONALE ELETTRODI S.p.A	Via.FACCA 10,CITTADELLA, 35013ITALY.		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
TIGW4	WELDG.WIRE-TIG ER347	20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680

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LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
TIGW5	WELDG.WIRE-TIG ERNiC	20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
		15083	MARUTHI ELECTRODES (P) LTD.,	138,5TH FLOOR,MARUTHI TOWERAIRPORT ROAD,KODIHALU,BANGALORE	meplelec@bgl.vsnl.net.in	080 25275848
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
TIGW7	WELDG.WIRE - TIG ER9	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN L'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
TIGW9	ER80S - D2 GTAW ROD	20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
TIGWA	GTAW ROD T23 / P23	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
TIGWR	GTAW ROD SUPER304H	20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
TIGWD	GTAW ROD	20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
TIGWD	GTAW ROD	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		21991	SPECIAL METALS WELDING PRODUCTS	1401,BURRIS ROAD,NEWTON,NORTH COROLINA 28658	rphillips@smwpc.com	828-465-0352
WCA08	WELDG.ELECTRODES:SMA	10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		15090	RAJ KESARI ELECTRODES,	35,RAVINDRA NAGAR,(PRATAP NAGAR)UDAIPUR	rajkesari@yahoo.com	0294 2490193
WCA10	WELDG.ELECTRODES:SMA	14040	MANTEK ELECTRODS PRIVATE LTD,	D-74A, DEVELOPED PLOT ESTATE,THUVAKUDITRICHY		2501540
		13690	GEE LIMITED,	PLOT E-1, ROAD NO. 7,WAGLE INDUSTRIAL ESTATETHANE		
		18705	MODI HITECH INDIA LTD.,	1400,MODI TOWER98,NEHRU PLACE,NEW DELHI	gmmelectrode@gmail.com	011 4250 4577
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		11227	HONAVAR ELECTRODES PVT. LTD.,	305-309,3RD FLOOR,DAMJI SHAMJI INDUSTRIAL COMPLEX ,9,L.B.S MARG, KURLA(WEST)MUMBAI	hel@vsnl.com	022-25020317
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
		11420	MODI ARC ELECTRODES CO.	MODINAGARUTTAR PRADESHGHAZIABAD	modiarc@ndb.vsnl.net.in	01232 - 242427
WCA12	WELDG.ELECTRODES:SMA	10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		11227	HONAVAR ELECTRODES PVT. LTD.,	305-309,3RD FLOOR,DAMJI SHAMJI INDUSTRIAL COMPLEX ,9,L.B.S MARG, KURLA(WEST)MUMBAI	hel@vsnl.com	022-25020317
		13690	GEE LIMITED,	PLOT E-1, ROAD NO. 7,WAGLE INDUSTRIAL ESTATETHANE		
		11420	MODI ARC ELECTRODES CO.	MODINAGARUTTAR PRADESHGHAZIABAD	modiarc@ndb.vsnl.net.in	01232 - 242427
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
WCA23	SMAW ELECTRODE E9015	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
WCA24	SMAW ELECTRD T23/P23	21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
WCA25	SMAW ELECD - T92/P92	21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
WCA26	SMAW ELEC E8018-B3L	10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		11227	HONAVAR ELECTRODES PVT. LTD.,	305-309,3RD FLOOR,DAMJI SHAMJI INDUSTRIAL COMPLEX ,9,L.B.S MARG, KURLA(WEST)MUMBAI	hel@vsnl.com	022-25020317
WCA27	SMAW ELEC E7018-B2L	11227	HONAVAR ELECTRODES PVT. LTD.,	305-309,3RD FLOOR,DAMJI SHAMJI INDUSTRIAL COMPLEX ,9,L.B.S MARG, KURLA(WEST)MUMBAI	hel@vsnl.com	022-25020317
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		15080	SUNCRAFT ELECTRODES	BYE PASS ROAD,MUSIRI		04326 60525
		15085	VOLTARC ELECTRODES (P) LTD,	10-77, FIRST MAIN,ROYAL NAGAR,H.O.SURYAJYOTHI,R.C.ROAD, P.B.NO.33,TIRUPATHI	voltarc@rediffmail.com	0877 2241462
		18433	NUCOR WELD(INDIA)PVT.LTD.,	NO.223,KONAPPANA AGRAHARA,ELECTRONIC CITY POST,BANGALORE	nucorweldinida@yahoo.com	080-2852 2057
		15083	MARUTHI ELECTRODES (P) LTD.,	138,5TH FLOOR,MARUTHI TOWERAIRPORT ROAD,KODIHALU,BANGALORE	meplelec@bgl.vsnl.net.in	080 25275848

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		11881	FUSION ENGG. PRODUCTS LTD.,	B-16,Vith PHASE, POST.GAMARIA(JAMSHEDPUR)SERAIKELA- KHARSAWAN,GAMARIA	info@fusionweld.co.in	0657-6542444
		13538	WELDCOM ELECTRODES PVT.LTD.,	T-357,ASHIRWAD PALACENR.BHATAR CHAR RASTA,JIVKOR NAGAR,SURAT		0261-305 4555
		13693	RASI ELECTRODES LTD.,	21, RAJA ANNAMALAI ROAD,FLAT NO A / 14, THIRD FLOOR,CHENNAI	rele@airtellmail.in	044 26424523
		15102	SOLARC WELD RODS,	OLD NO.12,NEW NO.14,65th STREET12th AVENUE,ASHOK NAGAR,CHENNAI	soarcweldrods@gmail.com	044-24891173
		15081	ANNAI SIVAKAMI AMMAL INDUSTRIES,	5/1C,M.M.K.COMPLEX,(OPP. TO S.I.T.)ARIYAMANGALAM.TIRUCHIRAPALLY		0431 2441696
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
		13663	ORION WIRE MANUFACTURING CO.,	POST BOX NO.7,PLOT NO.56A & 44A,GIDC ESTATE,NARNADA NAGAR,BHARUCH	info@sunarcindia.com	02462-246419
		17820	SETH ELECTRODES PVT. LTD.,	SHRIMANT BHAWAN,KHURAI	sepl@sethindia.com	07581 240704
		11380	MALU ELECTRODES PVT.LIMITED	111, RAMAKRISHNA APPARTMENT,CHHAPRU NAGAR SQUARE,CENTRAL AVENUE NAGAR,NAGPUR	meploffice@rediffmail.com	0712 - 2734895
		11420	MODI ARC ELECTRODES CO.	MODINAGARUTTAR PRADESHGHAZIABAD	modiarc@ndb.vsnl.net.in	01232 - 242427
		17661	ALPHA WELDING & ALLIED	#B-10,VEERASANDRA INDUSTRIALESTATE, HOSUR ROAD,BANGALORE		
		17664	ELMARC ELECTRODES PVT. LTD.,	118,SISIDCO INDUSTRIAL ESTATE,AMBATTUR,CHENNAI		
		17813	K.M.CROWN WELDING CONSUMABLES PVT.,	BLOCK NO.16A,16B & 17A,INDUSTRIAL AREA NO.1,A.B.ROAD,DEWAS	kmcrownwelding@dataone.com	07272 259384578
		17812	VICTOR ELECTRODES LIMITED ,	T-1/ 113-114,MANGOLPURI INDUSTRIAL AREA,PHASE - I,NEW DELHI	victor@del2.vsnl.net.in	011 43860025
		17802	SRI VARSHA ELECTRODES,	SHED NO. 55,PHASE V,SIDCO INDUSTRIAL ESTATE,KAKKALUR,THIRUVALLUR DIST.CHENNAI		0 98402 60618
		17643	SUNDEEP ELECTRODES PVT. LTD.,	BULANDSHAHR ROAD,HAPUR		
		17801	JAIN WELDING ELECTRODES PVT. LTD,	G-1-318(C).INDRAPRASTHA INDUSTRIAL AREA,ROAD NO.6,RAJASTHAN,KOTA	info@jainelectrodes.com	0744 2490177
		11227	HONAVAR ELECTRODES PVT. LTD.,	305-309,3RD FLOOR,DAMJI SHAMJI INDUSTRIAL COMPLEX ,9,L.B.S MARG, KURLA(WEST)MUMBAI	hel@vsnl.com	022-25020317

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
WCC01	WELDG.ELECTRODES:SMA	13729	ORANGE ELECTRODES INDUSTRIES,	PLOT NO.9,SHIV SHAKTI LAGHU UDYOGSANKUL,OPP.NEEL ENGG.CO.MUMBAI-NASIK HIGHWAY,ASANGAON	orangeelectrodes@gmail.com	02527-271 995
		13690	GEE LIMITED,	PLOT E-1, ROAD NO. 7,WAGLE INDUSTRIAL ESTATE,THANE		
		15087	V.N.C.ELECTRODEES,	3, INDUSTRIAL ESTATE,S.VELLALAPATTIKARUR	kru_vnc@sancharnet.in	04324 242774
		19906	BAGHERWAL ELECTRODES PVT.LTD.,	20-23,VAIBHAV CHAMBER,7/1,USHAGANJ CHHAWANI,INDORE	bagherwal13@yahoo.com	0731-2905067
		13986	B&H ELECTRODES PVT. LTD,	VILLAGE SAIDPURA, BARWALA ROAD,DERABASSI,MOHALI		
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOOR,NEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		19875	ABIRAMI ELECTRODES,	SF NO.107-A,SARAVANAMPATTI ROAD,VELLAIKINARU,COIMBATORE	sun_weld@yahoo.com	0422 3232724
		14457	BALAJI ELECTRODES	4A / 1A, N.G. NARAYANASAMY STREET,NEW SIDHAPUDUR (PO),COIMBATORE.	sonyaarc6013@gmail.com	0422 438 7817
		19751	FINE WELD ELECTRODESS INDIA (P)LTD.	2/630,PERUMAL KOIL THOTTAM,VENKATAPURAM (PO),COIMBATORE	fineweldcbe@yahoo.com	0422-6581990/...
		19745	MEGA WELD TECHNOLOGIES,	3/219,AVINASHI ROAD,NEELAMBUR (PO),COIMBATORE	megaweldcbe@yahoo.com	0422-658 1989
		14449	IDEAL ELECTRODES	7 - A, SITRA ROAD,KALAPPATTI,COIMBATORE.	idealelectrode@gmail.com	0422 262 7710
		14447	UPARC ELECTRODES COMPANY.	BEHIND NAV BHARAT INTER COLLEGE,KHASRA No.1, INDIRA PURAM COLONY,PARTAPUR,MEERUT.		0121 244 0203
		10667	EUREKA SYSTEMS AND ELECTRODES P.LTD	11/15A,SELVARAJAPURAM,CHINTHAMANIPUDUR, COIMBATORE	info@eurekaelectrodes@gmail.com	0422-268 7199...
		12893	RUHKMANI ELECTRODES PVT.LTD.,	31,THAKURPUKUR (N.W) ROAD,P.O.BADU,DIST:24 PARGANAS(N)KOLKATA	rukhmanielectrodes@rediffmail.com	033-2526 2039
		14448	BRIGHT WELD TECHNOLOGIES	9 / 9, SAKTHI NAGAR,UPPILIPALAYAM POST,COIMBATORE.	brigtweld13@gmail.com	0422 257 4756
		10785	ADOR WELDING LIMITED	CORPORATE MARKETING OFFICE,P.B. NO. 2, CHINCHWAD,PUNE	acegasindia@gamil.com	
		15086	SRI RENGHA ELECTRODES (P) LTD,	137/3, GANAPATHY NAGAR,ARIYAMANGALAMTRICHY		0431-25501173

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		13911	ROYAL ARC ELECTRODES PVT. LTD	ROYAL HOUSE, PLOT NO.26,VILLAGE VALIV,VASAI (EAST)THANE	royalarc@vsnl.com	0250 2480520
		11528	RAAJRATNA ELECTRODES LTD	11, SONAROOPA, OPP.LALBANGLOWC.G.ROAD, NAVARANGPURA AHMEDABAD	mktg@gnahd-rel.global.net.in	079 - 6445258
		17644	VARUN ELECTRODES PVT. LTD.,	H-56,INDUSTRIAL AREA,PANIPAT	kapoor@varunelectrodes.com	0180 2653085
		17814	CALCUTTA ELECTRODES PVT. LTD.,	SARDAR PATEL TIMBER MARKET,BHANPURI,RAIPUR	calcutta_electrodes2006@yahoo.com	0771 4090615
		19111	SPECTRA SUPER ALLOYS LTD,	324 / 325, 3RD FLOOR,ASHIANA TRADE CENTER,ADITYAPUR,JAMSHEDPUR	ss_alloys@yahoo.co.in	0657 6577148
		18846	COSMOS ELECTRODES PVT., LTD,	9/2,KIBE COMPOUND,CHHOTI GEALTOLI CHOURAHA,INDORE		0731 2707946
		18705	MODI HITECH INDIA LTD.,	1400,MODI TOWER98,NEHRU PLACE,NEW DELHI	gmmelectrode@gmail.com	011 4250 4577
		10758	ALPHA ARC INDUSTRIES,	B-5,SECTOR A5/6 TRONICA CITYLONIGHAZIABAD, UP	alphaarc@yahoo.com	0 99114 41441
		18300	SUPERON SCHWEISSTECHNIK INDIA LTD.,	191-D,SECTOR-IV,PHASE-II,IMT MANESAR,GURGAON,HARYANA		011-24647199
		15089	WELDCRAFT PRIVATE LIMITED,	72, INDUSTRIAL SUBURB,2ND STAGE, TUMKUR ROAD,BANGALORE.	weldcraft@vsnl.net	080 3373351
		18597	SHIELDARC EQUIPMENTS PVT. LTD,	85,ELLIOT ROAD,KOLKATA		
		18540	KOLLIPARA ELECTRODES PVT.LTD.,	KRISHNA NAGAR,PENAMALURUKRISHNA DIST.(AP)		
		14575	WELD ALLOY PRODUCTS,	C - 33, SECTOR - IV, NOIDANOIDA DIST.GAUTAM BUDH NAGAR (UP)	wap2005@airtelmail.in	0120-2557183
		14429	ALPHA FLUX & ELETRODES,	178/2-A2,THURAIYUR ROAD,PULIVALAM, MUSIRI - T.K.TRICHY DISTRICT	t.vasanthan@sify.com	04327 294169
		13211	D&H INDIA LIMITED	PLOT 'A', SECTOR 'A'INDUSTRIAL AREA,SANWER ROADINDORE	dhindia@sancharnet.in	0731-4273501-...
		14040	MANTEK ELECTRODS PRIVATE LTD,	D-74A, DEVELOPED PLOT ESTATE,THUVAKUDITRICHY		2501540
		13906	MARUTI WELD LIMITED,	I-1, KIRTI NAGARNEW DELHI	marutiweld@marutiweld.com	25913411
		13763	CLASSIC ELECTRODES (INDIA) LTD.,	1, BONFIELD LANE2 ND FLOORKOLKATA	classicelectrodes@yahoo.co.in	033 22429581
		15088	NIVETHA ELECTRODES,	195,PUDUKKOTTAI ROAD,TAMILNADU TANNREY'S BUILDING,SEMPATTU,TIRUCHIRAPALLY		0431 2341377
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		13549	ATHARVE WELDING TECHNOLOGIES (INDIA	PVT.LTD.,A 192,M.I.D.C.CHINCHOLI,SOLAPUR	atharv.wt@hotmail.com	0217-273 7029

SECTION - VIII
LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		13487	MAGNARC ELECTRODES PVT.LTD.,	PENDUTHIVISAGAPATNAM	magnarc@hotmail.com	0891-276 4381...
		14523	JINDAL DUROWELD	BN / 19 & 20,KALUNGA INDL. ESTATE,ROURKELA.	jdplrkl@yahoo.co.in	0661 266 0621
		15082	ROYAL WELDING WIRES PVT. LTD.,	7,KARANAI PUDUCHERRY VILLAGE,VIA.URAPAKKAM,KANCHIPURAM DIST,	royal@royalwires.co.in	044-3741 1610
		15090	RAJ KESARI ELECTRODES,	35,RAVINDRA NAGAR,(PRATAP NAGAR)UDAIPUR	rajkesari@yahoo.com	0294 2490193
		14584	SUN ELECTRODE	SF No.119/3, RAYAMUNDANPATTI,PUDHUKUDI ROAD,TANJORE.	sunenterprises2011@gmail.com	0 88256 36464
		14534	AARYA ELECTRODES PVT.LTD.	JOHN'S MILL NO.3,JEONI MANDI,AGRA.	vibhor@aaryaelectrodes.com	0562 262 2121
		18433	NUCOR WELD(INDIA)PVT.LTD.,	NO.223,KONAPPANA AGRAHARA,ELECTRONIC CITY POST,BANGALORE	nucorweldinida@yahoo.com	080-2852 2057
		18846	COSMOS ELECTRODES PVT., LTD,	9/2,KIBE COMPOUND,CHHOTI GEALTOLI CHOURAHA,INDORE		0731 2707946
		13487	MAGNARC ELECTRODES PVT.LTD.,	PENDUTHIVISAGAPATNAM	magnarc@hotmail.com	0891-276 4381...
		11380	MALU ELECTRODES PVT.LIMITED	111, RAMAKRISHNA APPARTMENT,CHHAPRU NAGAR SQUARE,CENTRAL AVENUE NAGAR,NAGPUR	meploffice@rediffmail.com	0712 - 2734895
		11227	HONAVAR ELECTRODES PVT. LTD.,	305-309,3RD FLOOR,DAMJI SHAMJI INDUSTRIAL COMPLEX ,9,L.B.S MARG, KURLA(WEST)MUMBAI	hel@vsnl.com	022-25020317
		15102	SOLARC WELD RODS,	OLD NO.12,NEW NO.14,65th STREET12th AVENUE,ASHOK NAGAR,CHENNAI	soarcweldrods@gmail.com	044-24891173
		15086	SRI RENGHA ELECTRODES (P) LTD,	137/3, GANAPATHY NAGAR,ARIYAMANGALAMTRICHY		0431-25501173
		18432	VIJEY ELECTRODES AND WIRES PVT.	83/1,THIRUNEERMALAI ROAD,NAGELKENI, CHROMPET,CHENNAI	vjelect@yahoo.co.in	044-2238 1098
		19305	MURLI ELECTRODE PVT. LTD,	EL. 30,M.I.D.C.INDUSTRIAL ESTATE,HINGNA ROAD,NAGPUR	sudhir_0408@rediffmail.com	0712 2769347
		18540	KOLLIPARA ELECTRODES PVT.LTD.,	KRISHNA NAGAR,PENAMALURUKRISHNA DIST.(AP)		
		18705	MODI HITECH INDIA LTD.,	1400,MODI TOWER98,NEHRU PLACE,NEW DELHI	gmmelectrode@gmail.com	011 4250 4577
		15085	VOLTARC ELECTRODES (P) LTD,	10-77, FIRST MAIN,ROYAL NAGAR,H.O.SURYAJYOTHI,R.C.ROAD, P.B.NO.33,TIRUPATHI	voltarc@rediffmail.com	0877 2241462

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LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
WCC05	WELDG.ELECTRODES:SMA	15091	MAGNA ENGINEERING	CHINNAVUTAPALLIGANNAVARAM MANDAL,VIJAYAWADA		08676 252181
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
		17643	SUNDEEP ELECTRODES PVT. LTD.,	BULANDSHAHR ROAD,HAPUR		
		13763	CLASSIC ELECTRODES (INDIA) LTD.,	1, BONFIELD LANE2 ND FLOOR KOLKATA	classicelectrodes@yahoo.co.in	033 22429581
		16548	WELD EXCEL INDIA LTD.,	D-230,PHASE VII,FOCAL POINT,LUDHIANA		
		10758	ALPHA ARC INDUSTRIES,	B-5,SECTOR A5/6 TRONICA CITYLONIGHAZIABAD, UP	alphaarc@yahoo.com	0 99114 41441
		12893	RUKHMANI ELECTRODES PVT.LTD.,	31,THAKURPUKUR (N.W) ROAD,P.O.BADU,DIST:24 PARGANAS(N)KOLKATA	rukhmanielectrodes@rediffmail.com	033-2526 2039
		18300	SUPERON SCHWEISSTECHNIK INDIA LTD.,	191-D,SECTOR-IV,PHASE-II,IMT MANESAR,GURGAON,HARYANA		011-24647199
		10785	ADOR WELDING LIMITED	CORPORATE MARKETING OFFICE,P.B. NO. 2, CHINCHWAD,PUNE	acegasindia@gamil.com	
		14575	WELD ALLOY PRODUCTS,	C - 33, SECTOR - IV, NOIDA DIST.GAUTAM BUDH NAGAR (UP)	wap2005@airtelmail.in	0120-2557183
		15083	MARUTHI ELECTRODES (P) LTD.,	138,5TH FLOOR,MARUTHI TOWERAIRPORT ROAD,KODIHALU,BANGALORE	meplelec@bgl.vsnl.net.in	080 25275848
		15089	WELDCRAFT PRIVATE LIMITED,	72, INDUSTRIAL SUBURB,2ND STAGE, TUMKUR ROAD,BANGALORE.	weldcraft@vsnl.net	080 3373351
		13906	MARUTI WELD LIMITED,	I-1, KIRTI NAGAR NEW DELHI	marutiweld@marutiweld.com	25913411
		15082	ROYAL WELDING WIRES PVT. LTD.,	7,KARANAI PUDUCHERRY VILLAGE,VIA.URAPAKKAM,KANCHIPURAM DIST,	royal@royalwires.co.in	044-3741 1610
		13211	D&H INDIA LIMITED	PLOT 'A', SECTOR 'A'INDUSTRIAL AREA,SANWER ROADINDORE	dhindia@sancharnet.in	0731-4273501-...
		13911	ROYAL ARC ELECTRODES PVT. LTD	ROYAL HOUSE, PLOT NO.26,VILLAGE VALIV,VASAI (EAST) THANE	royalarc@vsnl.com	0250 2480520
		17813	K.M.CROWN WELDING CONSUMABLES PVT.,	BLOCK NO.16A,16B & 17A,INDUSTRIAL AREA NO.1,A.B.ROAD,DEWAS	kmcrownwelding@dataone.com	07272 259384578
		13388	THE INDIAN SEEL & WIRE PRODUCTS LTD	PO INDIRA NAGAR,JAMSHEDPUR - 831 008JHARKAND	upshar@tatasteel.com	0657- 6512744
		14791	ANAND ARC LTD.,	NO.22(OLD.31),RAILWAY COLONY,III STREET,AMINJIKARAI,CHENNAI		044 23746379
		10667	EUREKA SYSTEMS AND ELECTRODES P.LTD	11/15A,SELVARAJAPURAM,CHINTHAMANIPUDUR, COIMBATORE	info@eurekaelectrodes@gmail.com	0422-268 7199...

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LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		15087	V.N.C.ELECTRODEES,	3, INDUSTRIAL ESTATE,S.VELLALAPATTIKARUR	kru_vnc@sancharnet.in	04324 242774
		11881	FUSION ENGG. PRODUCTS LTD.,	B-16,Vith PHASE, POST.GAMARIA(JAMSHEDPUR)SERAIKELA- KHARSAWAN,GAMARIA	info@fusionweld.co.in	0657-6542444
		15084	DWEKAM ELECTRODES LTD,	TALAWALI CHANDA,A.B.ROAD, P.O.MANGILAINDORE (MP)	vk.khandelwal@dwekam.org	0731 422 9500...
		17814	CALCUTTA ELECTRODES PVT. LTD.,	SARDAR PATEL TIMBER MARKET,BHANPURI,RAIPUR	calcutta_electrodes2006@yahoo.com	0771 4090615
		17644	VARUN ELECTRODES PVT. LTD.,	H-56,INDUSTRIAL AREA,PANIPAT	kapoor@varunelectrodes.com	0180 2653085
		14040	MANTEK ELECTRODS PRIVATE LTD,	D-74A, DEVELOPED PLOT ESTATE,THUVAKUDITRICHY		2501540
		15833	THIRUMALA ELECTRODES CO.,	S1-17B,'S' TYPE,SIDCO INDUSTRIAL ESTATE,THUVAKUDI,TRICHY	tec_sevenarcs@yahoo.co.in	0431-6573566
		17451	WELDWELL ELECTRODES,	D-59 M.I.D.C.,HINGNA INDUSTRIAL AREA,NAGPUR	weldwellngp@gmail.com	07104 232211/...
		13693	RASI ELECTRODES LTD.,	21, RAJA ANNAMALAI ROAD,FLAT NO A / 14, THIRD FLOOR,CHENNAI	rele@airtellmail.in	044 26424523
		11420	MODI ARC ELECTRODES CO.	MODINAGARUTTAR PRADESHGHAZIABAD	modiarc@ndb.vsnl.net.in	01232 - 242427
		19111	SPECTRA SUPER ALLOYS LTD,	324 / 325, 3RD FLOOR,ASHIANA TRADE CENTER,ADITYAPUR,JAMSHEDPUR	ss_alloys@yahoo.co.in	0657 6577148
		15090	RAJ KESARI ELECTRODES,	35,RAVINDRA NAGAR,(PRATAP NAGAR)UDAIPUR	rajkesari@yahoo.com	0294 2490193
		11528	RAAJRATNA ELECTRODES LTD	11, SONAROOPA, OPP.LALBANGLOWC.G.ROAD, NAVARANGPURA AHMEDABAD	mktg@gnaht-rel.global.net.in	079 - 6445258
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		19906	BAGHERWAL ELECTRODES PVT.LTD.,	20-23,VAIBHAV CHAMBER,7/1,USHAGANJ CHHAWANI,INDORE	bagherwal13@yahoo.com	0731-2905067
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		13690	GEE LIMITED,	PLOT E-1, ROAD NO. 7,WAGLE INDUSTRIAL ESTATETHANE		
		18432	VIJEY ELECTRODES AND WIRES PVT.	83/1,THIRUNEERMALAI ROAD,NAGELKENI, CHROMPET,CHENNAI	vjelect@yahoo.co.in	044-2238 1098
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
WCC06	WELDG.ELECTRODES:SMA	10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		11227	HONAVAR ELECTRODES PVT. LTD.,	305-309,3RD FLOOR,DAMJI SHAMJI INDUSTRIAL COMPLEX ,9,L.B.S MARG, KURLA(WEST)MUMBAI	hel@vsnl.com	022-25020317
		13690	GEE LIMITED,	PLOT E-1, ROAD NO. 7,WAGLE INDUSTRIAL ESTATETHANE		
WCC09	Welding Consumable	20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
WCF01	WELDG.WIRE:FLUX CORE	21065	HYUNDAI WELDING CO. LTD.,	15F, 137-37 GANGNAM KU,INSONG BUILDING,SAMSUNG DONG,SEOUL	alex@hdweld.co.kr	82-02 6230-6077
		20970	THE SHANGHAI LINCOLN ELECTRIC	LANE 5008,HU TAI ROAD,BOASHAN, SHANGAI-201907		86 21 560 26664
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		91270	VEEPEES INDIA,	C-52, 4TH AVENUE ROAD,GUINDY INDUSTRIAL ESTATE,GUINDY.CHENNAI	veepeesindia@gmail.com	044-43534354
		14676	ITW INDIA LIMITED: WELDING GROUP.	CORPORATE HOUSE,NO.1, SUN CHAMBERS,NEAR SOLA BRIDGE, S.G. HIGHWAY,AHMEDABAD.	fredric.prabhu@itwindia.com	079 3315 4009
WCF02	WELDG.WIRE:FLUX CORE	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
WCF03	WG:WIRE.FC.E309LMoTO	20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20033	KISWEL LTD.,	HEUNGKOOK B/D, 43-1,JUJA-DONGCHUNG-GU, C.P.O.BOX 8641SEOUL, KOREA.SEOUL,KOREA.	export@kiswel.com	82-2-2270-9400
WCF04	WELDG: WIRE: FLUX CO	91270	VEEPEES INDIA,	C-52, 4TH AVENUE ROAD,GUINDY INDUSTRIAL ESTATE,GUINDY.CHENNAI	veepeesindia@gmail.com	044-43534354
		21065	HYUNDAI WELDING CO. LTD.,	15F, 137-37 GANGNAM KU,INSONG BUILDING,SAMSUNG DONG,SEOUL	alex@hdweld.co.kr	82-02 6230-6077

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
WCF05	WELDG: WIRE: FLUX CO	91270	VEEPEES INDIA,	C-52, 4TH AVENUE ROAD,GUINDY INDUSTRIAL ESTATE,GUINDY.CHENNAI	veepeesindia@gmail.com	044-43534354
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
WCF06	WELDG. WIRE: FLUX CO	91270	VEEPEES INDIA,	C-52, 4TH AVENUE ROAD,GUINDY INDUSTRIAL ESTATE,GUINDY.CHENNAI	veepeesindia@gmail.com	044-43534354
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
		20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
WCF09	E71T-1 MARATHON PACK	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		91270	VEEPEES INDIA,	C-52, 4TH AVENUE ROAD,GUINDY INDUSTRIAL ESTATE,GUINDY.CHENNAI	veepeesindia@gmail.com	044-43534354
		20970	THE SHANGHAI LINCOLN ELECTRIC	LANE 5008,HU TAI ROAD,BOASHAN, SHANGAI-201907		86 21 560 26664
		14676	ITW INDIA LIMITED: WELDING GROUP.	CORPORATE HOUSE,NO.1, SUN CHAMBERS,NEAR SOLA BRIDGE, S.G. HIGHWAY,AHMEDABAD.	fredric.prabhu@itwindia.com	079 3315 4009
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		21065	HYUNDAI WELDING CO. LTD.,	15F, 137-37 GANGNAM KU,INSONG BUILDING,SAMSUNG DONG,SEOUL	alex@hdweld.co.kr	82-02 6230-6077
WCF11	ER70S - 6 BULK PACKS	20970	THE SHANGHAI LINCOLN ELECTRIC	LANE 5008,HU TAI ROAD,BOASHAN, SHANGAI-201907		86 21 560 26664
		14676	ITW INDIA LIMITED: WELDING GROUP.	CORPORATE HOUSE,NO.1, SUN CHAMBERS,NEAR SOLA BRIDGE, S.G. HIGHWAY,AHMEDABAD.	fredric.prabhu@itwindia.com	079 3315 4009

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
WCFA1	BULKPACK :E551T1-B2C	14676	ITW INDIA LIMITED: WELDING GROUP.	CORPORATE HOUSE,NO.1, SUN CHAMBERS,NEAR SOLA BRIDGE, S.G. HIGHWAY,AHMEDABAD.	fredric.prabhu@itwindia.com	079 3315 4009
		91270	VEEPEES INDIA,	C-52, 4TH AVENUE ROAD,GUINDY INDUSTRIAL ESTATE,GUINDY.CHENNAI	veepeesindia@gmail.com	044-43534354
WCH03	WELD:SMAW:HF-ECrA	20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
		20018	KENNAMETAL STELLITE	L.P. 1201 Eisenhower Drive N.Goshen ,IN 46526 USAUSA	asiasales@stellitesales.com	44-0-1793 498...
WCH05	SMAW ELECTRO ECoCr-E	20073	WEARTECH INTL INC	13032, PARK STREETSANTA FE SPRINGS , CA 90670USAUSA		001-562 945 7847
WCL07	WELDG.ELECTRODES:SMA	10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40
		21991	SPECIAL METALS WELDING PRODUCTS	1401,BURRIS ROAD,NEWTON,NORTH COROLINA 28658	rphillips@smwpc.com	828-465-0352
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
WCL08	SMAW ELECTRODE	21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESSY,SURREY KT169LL,		
		21991	SPECIAL METALS WELDING PRODUCTS	1401,BURRIS ROAD,NEWTON,NORTH COROLINA 28658	rphillips@smwpc.com	828-465-0352
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
WCS20	WELDG.ELECTRODES:SMA	10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		11420	MODI ARC ELECTRODES CO.	MODINAGARUTTAR PRADESHGHAZIABAD	modiarc@ndb.vsnl.net.in	01232 - 242427
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
WCS22	WELDG.ELECTRODES:SMA	10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343

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1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
WCS27	WELDG.ELECTRODES:SMA	10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
WCS28	WELDG.ELECTRODES:SMA	10036	BHARAT HEAVY ELECTRICALS LTD	WELDING CONSUMABLE MFG CENTRETIRUCHIRAPALLITIRUCHIRAPALLI		
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
WCS29	WELDG.ELECTRODES:SMA	10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		10036	BHARAT HEAVY ELECTRICALS LTD	WELDING CONSUMABLE MFG CENTRETIRUCHIRAPALLITIRUCHIRAPALLI		
WCS30	WELDG.ELECTRODES:SMA	11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		11420	MODI ARC ELECTRODES CO.	MODINAGARUTTAR PRADESHGHAZIABAD	modiarc@ndb.vsnl.net.in	01232 - 242427
WCS31	WELD:SMAW:SS E410-15	10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		10036	BHARAT HEAVY ELECTRICALS LTD	WELDING CONSUMABLE MFG CENTRETIRUCHIRAPALLITIRUCHIRAPALLI		
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
WCS32	WELD:SMAW:SS E430-15	10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311

SECTION - VIII
LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		10036	BHARAT HEAVY ELECTRICALS LTD	WELDING CONSUMABLE MFG CENTRETIRUCHIRAPALLITIRUCHIRAPALLI		
WCS38	SMAW ELECTRD 253MA	22515	BOHLER WELDING GROUP NORDIC SALES A	BOX 501, SE - 774 27 AVESTA,SWEDEN.	INFO@BWGNORDIC.COM	46022685750
		22516	AB SANDVIK PROCESS SYSTEM,	SE 811 81 SANDVIKENSWEDEEN.	donald.anderson@sandvik.com	4602626 5600
WCS39	SMAW ELEC E308H-16	10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
WCS40	SMAW ELEC E316H-16	10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
WCT01	WELD:HF-HAY.ALLY 25	20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA- CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
		10313	ZIRCAST LTD	UNIT -2, NO.37,JIGANI INDUSTRIAL AREABANGALORE - 562 106BANGALORE	jsuresh@zircast.com	08110 /26238
WCT02	WELD:HF-HAY.ALLY 21	20073	WEARTECH INTL INC	13032, PARK STREETSAANTA FE SPRINGS , CA 90670USAUSA		001-562 945 7847
		20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA- CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
WCT03	WELD:HF-RCO CRA	20018	KENNAMETAL STELLITE	L.P. 1201 Eisenhower Drive N.Goshen ,IN 46526 USAUSA	asiasales@stellitesales.com	44-0-1793 498...
		20073	WEARTECH INTL INC	13032, PARK STREETSAANTA FE SPRINGS , CA 90670USAUSA		001-562 945 7847
		20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA- CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
		10313	ZIRCAST LTD	UNIT -2, NO.37,JIGANI INDUSTRIAL AREABANGALORE - 562 106BANGALORE	jsuresh@zircast.com	08110 /26238
WCT04	WG:PWD:HF:TYP COCRA	20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
		20073	WEARTECH INTL INC	13032, PARK STREETSAANTA FE SPRINGS , CA 90670USAUSA		001-562 945 7847
		20018	KENNAMETAL STELLITE	L.P. 1201 Eisenhower Drive N.Goshen ,IN 46526 USAUSA	asiasales@stellitesales.com	44-0-1793 498...
		20067	UTP SCHWEISS MATERIAL GMBH & CO	ELSASSER STR 10D-79189, BAD KROZINGENGERMANY.		49(0) 07633 / 40

SECTION - VIII
LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		20130	ALCONIX CORPORATION	SANNO PARK TOWER,12TH FLOOR,2-11-1 NAGATA-CHO,CHIYODA-KU,TOKYO ,JAPAN	Inamori.khei@alconix.com	
		20321	HOGANAS BELGIUM SA	COLDSTREAM DIVISIONRUELLE GROS PIERRE 10B-7800 ATHRUELLE GROS PIERRE 10B-7800 ATH		
WCW01	EL-8 SAW WIRE	14791	ANAND ARC LTD.,	NO.22(OLD.31),RAILWAY COLONY,III STREET,AMINJIKARAI,CHENNAI		044 23746379
		15085	VOLTARC ELECTRODES (P) LTD,	10-77, FIRST MAIN,ROYAL NAGAR,H.O.SURYAJYOTHI,R.C.ROAD, P.B.NO.33,TIRUPATHI	voltarc@rediffmail.com	0877 2241462
		15084	DWEKAM ELECTRODES LTD,	TALAWALI CHANDA,A.B.ROAD, P.O.MANGILAINDORE (MP)	vk.khandelwal@dwekam.org	0731 422 9500...
		13693	RASI ELECTRODES LTD.,	21, RAJA ANNAMALAI ROAD,FLAT NO A / 14, THIRD FLOOR,CHENNAI	rele@airtelmail.in	044 26424523
		19905	T.M.INDUSTRIES,	PLOT NO.26-27,PHASE-I,SILTARA GROWTH CENTRE,SILTARA RAIPUR	tmtapadia@rediffmail.com	0771-2100524
		10774	D&H SECHERON ELECTRODES PVT LTD.	P.B.NO.344-46,INDL.ESTATE,KILAMAIDANINDORE	sales@dnhsecheron.net	0731-4229222
		19114	WELMET TECHNOLOGIES PVT. LTD.,	34,P.N.MAIDU INDUSTRIAL ESTATE,M.I.D.C. HINGNA,NAGPUR		
		11528	RAAJRATNA ELECTRODES LTD	11, SONAROOPA, OPP.LALBANGLOWC.G.ROAD, NAVARANGPURA AHMEDABAD	mktg@gnaht-rel.global.net.in	079 - 6445258
		13534	RUPA INDUSTRIES,	2-2-105 to 180/10,GANESH CHAMBERSRANIGUNJ,SECUNDERABAD	rupaent@vsnl.net	040-2771 3714
		13211	D&H INDIA LIMITED	PLOT 'A', SECTOR 'A'INDUSTRIAL AREA,SANWER ROADINDORE	dhindia@sancharnet.in	0731-4273501-...
		11378	MAILAM INDIA LIMITED	MAILAM MAIN ROAD,SEDARAPET,PONDICHERRY	mailam@mailanindia.com	0413-2677311
		17813	K.M.CROWN WELDING CONSUMABLES PVT.,	BLOCK NO.16A,16B & 17A,INDUSTRIAL AREA NO.1,A.B.ROAD,DEWAS	kmcrownwelding@dataone.com	07272 259384578
		16166	EVERSHINE WIRES	178/2-A3, THURAIYUR ROAD,PULIVALAM,MUSIRI TALUK,TRICHY	evershinewires@rediffmail.com	04327 235527
		10785	ADOR WELDING LIMITED	CORPORATE MARKETING OFFICE,P.B. NO. 2, CHINCHWAD,PUNE	acegasindia@gamil.com	
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		11288	JAGSHAAN INDUSTRIES	94 FRIENDS COLONYKATOL ROADNAGPUR	jagshaan@nagpur.dot.net.in	0712 - 581557

SECTION - VIII
LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
		15100	MANTEK WIRES	24,SIDCO INDUSTRIAL ESTATE,P.VADUGAPALAYAM,PALLADAMCOIMBAT ORE		
		14340	NALLI ARC INDUSTRIE,	SF NO. 340,NALLIPALAYAM,PADIYUR POST,KANGAYAM TALUKERODE Dt.	nalliar@yahoo.com	04257 245185
		15101	PRECISION WELDARC LTD,	49,B.T. ROAD, PANIHATI24,PARGANAS (NORTH)KOLKATA.	pwires@yahoo.co.in	033 25634753
		14455	WIRE AND WIRE PRODUCTS	SIDCO INDUSTRIAL ESTATEAMBATTURCHENNAI	wwp@vsnl.net	044 26242378
		15810	NOUVEAUX INDUSTRIES (P) LTD.,	N0.2,SOWDAMBIGA NAGARTIRUPUR ROAD.KANGAYAM		
WCW02	WELDING WIRE:SAW EB3	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
WCW04	WG:WIRE:SAW ER430	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20033	KISWEL LTD.,	HEUNGKOOK B/D, 43-1,JUJA-DONGCHUNG-GU, C.P.O.BOX 8641SEOUL, KOREA.SEOUL,KOREA.	export@kiswel.com	82-2-2270-9400
WCW05	WG:WIRE:SAW ER410	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20033	KISWEL LTD.,	HEUNGKOOK B/D, 43-1,JUJA-DONGCHUNG-GU, C.P.O.BOX 8641SEOUL, KOREA.SEOUL,KOREA.	export@kiswel.com	82-2-2270-9400
WCW06	WELDING WIRE:SAW EB2	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301

SECTION - VIII
LIST OF APPROVED VENDORS

1) WELDING CONSUMABLES SUPPLIERS LIST

Mat Group	Material Group Description	Vendor No	Vendor Name	Vendor Address	EMAIL	PHONE1
WCW08	WELDING WIRE:SAW EA4	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
WCW09	WELDING WIRE:SAW EM1	20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		15810	NOUVEAUX INDUSTRIES (P) LTD.,	NO.2,SOWDAMBIGA NAGARTIRUPUR ROAD.KANGAYAM		
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
WCW12	WELDING WIRE:SAW 3 B	20011	BOHLER SCHWEISSTECHNIK AUSTRIA	WERK DEUCHENDORF,A 8605, KAPPENBERG, POSTFACH - 9,AUSTRIA.AUSTRIA.		0043/3862301
		20563	BOHLER SCHWEISSTECHNNIK	UNIONSTRASSE-1,D-59067 HAMM,DEUTSCHLAND GmbH.,GERMANY		
		20047	KANEMATSU TRADING CORPORATION	6th FLOOR,AKEBONO NIHONBASHI BLDG,19 - 5,NIHONBASHIKOAMI-CHO,CHUO - KU, TOKYO, 103 - 0016.	nikko-bocki@kgt.kanematsu.co.jp	81 3 5283 3680
		10081	ESAB INDIA LTD	KARUMUTTU CENTRE, 6TH FLOORNEW NO.634(OLD NO.498)ANNA SALAI, NANDANAM,CHENNAI-35CHENNAI	jagdeesh.ds@esab.co.in	044-826 9343
		22391	AIR-LIQUIDE WELDING FRANCE,	13,RUE D'EPLUCHES-BP70024 SAINT-OUEN I'AUMONE,95315 CERGY PONTOISE CEDEX	jean-paul.shmitt@airliquide.com	1342 13480
		21411	METRODE PRODUCTS LIMITED,	HANWORTH LANE,CHERTESY,SURREY KT169LL,		



Section-VIII- 3) PENETRANT TESTING CHEMICALS AND
MAGNETIC TESTING CONSUMABLES

PENETRANT TESTING

PENETRANT TESTING CHEMICALS

**DYE (SOLVENT REMOVABLE, FLUORESCENT, WATER WASHABLE, POST
EMULSIFIER) , DEVELOPER, CLEANER**

Sl.No	Vendor address	Approved by
1.	P-MET HIGH-TECH COMPANY (P) LTD. 1-5/6,INDUSTRIAL ESTATE, GORWA, BARODA (GUJARAT) INDIA-390016 PHONE NO.: 0265-282326/281125 FAX : 0265-2793868 E-MAIL : P-MET@ICENET.NET	TRICHY HYDERABAD RANIPET HARIDWAR
2.	ORIENTAL CHEMICAL WORKS (P) LTD 23 SATTANA NAICKEN STERRET 1ST LOOR,SRIVISHAKANYA NILAYAM, ADJACENT STREET, NATRAJ THEATRE CHENNAI 600 112	TRICHY RANIPET
3.	ITW SIGNODE INDIA LTD 3RD FLOOR,MERCHANT TOWERS, 5,ROAD NO.4,BANJARA HILLS HYDERBAD 500 034 E MAIL : VARDA@TCH.ITWSIGNODE.CO.IN Ph.No: 044 -24723956	TRICHY HYDERABAD RANIPET
4.	ITW SIGNODE INDIA LTD PLOT NO 34-37, IDA , APIIC, PASHAMNYLARAM, PHASE-II, MEDAK INDIA -502307 PHONE NO.: 08455- 26089, 26055 , 26328 FAX : 08455-26336 EMAIL: dst@fps.itwsignode.co.in	TRICHY HYDERABAD RANIPET HARIDWAR
5.	ITW SIGNODE INDIA LTD. 10, COMMUNITY CENTRE, EAST OF KAILASH, NEW DELHI , INDIA -110065 PHONE NO.: 01126424984, 01126424990	TRICHY HYDERABAD RANIPET HARIDWAR
6.	PRADEEP METAL TREATMENT CHEMICALS (P) LTD. PLOT NOS A-488/489, ROAD U, WAGLE INDUSTRIAL ESTATE, THANE ,INDIA -400604 PHONE NO.:022-5598 8781 / 82 , FAX : 022-2582 7460 E-MAIL : pradeepndt@mtnl.net.in	TRICHY HYDERABAD RANIPET HARIDWAR
7.	FERROCHEM, 1,GURUPRASAD KUNU 1122/6 ERANDAWAANA PUNE 411 004	TRICHY HYDERABAD RANIPET



Section-VIII- 3) PENETRANT TESTING CHEMICALS AND
MAGNETIC TESTING CONSUMABLES

8.	FERROCHEM NDT SYSTEMS PVT. LTD 6, PRAGATI INDUSTRIAL COMPLEX, 17/1-B, KOTHRUD, PUNE (MAHARASHTRA) INDIA -411004 PHONE NO.: (020)5465258/5432528/5437339 FAX : 5463038 E-MAIL : ferro@pn2.vsnl.net.in	TRICHY HYDERABAD RANIPET HARIDWAR
9.	ANDHRA SPARES COMPANY SHOP NO: 5-5-80/2, 1ST FLOOR, SRI SRINIVASA COMMERCIAL COMPLEX, RANIGUNJ, SECUNDERABAD- 500 003	HYDERABAD
10.	CHECKMATE CHEMICALS LTD. 13, MODERN INDUSTRIAL ESTATE, ROHTAK ROAD, BAHADUR GARH, HARYANA 124 507	TRICHY HYDERABAD RANIPET
11.	CHECKMATE CHEMICALS PVT. LTD. EC-11, 2ND FLOOR, INDER PURI, NEW DELHI , INDIA , 110012 PHONE NO.: 011-2585889/25835870 FAX : 011-25833160 E-MAIL : dlsharma@vsnl.com	TRICHY HYDERABAD RANIPET HARIDWAR
12.	NDT CHEMICAL PRODUCTS, 5-7-9/6, SANGEETH NAGAR, KUKATPALLY, HYDERABAD-500 072. EMAIL: ndtcp787_hyd@dataone.in WEB: WWW.NDTCPHYD.COM PHONE: 09246530958	HYDERABAD
13.	THE ORIENTAL CHEMICAL WORKS, KOLKATTA 1/1B, GOBINDA AUDDY ROAD, CHETLA, KOLKATA-700 027	HYDERABAD
14.	M /S KRISH MET TECH PVT LTD 10 /1ST FLOOR, ARUNACHALAM ROAD,(OPP.SURRYA HOSPITAL) SALIGRAM,CHENNAI 600 093 EMAIL KRISHMETTECH@ETH.NET PH 23761491, 23764450	TRICHY RANIPET



Section-VIII- 3) PENETRANT TESTING CHEMICALS AND
MAGNETIC TESTING CONSUMABLES

MAGNETIC TESTING CONSUMABLES
DRY POWDER

Sl.No	Vendor address	Approved by
1.	ITW SIGNODE INDIA LTD 3RD FLOOR,MERCHANT TOWERS, 5,ROAD NO.4,BANJARA HILLS HYDERBAD 500 034 E MAIL: varda@tch.itwsignode.co.in 044 -24723956	TRICHY HYDERABAD
2.	FERROCHEM NDT SYSTEMS PVT. LTD 6, PRAGATI INDUSTRIAL COMPLEX, 17/1-B, KOTHRUD, PUNE (MAHARASHTRA) INDIA-411004 PHONE NO.: (020)5465258/5432528/5437339 FAX : 5463038 E-MAIL : ferro@pn2.vsnl.net.in	TRICHY HYDERABAD
3.	EAST COAST ENTERPRISES 33,BRABOURNE ROAD, P.BNO. 2217 GPO CALCUTTA 700 001	TRICHY HYDERABAD
4.	ELECTRO MAGFIELD CONTROLS& SERVICES 561 G.M.T.H ROAD (NEAR TELEPHONE EXCHANGE) AMBATHUR CHENNAI 600 098 EMAIL: emcs@eth.net PH 625 4327,652 1041	TRICHY HYDERABAD
5.	EAST WEST ENGG. & ELECTRONICS CO 204,ACHARYA COMMERCIAL CENTRE DR. C . G. ROAD , CHEMBUR MUMBAI 400 074	TRICHY HYDERABAD
6.	KIRAN ENTERPRISES PLOT NO 175, PRAGATHINAGAR , OPP. JNTU KUKATPALLY,HYDRABAD 500 072	HYDERABAD
7.	PARADEEP NDT PRODUCTS REGIS. OFFICE: 32 WESTMINSTER , MANIKIKAR MARG, CHUNABHATTI, SION, MUMBAI-400 022 WORKS: SHED NO.3, CHANDRASAKHA ESTATE SURVEY NO.1 , AMBEGAON BUORUK TAL.HAVELI DIST. PUNE 411 046 PHONE NO. 020 -24210699	TRICHY HYDERABAD



Section-VIII- 3) PENETRANT TESTING CHEMICALS AND
MAGNETIC TESTING CONSUMABLES

8.	PRADEEP METAL TREATMENT CHEMICALS (P) LTD. PLOT NOS A-488/489, ROAD U, WAGLE INDUSTRIAL ESTATE, THANE ,INDIA-400604 PHONE NO.: 022-5598 8781 / 82, FAX : 022-2582 7460 E-MAIL : pradeepndt@mtnl.net.in	
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MPI CHEMICALS (WET)

Sl.No	Vendor address	Approved by
1.	CHECKMATE CHEMICALS PVT. LTD. EC-11, 2ND FLOOR, INDER PURI, NEW DELHI , INDIA -110012 PHONE NO.: 011-2585869/25835870 FAX : 011-25833100 E-MAIL : dbsharma@vsnl.com	TRICHY HYDERABAD BHOPAL HARIDWAR
2.	P-MET HIGH-TECH COMPANY (P) LTD. 1-5/6,INDUSTRIAL ESTATE, GORWA, BARODA (GUJARAT) INDIA -390016 PHONE NO.: 0265-282326/281125,FAX : 0265-2793868 E-MAIL : p-met@icenet.net	TRICHY HYDERABAD BHOPAL HARIDWAR
3.	K ELECTRONICS G11 ,RAJMAHAL, 55-E,M. VASANJI ROAD ANDHERI(EAST) MUMBAI 400 069 PHONE:020-25432528,25437339 FAX:020-25463038 E-MAIL: ferro@pn2.vsnl.net.in	TRICHY HYDERABAD BHOPAL
4.	PRADEEP METAL TREATMENT CHEMICALS (P) LTD. PLOT NOS A-488/489, ROAD U, WAGLE INDUSTRIAL ESTATE, THANE , INDIA, 400604 PHONE NO.: 022-5598 8781 / 82 , FAX : 022-2582 7460 E-MAIL : pradeepndt@mtnl.net.in	TRICHY HYDERABAD BHOPAL HARIDWAR
5.	PRADEEP NDT PRODUCTS PVT. LTD. 32, WESTMINISTER, MANKIKAR MARG, SION, MUMBAI - 400 022 PHONE:022-24073309, 24093116 pradeepndt@vsnl.net vardeji@bol.net.in	TRICHY HYDERABAD BHOPAL



Section-VIII- 3) PENETRANT TESTING CHEMICALS AND
MAGNETIC TESTING CONSUMABLES

6.	ITW SIGNODE INDIA LTD PLOT NO 34-37, IDA , APIIC, PASHAMNYLARAM, PHASE-II MEDAK, INDIA -502307 PHONE NO.: 08455- 26089, 26055 , 26328 ,FAX : 08455- 26336 EMAIL: dst@fps.itwsignode.co.in	TRICHY HYDERABAD BHOPAL HARIDWAR
7.	ITW SIGNODE INDIA LTD 3 RD FLOOR, MERCCHANT TOWERS, 5, ROAD NO 4, BANJARA HILLS,HYDERABAD-500034 PHONE:040-23353781 E-MAIL:itwindia@hdl.ven.net.in	TRICHY HYDERABAD BHOPAL
8.	ITW SIGNODE INDIA LTD. 10, COMMUNITY CENTRE, EAST OF KAILASH, NEW DELHI, INDIA -110065 PHONE NO.: 01126424984, 01126424990	TRICHY HYDERABAD BHOPAL HARIDWAR
9.	FERROCHEM NDT SYSTEMS PVT. LTD 6, PRAGATI INDUSTRIAL COMPLEX, 17/1-B, KOTHRUD, PUNE (MAHARASHTRA) ,INDIA-411004 PHONE NO.: (020)5465258/5432528/5437339,FAX : 5463038 E-MAIL : ferro@pn2.vsnl.net.in	TRICHY HYDERABAD BHOPAL HARIDWAR

**BHARAT HEAVY ELECTRICALS LTD: TIRUCHIRAPPALLI 14
NON-DESTRUCTIVE TESTING / QUALITY**

BHE:NDT:SC:APPROVALS

17-02-2020

List of Approved NDT Agencies

Sl.No	Name of the Firm and Address	Approved Methods	Valid upto
1	M/s G.B. NDT Engg. Services, E-52,Industrial Estate,Thuvakudi, Tiruchy-620015 Phone:(0431)2501112,2500891 email:gbndt.xrayengg@yahoo.com	RT, UT, MT, PT	31-05-2020
2	M/s C Premier NDE Services, CP-17, Electrical and Electronics Industrial Estate, Thuvakudi, Tiruchy 620015 Phone (0431)2500878 , 9842455733 email:premierndt@yahoo.com, venu.raj_1954@yahoo.com	RT	31-05-2020
3	M/s Super Quality Services, 95,SQS Building, Near Police Station, Palakkarai Main Road, Trichy-620001Phone (0431)2415087,2414218, Fax-0431- 2464218 E-Mail:sqsndt@yahoo.co.in	RT, UT, MT, PT	31-05-2020
4	M/s Metal Care Engg. Services Plot 13,14, B-1 Kether Manor,3rd Cross, North Extension, Thillai nagar,Trichy 620018 Phone(0431) 2762190, 2481593 9942904651(Selvaraj) mces_try@yahoo.co.in	RT, MT	31-05-2020
5	M/s Scaanray Metallurgical Services, C-12, Industrial Estate,Mogappair (West) Chennai 600 037 Phone: 044-26250651, 23762613 Fax 26358741 e-mail: scaanray@vsnl.com	RT, UT, MT,PT	31-05-2020
6	M/s Industrial Radiographic Inspection Company SP-111, South Avenue, Ambattur Industrial Estate,Chennai 600 058 Phone: 044-26253235,26250790,26255602, Fax-044-26255838 e-mail : info@iricondt.com	RT,UT	31-05-2020
7	M/s Everest Industrial Radiographer, "GREEN LAND", 1/25, Arisipalayam, Coimbatore-641032 Phone:0422-2638148,2638348, Cell:9843011031 (A.Rathinam) email: everestndt@gmail.com	RT	31-05-2020
8	M/s KGB Inspection Services, P-16, Electrical & Electronics Industrial Estate, Thuvakudi, Tiruchirappalli 620015 Phone (0431)2500164, 9842453258(Kumaran) email:kgbist2002@yahoo.co.in	RT, UT, MT, PT	31-05-2020
9	M/s Supreme Excel NDT Services, II Floor, Vairam Memorial Complex 24-A/B, Jeeva Street, Subramaniapuram, Tiruchirappalli - 620020 Phone:(0431)2333528, 2501241 e-mail:ndtsrvcs2008@yahoo.co.in	RT, UT, MT, PT	31-05-2020
10	M/s.NDE Inspections, 50,Raja Colony, 4th Cross,Collector Office Road, Trichy-620001. Phone (0431)2416388 , 9345499916 e-mail:ndeinspections@gmail.com, www.rla-ndeinspections.com	RT,UT, MT,PT	31-05-2020
11	M/s Sri Vinayaga NDT Inspection Services, SF 303, Peria Thottam, Kadathur Road, Coimbatore- 641 107. Phone 0422-2653640, 9443027274(Shanmugam) email:svndt@yahoo.co.in	RT	31-05-2020

12	M/s.Sri Shanmuka NDT & Inspection Services, 701, Avoor Road, Mathur, Pudukottai Dist-622515. email:shanmukandt@gmail.com Mobile:9486675664	RT	19-08-2020
13	M/s Engineering Quality Inspection Services, 2 / 166 A, Mettukuppam Road, Vanagaram, Chennai- 600 095. Phone:044-24764770, Fax:044-24764773, E-mail: jstephenraj.eqis@gmail.com	RT,UT,MT	31-05-2020
14	M/s United Inspection and Engineering Services, New No 9, Old No 22, Parthasarathypuram, North Usman Road, T.Nagar, Chennai 600 017. Phone:044-42123180, Fax: 044-28142268, Cell:Leeladhar 9444062268, E-mail:uies@sify.com.	RT	31-05-2020
15	M/s Jai Inspection Agencies, Plot No 21, Natesan Nagar, Ayanampakkam, Chennai- 600 095, Phone: 044-26533028, Fax: 044-26531770 email: engineerndt@gmail.com, jai_inspection@yahoo.com	RT.MT,PT,UT	17-05-2021
16	M/s.Naveen NDT Services, Plot No:54, Mariammal Nagar, Near SIDCO, Industrial Estate, Mathur-622515 email:naveenndt@yahoo.co.in Phone:0431-2203637,Mobile:9940743989,9842954850	RT	16-10-2020
17	M/s.SaiSrushti Technical Services, C-113,Punit Industrial Premises Co.Op.Soc.Ltd., Plot No:D11/11A, Turbhe,Navi Mumbai-400705 email:saisrushti2009@gmail.com Phone:022-27681150/51 Mobile:9820191617.	RT	31-12-2020
18	M/s.A-Star Testing & Inspection Pvt.Ltd, No- 1A,Umapathy Street, West Mambalam, Chennai, India.Pin- 600 033. Tel:044 4851 4533, Cell:9840919166.Email:admin@astartesting.co.in	RT,UT,PT,MT	03-08-2021
19	M/s.SEA HUB Inspection Services, 1st Floor, Deepam Complex, Thiruverumbu,Trichy-620013	RT& UT,MT,PT	31-05-2020
20	M/s SAKTHI RADIOGRAPHIC INSPECTION COMPANY, No 1 / 1-14, Rajiv Gandhi Nagar, Walajapet 632 513 Phone 04172-230344, 245264 Cell:9443246128 email:srico.ndt@gmail.com	RT	31-05-2020
21	M/s HITEC NDT SYSTEMS S.F.No 350 / 2C, Near M/s Rosver Steels Ltd.) KATTAMPATTI Villaage, Ganesapuram P.O S.S.Kulam (Via) Coimbatore-614 107 Phone:0422-2653446 Mobile:9655558905(Ravikumar) hitecndt1@yahoo.com	RT	31-05-2020
22	M/s.GLOBAL ENGINEERING&NDT SERVICES HASIMPUR, PATULIGRAM P.O, HOOGLY DISTRICT, WEST BENGAL-712 501 Cell 09831609926(S.Das) ,9831626059(S.Sarkar) email:globalengndt@gmail.com	RT UT,MT,PT	17.02.2020
23	M/s PERFECT INSPECTION SERVICES, Regd.Office:265, Light Industrial Area,Bhilai, Dist: Durg,Pin-490026, Ph:0788-4033857/4039576/2221729,Fax: 0788 4062759 e- mail:pisbhilai@sify.com dkdutta7@yahoo.com- 09755985599	RT,UT,MT,PT	14-06-2021

24	M/s.ASCENT NDT Services, W-111 Women Industrial Estate sidco Valavanthan Kottai, Trichy-620015 Ph:0431-2731298 Mobile:09500912988-K.Ramaraj E-Mail: ascentndt@gmail.com	RT	31-12-2021
25	M/s Sri Amman NDT System, 76/ 2A,2B,Thirumalayampalayam village, Madukkarai P.O. COIMBATORE-641105 Phone;0422-2402456, 2656290 Mobile:9865270800(Devaraj), 9944413388(Sivamurugan) email:sriammanndt@yahoo.in	RT	12-02-2020
26	M/s SIEVERT India Pvt.Ltd, Plot No.B3/B4, TTC Industrial Area, Opp. to Thane Belapur Road, MIDC, Digha, Navi Mumbai, Thane, Maharashtra - 400708. Office:+91 22 67859141 E-Mail : tkrudra@sievert.in	RT,UT	30-04-2020
27	M/s Test Ray's Inspection Services, S.F 413 / 3B, Mopperi Palayam,Palladam Taluk, Coimbatore-642654 Ph:0421-3269845, Mobile9600944001, 02,03 Email:tiesndt@gmail.com	RT	30-04-2020
28	M/s Curie Best Services, 359 / 1, 2 Kanthampalayam, Sembianallur(Village),Avinashi- 641654Mobile:9486774627(Balakrishnan) 9942984241(Murugappan) email:curiebestservices@gmail.com	RT	30-04-2020
29	M/s.J K Inspection services, Plot.No:47, SIDCO-BHEL ANCILLARY ESTATE, BHEL POST, RANIPET-632406, TAMILNADU Phone:04172-244101, Mobil.No:9443224101-Miichael Fax:04127-244141 E-mail:qualitest@hotmail.com	RT,UT,MT,PT	31-05-2020
30	M/s.BECQUEREL industries Pvt Ltd.33,Rushikesh,Ingole Nagar,Modern Co-op.Hsg.Society,Wardha Road, Nagpur.440 005.Cell +91-9822565879.E- mail:info@biplndt.com	RT,UT,MT,PT	10-02-2022
31	M/s.Shabri Enterprises 143-D Light Industrial Area, Bhilai (C.G)-490026 E-Mail: bhilaitest@gmail.com Tel: 07882292628 Mob: 09584606296	RT & PT	10-02-2021
32	M/s METALFAB HIGHTECH (P) LTD E 21-25, MIDC, INDUSTRIAL AREA, HINGNA NAGAR, NAGPUR-440 028 Ph:07104-234240 e-mail:mfhpl@hotmail.com planning@metalfabhightech.com A.K.GHOSH-09922900206	RT,UT,MT,PT	21-12-2020
33	M/s Evergreen NDT Engineers, No. 7, I Floor, Vairam Memorial Complex 24-A/B, Jeeva Street, Subramaniapuram, Tiruchirappalli 20- 620020 Phone(0431) 2333095, Cell-9842425765(Chockalingam), 9842435765(Ravichandran) email:enetry20@eth.net	RT,UT, MT	31-05-2020

34	MAG Integrity Resources plot.No-1-3, Electrical & Electronic Industrial Estate, SIDCO, Thuvakudi, Trichy-620015, Ph.No: 0431-2500215,0431-4060209, Contact Person:K.Thangaiyan,MD,9443495215 E-Mail:carrier@magintegrity.com	UT,MT,PT	25-03-2021
35	M/s.Madras Radiography Engineers, 705,3rd Cross,HRBR I Block, Kalyan Nagar,Bangalore-560043 Contact Person: Damodharan.S-9944033446,09448040882 E-Mail: mre.ndt@gmail.com	RT	05-02-2022
36	M/s Testrade Technical Services, Vishnu Vihar,217, Dr. Ambedkar Road, P.O. Velandipalayam, Coimbatore 641 025. Phone: 0422-2450440 ,09363242722(Muruganandam) email:testradexray@yahoo.in Site Office:165, SIDCO INDL.ESTATE, Malumichampatti, Coimbatore-641 025.	RT	31-10-2019
37	M/s RAIPUR WELDING AND NDT SERVICES PVT LTD, MD 559 Housing Board colony, Industrial Estate, Bhilai-490026,Mr.Santosh Sahu Tel: +91 9165444863, +91 9669363073 E-Mail: rwns_ndt@outlook.com	RT	30-11-2021
38	M/s INSTITUTE OF INSPECTION TECHNOLOGY AND NDT RESOURCES, No: 2,Navaladiyan Arcade, Pugal Nagar, (opp:oil mill check post), Thanjavur Main Road, Pappakurchi, Kattur, Trichy 620 019. Ph: +91 431 253 4269,Shareef Mob: +91 9865407475/ Email:info@iitndt.com	RT,MT,PT,UT	16-01-2022
39	M/s. Integrity and Reliability Service, No:5/8c, Thiruvengada Nagar, Thiruverumbur, Trichy-620013. E-Mail: iris.ndte@gmail.com,irinspectionsservice@gmail.com, Ph.No:+91-8526666028,9944674608.	UT	15-01-2021
40	M/s.UNIK NDT Inspection and Engineers Pvt Ltd, Regd.Office:23, Trikone Park, North Balia, Garia, Kolkata-700084. E-Mail: unikndt@gmail.com, info@unikndt.com Pradeep Mondal:07890009619,07059691066	RT	13-02-2022
41	M/s.Asian Supreme Excel NDT, SF 125, Kainangarai, Mathur, Pudukottai-622515 E-Mail: rsexcel@gmail.com Contact.A.Subramanian-09842452076	RT,UT,MT,PT	11-08-2021
42	M/s. A TO Z NDT SOLUTIONS (P) LTD, Sco-36, 2nd Floor, Veer Complex, Spring Field Market, Sector-31, Faridabad-121003(Haryana) India. E-Mail:HOD@atozndt.com Contac:Haider Ali-08469769160,0129-4103532	RT,UT,MT,PT	21-10-2021
43	M/s. VMAX Engineers, No:107, Lokamanya Thilakar Street, Kumarannagar, Padi, Chennai-vmaxengineers@gmail.com Contact: Meganathan-07397788741.	UT,MT,PT	11-08-2021

44	M/s.Arcelor Mittal Dhamm Processing Pvt Ltd, S3-S10,Phase-3,Sipcot, Industrial Complex, Mukundarayapuram Post, Ranipet.Vellore District, Tamilnadu-632405, India. T-+91(4172)278100 F +91(4172)278114, E-Mail:siva.kumar@steel1india.com, Contact:SivaKumar/AGM/QC-9047015918	UT,MT,PT	23-11-2019
45	M/s.COSMIC INSPECTION SERVICES Works:SF.No:475/2D,Sellappampalayam Road, Near LRT Foundry, Ponnadampalayam, Kanniur Post, Coimbatore-641659, E-Mail: cosmicinspectionsservices@gmail.com Mob:+91-9894670567-Mr.S.Esakki.	RT	19-07-2020
46	M/s Coimbatore Industrial Radiographers, S.F.No 221, Therkku Thottam, Othakkal Mandapam, Coimbatore-641032.Mobile:99443243201, email:cirndt@gmail.com	RT	02-09-2020
47	M/s.CUTECH SOLUTIONS INDIA PVT TLD, No-152, 2nd Floor, Tap Turbo Park, 4th lane, First Main Road,21st phase, Ambattur real estate, Chennai-600058 Phone:044-43023170 Mayuran-9043717310	RT,UT,MT	02-09-2020
48	M/s.Shri Vignesh NDT Works, Off:14 A BELL Nagar, Thuvakudi,, Trichy-620015, Phone:0431-2770551, Cell.No:9994381772 Contact person: Shri.D.Selvaganapathy, Mail: shrivigneshndtworks@gmail.com	E- UT,MT,PT	31-05-2021
49	M/s. National Radiographic Inspection Co Pvt Ltd, A22,F/1,Brindavanam Flats,5h Avenue, Banu Nagar, Pudur, Chennai-600053 E-Mail:info@nricndt.co.in, snmoorthy@nricndt.co.in 0461-6540529,09246643275	RT	21-10-2021
50	M/s. Gama Industrial Services Pvt.Ltd, 301,Suprabath, Bejai Kapikad, Mangalore-575004 Phone: 0824 2223901 E-Mail: mlr@gamaind.com Mr.V.Sankaran ,Mobile: 09844044901.	RT	21-10-2021
51	M/s Castech NDT Services,SF No.440/1,Othakkamandalam Road,Chettipalam- Post,Coimbatore.Pin-641201,Tamil Nadu.E Mail- castechndt@gmail.com,Phone No-0422- 2930340/9698232360.	RT	21-10-2021

Prepared by



R.RAGHAVENDRIEN

DM/NDTL

Reviewed and Accepted by



R.ARUL PRABHU

DGM/NDTL

