

LIST OF TENDER DOCUMENTS HOSTED FOR BLAST ARC-2022-23			
Enquiry No.651002E			Dt.29/07/2022
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**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, 241170Email:  
[bsmanian@bhel.in](mailto:bsmanian@bhel.in)  
[ssvasan@bhel.in](mailto:ssvasan@bhel.in)**SECTION – I****e-NOTICE INVITING TENDER (NIT)****(This is only a request for an offer and not a Contract)**

E -Tender are hereby invited from experienced Contractors to finalize the Rates for entering into Annual Rate Contract for the year 2022-23 for Surface preparation by environment safe blast cleaning to SA 2½ finish on Components /Jobs deposited by OS fabrication vendors in accordance with the Technical Specification/BHEL Engineering Drawings/Quality Documents.

**Reverse Auction will be conducted for finalizing the rates among the technically qualified bidders**

<b>Enquiry No. &amp; Date</b>	<b>651002E Dt. 29-07-2022</b>
<b>Due Date &amp;Time for Submission Of Offer</b>	<b>09-08-2022 Time : 10.00 Hrs</b>
<b>Date &amp; Time for Tender Opening (Other than Price Bid)</b>	<b>09-08-2022 Time : 14.00 Hrs</b>
<b>Place Of Tender Opening</b>	E procurement portal

This tender specifies a set of prequalification criteria defining the eligibility for the vendors to quote against a particular Rate Schedule of this tender. The Bidders are advised to go through all the enclosed Tender documents terms & conditions detailed under **Sections I to XII, Annexures- A to L**, and Rate Schedules carefully before submitting their Offer.

All the **Annexures A to L** should be filled, wherever applicable by the bidders without fail for evaluation of their offer and **all necessary / Self attested copies of the supporting documents** as required are to be attached.

An electronic bid shall be submitted in three parts namely (1) EMD or Valid MSE certificate (2) Techno Commercial Bid and (3) Price Bid.


Kindly refer to the **Section-IV** – General Terms and Conditions of the tender for detailed procedure for submission of offers and details of exemption from submission of EMD for vendors registered with MSME

**Kindly refer to Section-II to Section-IV for detailed scope.** E -Tender are hereby invited from experienced Contractors for the above scope.

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

Manager/OS

Outsourcing Department, Boiler Auxiliaries Plant  
Bharat Heavy Electricals Limited, ,Ranipet-632406  
Phone : 04172-284030, 284158, 241170E-Mail : [bsmanian@bhel.in](mailto:bsmanian@bhel.in), [ssvasan@bhel.in](mailto:ssvasan@bhel.in).

	<b>Bharat Heavy Electricals Limited</b> (A Government of India Undertaking)		<b>☎: 04172-284030, 284158, 241170</b>
	Boiler Auxiliaries Plant, Ranipet – 632 406		
AN ISO 9001 COMPANY	<b>OUTSOURCING DEPARTMENT</b>		E-Mail : <a href="mailto:bsmanian@bhel.in">bsmanian@bhel.in</a> , <a href="mailto:ssvasan@bhel.in">ssvasan@bhel.in</a>
Enquiry No	<b>651002E</b>	Due Date & Time for submission of offers	<b>09-08-2022</b> Time : 10.00 Hr
Enq-Dated	<b>29-07-2022</b>	Date & Time of Tender opening	<b>09-08-2022</b> Time : 14 Hr
<b><u>SECTION II</u></b>			
<b>Techno Commercial Terms &amp; Conditions of the Annual Rate Contract 2022-23 for OS- Main-BLAST</b>			

Scope of the enquiry is to finalize the Rates for entering into Annual Rate Contract for the year 2022-23 for Surface preparation through environment safe Blast cleaning to SA 2 1/2 finish on the components /jobs deposited by OS fabrication vendors. Collection of painted items/ finished jobs is also by the respective fabrication vendor. The safe unloading and handling of these fabricated jobs and reloading of finished painted jobs are in blasting and painting vendor scope. In case of PAINT issued by BHEL, the collection of Paint from BHEL, Ranipet stores is in Blasting and painting Vendor scope. Stenciling on finished job is in the scope of blasting and painting vendor. Rate shall be quoted for the above full scope of work. The charges for painting is payable as per prevailing ARC rates. If fabricated jobs are supplied from BHEL, the collection of the same and delivery of the finished jobs are in blasting vendor's scope for which transport charges are payable extra as per BHEL prevailing rates terms & conditions.

**1.0 Contract period for this Enquiry is One Year from the date of finalization of the contract.**

- 1.1 For study and quoting of rates for the Rate Schedule indicated in the **ANNEXURE-C** is made available for downloading.
- 1.2 The offer has to be submitted Only in **ANNEXURE-C** duly signed therein by the authorized person of the Contractor with rubber stamp in the space provided in. 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 contract, to be finalized, the Firms shall accept and undertake all jobs awarded to them and execute them 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, contractors 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.
- 1.5 Vendors are requested to refer to **SECTION-IV** of this tender for (a) the applicability of EMD, (b) waiver available for EMD for MSE vendors and (c) procedure involved in submitting the offer in three parts.

## 2.0 FIRM RATES :

- 2.1 Please quote **FIRM** rates **per Square Meter.**, as called for in **Price Bid format ANNEXURE-D** which are applicable to the firm.
- (a) All Painting charges including Red Oxide painting / application of rust preventive oil as applicable shall be payable extra as per applicable extra Rate Schedule.
- (b) Stenciling of Finished Product for Identification as per **Clause 8.3**
- (c) Offering the jobs for inspection to BHEL /Customer or its authorized inspection agency is in Contractors scope and the quoted rate shall include the same.
- 2.2 The rates shall be FIRM and not subject to any variation/escalation on any account during the validity of this Contract period. The rates are operative for placement of job work orders valid for **One Year from the date of finalization of the contract** on Rate Contract basis to be entered into between BHEL and the Contractor.
- 2.3 The total available load will be distributed to the Contractors from time to time with whom Contract is entered into and to that contract the addenda shall be placed in a phased manner subject to the rank L1,L2,L3..,availability of potential and also depending upon vendor performance such as collection of materials in time, manufacture according to our plans/requirements, meeting quality requirements, sequential and timely dispatch of components, Prompt & Quick response, Settlement of outstanding dues if any, and also the maintaining of minimum required facilities available at the Contractor's works to meet the job requirements and submission of such other reports as called for then and there.
- 2.4 The L1, L2 and L3 Vendors will be loaded for more quantum, subject to other performance criteria specified above.
- 2.5 BHEL does not guarantee ordering of any minimum quantity or does not guarantee more share for the lowest tenderers. However, if the L1-contractors are performing well in terms of sequential dispatches and required tonnage interalia meeting the requirements laid down above, the same will be considered during loading.
- 2.6 "Notwithstanding anything to the contrary, including, but not limited to, provisions relating to extension of time and compensation/or delay, time shall be the essence of the Contract."
- 2.7 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 contractors and BHEL's decision is final in this regard.
- 2.8 The Contractors are responsible till the Finished/Semi-finished components are safely deposited to BHEL, Ranipet.
- 2.9 Job Work orders will be issued after entering into Rate contract with the Sub-Contractors. Discrepancy in the JWOs if any, has to be settled immediately then and there within 10 days from the date of Job Work Order.

## 3.0 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 / transportation charges if any the weight indicated in GMS/Drawing only will be considered.

Cleared material shall be collected by the Contractors at the earliest without any delay. If BG limit becomes a constraint to issue the cleared materials, vendor shall arrange for additional BG within 2 weeks' time from JWO date/material cleared date, prior to material collection.

- 3.2 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, notwithstanding the status of MAS. Such information shall be declared by the supplier to BHEL immediately.
- 3.3 Inventory statement has to be submitted every month by the firm for the free issued materials. If the Fabricator fails to produce or properly account the materials so issued, BHEL, Ranipet will have the right to take further action as deemed fit including recovery of the value of the materials along with the respective administrative charges and statutory levies from the running bills of the Fabricator / temporary suspension of load / termination of contract / de-listing.
- 3.4 Any act of Contractor 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 Contractor 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.
- 3.5 Movement of BHEL materials from Contractor'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.
- 3.6 Protecting the material issued by BHEL under safe custody until completing the delivery as required is vendor's responsibility.

#### **4.0 Working Allowance: Not Applicable**

#### **5.0 Scrap / OFF-Cut Norms : Not Applicable**

#### **6.0 Disposal of Scrap and Return/Accounting of Balance Materials:**

- 6.1 The materials rejected as PDO 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 as per Cl. 6.6.
- 6.2 The materials rejected due to other than reasons u/cl.6.1 shall be returned to BHEL, Ranipet Stores failing which recovery will be made as per Cl. 6.6.
- 6.3 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.
- 6.4 Failure to return the materials (prime/off-cut) 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.

- 6.5 For the purpose of material accounting after completion of a particular WO, BHEL/OS department will issue a Preliminary Material Accounting Statement thro' E-mail, the next day of completion.
- (a) The Contractor shall respond within 7 days of receipt of Preliminary MAS, Either by Accepting the Pre-MAS OR submit their own MAS (Contractor/Firm-MAS) in the case if the Pre-MAS is not in line with the requirement.
  - (b) Any discrepancy Like weight correction, DU correction, variation in off-cut /scrap quantum etc., as indicated in Pre-MAS will have to be reconciled with the Material Accounting Section with necessary proof of documents within a week from the date of issue of Pre-MAS. If reconciliation is not done within a week, it will be treated that Pre-MAS is correct in all respects.
  - (c) If the Pre-MAS is accepted by the Contractor, BHEL will prepare, within 7 days, the Final-MAS.
  - (d) In case if Pre-MAS is not accepted by the Contractor, the Contractor/Firm-MAS submitted, if any, by the Contractor will be considered and if no such Contractor/Firm-MAS is submitted also, BHEL will prepare a Provisional-MAS and send through email, within a week.
  - (e) If the material (CS/AS) to be recovered as per BHEL MAS working is within plus or minus 10 Kgs with respect to Contractor/Firm-MAS, then Final MAS will be released with out Pre-MAS acceptance.
  - (f) For Deleted /Diverted Job Work orders, Final Material Accounting should be settled within 14 days time, after deletion/diversion. Otherwise, BHEL will prepare Final-MAS on completion of 14 days of IOM date on suo-motto basis. For exceptional cases with reasons attributable to BHEL, a further relaxation of 1 week will be given on the certification of respective field officers (Please Refer **Section VI** on work-flow for details).
  - (g) The response if any received from the Contractor, will be studied and considered and Final MAS will be prepared. In case if no response is received, the Provisional MAS will be treated as 'Final' MAS and accordingly, Final Material Accounting Statement (FMAS) will be issued. BHEL will prepare the FINAL MAS within **30 days** of DC control.
  - (h) After completion/cancellation of (Issue Position) IP the Contractor has to submit Contractor/Firm MAS comprising material issue cum working details, contract and receipt statement as per the format specified by BHEL for entire IP within 7 days from the date of delivery of last despatch or on date of submission of 100% invoice whichever date falls earlier of the respective IP. Further to, Contractor should certify the submission of bills with 4 (5)(a) Chelan's duly signed with seal in part II including completion of all transactions like Cutting Plan approvals, return of BHEL Material on RSV, IUWTV controls and submit along with MAS.
  - (i) Once the IP is closed as mentioned above no re-opening of IP except recovery from running bills will be entertained.
  - (j) The contractor shall be bound by the accounts, statements acknowledgement of materials, BHEL material issue documents, receipts etc., wherever signed by their representative.
- 6.6 Recovery towards non-return of balance material as per FMAS will be done as per Contract norms along with statutory taxes, duties & levies as applicable from any one of the running bills OR from other means of recovery available. Hence, any correction after the issue of FMAS, the job work order will be treated as closed in all respects thereby any requests towards refund of recovery, if any, will not be entertained.

- 6.7 Wherever MAS not required to be submitted, in case if the material (CS/AS) to be recovered as per our MAS is within (+) or (-) 10 Kg and there is no material collection is involved, BHEL will prepare Final-MAS on suo-motto basis and Recover/Net-weight credit will be provided accordingly.
- 6.8 Please note that the Contractor is responsible for prompt material accounting and settlement of outstanding dues towards non-return of balance material. Repeated occurrence of inordinate delay in settling the material accounting / outstanding dues will entail BHEL the right to terminate the contract forthwith or to impose temporary suspension on further loading at the discretion of BHEL, Ranipet. Also in case of non-return of material or non-submission of Material Accounting Statement, BHEL reserves the right to en-cash the Bank Guarantee / Fixed Deposit Receipt submitted by the Contractor and initiate legal action against the Contractor against this contract OR any other contract, in addition to the other means of recovery from contractor, available with BHEL.
- 6.9 The material/component issued to the Contractor as free issue shall remain the property of BHEL, Ranipet. The Contractor shall use the above material/component only for the execution of BHEL'S contract/addenda and for no other purpose whatsoever. The Contractor shall be responsible for the full value thereof to be assessed by BHEL, Ranipet whose decision shall be binding on the Contractor, The Contractor shall be liable for the loss or damage to such property while such property is in the possession or under the control of the Contractor, their employees, workmen, representatives or agents or any other person connected with the Contractor. The Contractor should execute an agreement in **Rs. 100/-** non- judicial stamp paper and maintain the secrecy of the design, know how of BHEL products.
- 6.10 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 Contractor's assets in any of the statements of the Contractor to any party.
- 6.11 The Contractor 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 Contractor's unit for verification purposes. If the Contractor 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 Contractor (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.
- 6.12 As and when required/applicable, BHEL, Ranipet will transfer(or advice for returning u/RSV) the balance material available including scrap size available for which PO/Issue Position(IP) is not closed, from one Contractor to the other contractor/other IP of the same contractor. For this, necessary credit will be given in material accounting, the material transfer emanating from Outsourcing, BHEL, Ranipet is to be honored by the Contractor 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.
- 6.13 The Contractor is responsible for submission of CLEAR Material Accounting Statement (MAS) ie. ensure that all transactions are completed (including IUWTV/RSV, supplementary material collection, submission of cutting plan, etc) within 7days from the date of completion of work

order & failing, without prejudice to other rights under Contractor, law or otherwise, which MAS will be closed suo motto basis and recovery of the scrap/off-cut will be effected after adjusting of balance payment due to the Contractor from any of the running bills. Delay in settling the Material Accounting will entail BHEL the right to terminate the contract forthwith or to impose a temporary suspension on further loading at the discretion of BHEL, Ranipet.

- 6.14 Materials will be loaded by BHEL, Ranipet either in lorries/trailers/ bullock carts and can be overseen by Contractor'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. Materials will be issued by BHEL, Ranipet, only after the receipt of necessary Bank Guarantee as per **Cl.20.0 and Cl.21.0.**
- 6.15 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.
- 6.16 The Contractor shall be bound by the accounts, statements acknowledgement of materials, receipts etc., wherever signed by their representatives.
- 6.17 The value of the materials and statutory levies towards non-return of off-cut/scrap wherever applicable will be calculated at the rate prevailing as on the date of accounting and demand thereof by BHEL irrespective of the date of failure for return of the off-cut/scrap by the Contractor.

**7.0 Surface Preparation:** Surface preparation to a cleanliness level of Swedish Standard Protective Coating (SSPC) SA 2 ½ ( near white metal finish) i.e " Removal of loose mill scale and loose paint, to the degree specified, by the impact of abrasive blast propelled through nozzles or by centrifugal wheels. Near white metal blasted surface shall be free of all visible oil, grease, dirt, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining limited to not more than 5% of the surface area. Such staining may consist of light shadows, slight streaks or minor discoloration caused by stains of rust mill scale, or stains of previously applied paint. **Blasting media may be slag, steel shots/grits or aluminum oxide. Sand blasting is not permitted.**

**8.0 PAINTING:** ALL PAINTING CHARGES (PRIME/FINISH/SPECIAL PAINTS ETC) PAYABLE EXTRA AS PER EXTRA RATE SCHEDULES.

- 8.1 For all painting, applicable painting scheme/QWI as prescribed by our Quality Department shall be followed.
- 8.2 For painting of Extra Coating thickness with reference to coating thickness mentioned in the extra rate schedule description, pro-rata charges shall be payable extra based on IOM issued by BHEL/OS.

- 8.3 Unless stated specifically Foundation material, columns up to zero level need not be painted with red oxide. Further, the fabricated semi-finished components shall be legibly stenciled with the Project Name, Work Order Number, DU Number, quantity, weight, Sub-contractor's code Number, match mark no., etc., for identification and dispatched as may be advised.
- 8.4 During execution of surface preparation & painting, it is to be ensured that blasting area and painting area are separated either through temporary or permanent partition to avoid contamination of blasted surface or painted surface. Practice of maintaining separate areas for blasting and painting is also permitted to avoid surface contamination by flying dust etc.**
- 8.5 Sub-contractor code number alone shall be punched using 1/2 inch letter punch and bordered suitably for easy identification. All the identification marks shall be coated with an overcoat of transparent varnish to protect against weather.
- 8.6 In respect of works contract Government Taxes please refer 27.0
- 8.7 Application of one coat of the specified primer painting is to be done immediately after Blast cleaning as per the stipulated Dry Film Thickness (DFT) normally varies from 35 microns to 100 microns.
- 8.8 Whenever blasting by Grit/shot for surface preparation is to be done, the allied To & Fro Transport charges are also payable extra as per the respective extra Rate Schedule and a self certified declaration from the fabricator (certified by Field officer) is to be enclosed by the concerned fabricator, along with their respective invoices to the effect that the components are blasted not in their works but else where.

## **9.0 UT/RT/HT/SR: Not Applicable**

## **10.0 EXTRA RATES FOR CONVERSION:**

Rates for the special requirements like Special Painting, Heat Treatment, Transport Cost for Intermittent Operations etc. other than RS specified in this tender are to be payable extra through Extra Rate Schedules.

Rates as per extra rate schedules shall be payable extra as per remarks in the IR. The extra Rate Schedules are applicable for all the contractors. The rate finalized for RS-NO. 185A for "Surface preparation equal to shot blasting" will also be operated under Extra Rate Schedule-E08.

Any other extra work not covered under extra RS, but incidental to the completion of fabrication job till handing over to BHEL, shall be deemed to be part of the main fabrication rates.

## **10.1 Conversion of Sections: Not Applicable**

**11.0 TRANSPORT CHARGES :** Tender calls for the offers on **EX-Works basis**. Hence Transport Charges payable extra for the Materials / Components collected from BHEL and return of finished items vice-versa as per the Extra Rate Schedules available in the Annual Rate Contract. However the unloading/loading/handling scope of the jobs/materials given is in the scope of blasting and painting vendor for which NO EXTRA charges applicable.

11.1 Incase of transfer of materials/semi-finished/finished items from one vendor to another vendor, through IUWTV, the responsibility for collection of materials including the cost of

transportation shall wrest with Second Vendor ( fabrication vendor dispatching the finished goods).

- 11.2 **Additional Transport Charges:** Transport Charges incurred by the vendor for any special intermittent operations other than specified in the Rate Schedule or any additional movement requested by BHEL officials in writing, the transport charges payable extra as per the Extra Rate Schedules available in the Annual Rate Contract.
- 11.3 For return of PDO materials thro RSV (PDO other than reasons **u/cl.6.1** like issue of faulty materials, non suitable materials, any drawing revision etc), TO & FRO transport charges as per applicable extra rate schedule shall be payable extra.
- 11.5 The Rate payable against the Extra Rate Schedules are inclusive of Toll charges, if any.
- 12.0 Recovery of Transport Charges:** If the materials are delivered/collected by BHEL/BHEL approved transport contractor when the scope of transport is with vendor, the freight charges incurred by BHEL will be recovered from the vendors.
- 12.1 If Purchase Order is placed with delivery destination other than BHEL-Ranipet, the respective transport charges for delivering the finished job is to BHEL's Account and the amount of transport charges (already included in the rates finalized for the RS) for delivering to BHEL-Ranipet is deductible.
- 12.2 **Dispatch of finished goods Direct to Site (DTS):** Wherever necessary, BHEL may advise fabricators to dispatch finished goods directly to site with transport charges to BHEL's Account. The scope includes loading of finished products on truck for dispatch to respective BHEL-site offices/BHEL's-Customer. In such cases the cost of transportation from Contractor's works to BHEL, Ranipet, not incurred by the vendor shall be recovered from the vendors.

*For all the above, the recovery of Transport Charges will be made as per Extra RS E07X, E07Y and E07Z which is operated under ARC.*

- 13.0 PAYMENT FOR EXTRA CHARGES :** 100% Payment will be made for extra charges against Invoice supported by acknowledged Delivery Chelan and Inspection Report (IR) issued by BHEL Inspector/agency. **The payment of extra charges will be made only to the Extra RS Nos, UNIT, Qty mentioned in the IR duly concurred by BHEL Field Officers.**
- 14.0 SAFE DELIVERY:** The Contractor 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.
- 15.0 TERMS OF DELIVERY:** The price should be on "EX-Works" basis only.
- The finished components on acceptance by BHEL, Ranipet inspector or by their authorized inspection agency shall be delivered to BHEL, Ranipet Stores / Shipping or to BHEL Sites / Customer as the case may be immediately.
- 16.0 TECHNICAL REQUIREMENTS :**
- 16.1 The machining / fabrications shall strictly confirm to the dimensions and tolerances indicated in the drawings/QWI. 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.
- 16.2 Any other work carried out outside the requirements of drawings/QWIs shall have the prior approval of the competent authority of Outsourcing / BHEL, Ranipet.

- 16.3 Adequate facilities as called for, must be available with the Contractor for the manufacture of boiler components. All the above basic 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.
- 16.4 For various Rate Schedules, the manufacturing, handling and testing facilities requirement as specified by BHEL from time to time shall be available with the Contractor.

## **17.0 INSPECTION:**

- 17.1 Inspection of blasted items 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 Contractor'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 (like TUV/IRS/INTERTEK etc.,).
- 17.2 BHEL representatives/authorized agencies will have free access to the Contractor'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).
- 17.3 The semi-finished components are deemed to have been accepted as ready for delivery only after IR is released by the Inspecting Agency.
- 17.4 Statutory inspection requirements if any, are to be met by the Contractor.
- 17.5 The paint quality will be checked by BHEL Ranipet at regular intervals. Samples will be collected from vendor works and will be tested at BHEL to ensure quality as per relevant standards. In case of discrepancy in meeting our specification the job may be rejected/vendor may be put under suspension of business. **The vendor shall ensure mentioning of the details of paint applied, no of coats, coating thickness on the respective IR of the job.**

## **18.0 PAYMENTS :**

- 18.1 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 Chelan acknowledged by BHEL with other BHEL prescribed supporting documents such as IAWTV/Firm DC etc., by BHEL.
  - (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) Contractor MAS with challan duly signed with seal in part II.
  - (f) 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.

- 18.2 The amount due to BHEL, Ranipet, if any, will also be recovered from the Contractor's running bills. No request for the refund of penalty/recovery will be entertained after Final Material Accounting is done. Payment will be made only through 'Electronic Fund transfer(EFT)/RTGS Transfer'. Acceptance for the same may be submitted in the prescribed format if not done already.
- 18.4 Payment will be restricted to two bills per Work Order or Job Work Order Sl. No. only. Excise Duty as applicable for Contractor's covered under **clause 28.0**, can be claimed along with documents / certificates mentioned therein. 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.
- 18.5 The Contractor shall ensure that ALL claims including extra charges, if any, as per **Cl. 4.0** are made against the particular work order before the issue of Final-MAS since BHEL will not be able to reopen the case after issue of Final-MAS.
- 18.6 The payment shall be subject to the deduction of any amount for which the fabricator is liable indirectly under this contract or any other contract of the fabricator or any other fabricator's contract where the proprietor / any of the partners / directors of the present fabricator is / are proprietor/director/s/partner/s, in respect of which BHEL / Ranipet is a contractee.
- 18.7 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 as per **Cl. 23.0**. No request for extension/refund of penalty will be entertained there after.
- 18.8 Payment will be made in about 45 days after receipt of valid invoices raised in accordance with **Cl. 18.1** and supported by full set of necessary documents at Accounts Department. No interest shall be payable by BHEL on any money due to the Contractor by BHEL.
- 18.9 For the purpose of payment, only the unit rates are to be considered based on the RATE SCHEDULE NUMBERS. The description of the item is only indicative and it is not binding. Any description given in the item column is only for the purpose of clarity for manufacturing the item. (the description may change designer to designer and/or drawing to drawing).

## **19.0 PROGRESS REPORT:**

The Contractor 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.

## **20.0 BANK GUARANTEE :**

- 20.1 The Contractor shall execute a Bank Guarantee value not less than **Rs.5.00 Lakhs** from any one of the Scheduled or Nationalized banks on behalf of the Contractor 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 the full contract period & Claim period of additional one year over the contract period and extensible till final settlement of supply and payment **and BG to be submitted directly by Bankers to BHEL in a Standard format as per Section XII. BG format will be given by BHEL and it has to be filled by Bankers in that format only.**

- 20.2 In place of Bank guarantee, Fixed Deposit Receipt (FDR) drawn in favour of BHEL Ranipet a/c, can also be furnished. In any case BG/FDR shall be available at the time of signing the contract.
- 20.3 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.
- 20.4 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.

## **21.0 BANK GUARANTEE NORMS:**

- 21.1 Necessary Bank Guarantee (BG) / Fixed Deposit Receipt(FDR) should be furnished. The Bank Guarantee value applicable for the Firm is indicated in **Section XII** enclosed. The BG shall be kept **valid throughout the contract period PLUS one year as claim period** and must be renewed in-time. It is also to be noted that the BG for the value indicated shall be made available with BHEL at the time of entering into ARC, failing which Firm will not be considered for entering into contract with BHEL.

The required Bank Guarantee shall be submitted within 15 Days of finalization of the contract, 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 vide Clause S of section IV*"

- 21.2 The release of Contract by BHEL, Ranipet shall be on the strength of Bank Guarantee for the safe custody of components issued by BHEL, Ranipet as free issue in line with **CL. 20.1**.
- 21.3 Based on the capacity declared by the firm, the Sub-contractor may decide the maximum BG value over the base BG value, and the same shall be submitted to BHEL before ordering.
- 21.4 **Vaccant.**
- 21.5 JWO / 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 together do not exceed twice the value of BG at any point of time.
- 21.6 BHEL reserves the right to increase the value of BG/FDR depending on the material availability with the contractors 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.
- 21.7 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.

## **22.0 GUARANTEE OF WORK:**

The Contractor 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 Contractor shall make good of it / replace the same at

free of cost. Alternatively, the rework / replacement charges will be recovered from the Contractor.

### **23.0 LIQUIDATED DAMAGES and RISK PURCHASE:**

- 23.1 The semi-finished jobs/fabrications 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 Contractor 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 Contract.
- 23.2 Further, BHEL, Ranipet will get these items fabricated/blasted elsewhere, without notice to the Contractor on the account and at the cost and risk of the Contractor, 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 Contractor. Any additional expenditure incurred by BHEL on this account shall be recovered from the Contractor.
- 23.3 In general, delivery period for each JWO shall be 3 Months from JWO Date/Last material clearance date including further materials, whichever is later. However actual delivery shall be fixed by BHEL for each JWO on project requirement and product lead time.
- 23.4 Where delivery extension is sought with waiver of penalty, the same should be applied to OS with justification and approval to be obtained before delivery to BHEL Stores/Shipping 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 as stated in **Cl. 23.1** from the same bill and no claims for refund of liquidated damages will be entertained there after.
- 23.5 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 Contractors, in case of cancellation/diversion of PO'S beyond the delivery Due Date, even if the Jobs have been processed partly.

### **24.0 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 Contractor 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 Contractor.

### **25.0 COMPENSATION AGAINST DAMAGE OF MACHINERY/TOOLS AND GAUGES SUPPLIED:**

- 25.1 BHEL reserves the right to claim adequate compensation from the Contractor 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 Contractor. The total cost of recovery will be decided by BHEL.
- 25.2 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.

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

## **26.0 SUBLETTING :**

- 26.1 The Contractor 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 Contractor and the Contractor 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.
- 26.2 However, if the PO/PGMA loading demands part processing / Special Process (like Heat Treatment, Machining, Bending, Shearing, Threading, etc..) of certain items at, other BHEL OS-approved Contractor's works, the same may be allowed with the prior permission of BHEL in writing, indicating the period of returning.
- 26.3 "Movement of BHEL materials from our Contractor'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".
- 26.4 The vendors will be allowed to indicate alternate sources for carrying out these intermediate operation, wherein the said other sources shall seek approval from BHEL for carrying out these operations.
- 26.5 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.

## **27.0 TAXES AND DUTIES:**

- 27.1.1 Taxes and duties as applicable from time to time, shall be paid extra over the quoted rates. (as per latest GST guidelines)
- 27.1.2 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
- 27.1.3 In case any changes in GST guidelines as per Gov. Notification , the same shall be applicable from time to time.
- 27.2 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.
- 27.3 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.

- 27.3.1 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
- 27.3.2 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)
- 27.4 GST TDS deduction at such percentage as prescribed under GST Law from time to time will be made on the value of invoices
- 27.5 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.
- 27.6 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.
- 27.7 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.
- 27.8 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) In case 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.

## **28.0 GENERAL :**

- (a) BHEL reserves the right to recover the dues if any, from the contractor from any one of the running bills of this contract or any other contract with the contractor 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 carry out 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) It is preferred that the Proprietor/Managing Partner/Director as applicable to the company should be easily accessible to BHEL official for day to day interaction and to have the residence within 30 KM from BHEL/BAP for the firms located in and around Ranipet. Any change in the constitution of the Contractor's unit or in shifting of works to a new location, the same shall be made only after getting specific approval from Outsourcing BHEL RANIPET. Any deviation found later will be dealt with as deemed fit including cancellation of registration. Also change of Banker requires the prior approval of BHEL, Ranipet.
- (c) Partnership firms should have the latest Form A (Rule 5) Declaration filed with the Registrar of Firms and private Limited firms should have the current MOA and the copy of the same should be produced at the time of signing the Contract.
- (d) The Contractor is liable for all statutory obligations, including but not limited to taxes and duties, ESI, PF, income tax, 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 Contractor and recover the same plus administrative charges of 15% of such amount from the Contractor either from the pending/future bills of the Contractor 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 Contractor or his employees, workers, agents, etc.
- (e) The Contractor 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).
- (f) All the safety precautions and use of safety equipments are to be followed while carrying out the fabrication and despatch of the same. The Contractor must have proper tools and handling equipments. There should always be a responsible person available at the Contractor'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.
- (g) All the documents (Inclusive of Drawings, GMS and Standards ) of BHEL made available to the Contractor 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 Contractors 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.

- (h) Unauthorized act of engagement of any individual who is a full time employee of BHEL for part time/full time work by the Contractor will be viewed very seriously and such act is liable for suspension/total stoppage of further business dealings with the Contractor by BHEL, RANIPET.
- (i) Should a Contractor has a relation or relations in the case of a firm or a company of the Contractor, 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.
- (j) The Contractor 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. Contractors indulging in any business practices detrimental to BHEL either directly or Indirectly, will be dealt with severely by the due process of law.
- (k) In case of any internal dispute of the Contractor, such as but not limited to disputes between partners of the Contractor, dispute between Contractor 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 Contractor 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.
- (l) 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 Contractor.
- (m) 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 (from date of signing the contract).
- (n) In addition to the above, our standard General Conditions enclosed shall also apply.
- (o) The entire terms and Conditions contained in this tender shall be deemed to form an integral part of the Contract to be entered.

**29.0 BHEL reserves the right to :**

- (a) Negotiate with the Contractor who has submitted the Lowest offer for "Payment Rate Schedules" and Highest offer for "Recovery Rate Schedules"
- (b) Distribute the requirements on more than one contractor at the Lowest (for Payment RS) / Highest (for Recovery RS) acceptable rate.
- (c) The rates and other terms and conditions in this contract are applicable for the job work orders likely to be placed by other Departments/Units of BHEL also, for similar items.

**30.0 Primary e-Mail-ID:** Contractors are requested to indicate their own email-Id as "Primary e-Mail-ID", which will only be used for all correspondences (like for MAS and Payment etc..)

**31.0 Arbitration and Jurisdiction:**

- (a) Any dispute between BHEL and the Contractor 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.
32. Annexures I to XII of tender enquiry referred in this contract under reference clause and other terms and conditions mentioned in the NIT are also form a part of this contract.


Thanking you,

Yours truly,

For and on behalf of

BHARAT HEAVY ELECTRICALS LIMITED,

**Sr.Dy.General Manager /Planning & Contracts**

	<b>Bharat Heavy Electricals Limited</b> (A Government of India Undertaking) Boiler Auxiliaries Plant, Ranipet – 632 406		<b>☎: 04172-284030, 284158, 241170</b>
	<b>OUTSOURCING DEPARTMENT</b>		E-Mail : <a href="mailto:bsmanian@bhel.in">bsmanian@bhel.in</a> , <a href="mailto:ssvasan@bhel.in">ssvasan@bhel.in</a>
AN ISO 9001 COMPANY	<b>Enquiry No</b>	<b>651002E</b>	Due Date & Time for submission of offers <b>09-08-2022</b> <b>Time : 10.00 Hr</b>
<b>Enq-Dated</b>	<b>29-07-2022</b>	Date & Time of Tender opening	<b>09-08-2022</b> <b>Time : 14.00 Hr</b>
<b>SECTION III</b> <b>Technical Description for OS-MAIN-BLAST</b> <b>Annual Rate Contract 2022-23</b>			

Scope of the enquiry is to finalize the Rates for entering into Annual Rate Contract for the year 2022-23 for Surface preparation through environment safe Blast cleaning to SA 2 1/2 finish on the components /jobs deposited by OS fabrication vendors. Collection of painted items/ finished jobs is also by the respective fabrication vendor. The safe unloading and handling of these fabricated jobs and reloading of finished painted jobs are in blasting and painting vendor scope. In case of PAINT issued by BHEL, the collection of Paint from BHEL, Ranipet stores is in Blasting and painting Vendor scope. Stenciling on finished job is in the scope of blasting and vendor. Rate shall be quoted for the above full scope of work . The charges for painting is payable as per prevailing ARC rates. If fabricated jobs are supplied from BHEL, the collection of the same and delivery of the finished jobs are in blasting vendor's scope for which transport charges are payable extra as per BHEL prevailing rates terms & conditions.

**1.0 The Total quantity tentatively for this Rate Contract is 11,37,500 Sq.Meter**

**2.0 Rate schedule:** The requirements are given in the form of Rate schedule (RS). Rate Schedule contains Rate Schedule Number, Description of the scope of operation to be carried out, Unit and Quantity Anticipated in 2022-23 for ordering.

**3.0 Extra Rate schedule:** Extra works if any carried out as per drawing / QWI / JWO requirement shall qualify for extra payment, as per extra rate schedule listed in **Section IIID**.

**Note:** For reference purpose, the current running ARC rates for extra Rate schedule are indicated in Section IIID. Tender already floated for finalizing new extra rates and the same will be applicable for this tender also.

**4.0 Scope of the Operation : Surface Preparation by Blast Cleaning equal to SA 2½ finish on Boiler Components in accordance with the Technical Specification/BHEL Engineering Drawings/Quality Documents out of components to be supplied by BHEL, Ranipet.** The Rate Schedule contains descriptive details of items only.

**5.0 Mandatory and General Facilities Required :** To carry out the operations required on the job for the concerned Rate schedule, the manufacturing Facilities required are indicated in **Annexure-FB**.

**6.0 Eligibility of Vendors :** The vendors who are all having the Facilities required, mentioned in **Annexure – FB** can quote. **Blasting and Painting capacity of the firm shall be minimum 200 MT per Month.**

**7.0 Distance Eligibility Criteria- Vendors Location.**

Vendors located within **60 KM** from BHEL, Ranipet are only eligible to quote. (Shortest distance on Google Map).

**8.0 Quantity :** Tentative annual requirement is mentioned against Rate Schedule in the Tender- Technical Bid **Annexure – C**. This quantity may vary during the currency of the contract according to the receipt of orders by BHEL.

**9.0 Technical Bid :** Technical Bid Document for the Rate Schedule is available in the Technical Bid as **Annexure – C**.

**10.0 Price Bid :** Price Bid Document for Rate schedule is available in excel format- Price bid BoQ Simultaneously Vendor has to download the Price Bid Format along with Technical Bid Document and fill the same.

**Note: Unit rate only to be mentioned in the price bid. Any Rates indicated other than in Price Bid Cover III shall not be considered.**

**11.0 Quality Documents:** Relevant Quality Work Instructions (QWI), Procedure of Quality Assurance (PR:QA) to be specified in **Annexure-X** to be followed.

**Care:** Offers received other than the format hosted in the web site will be summarily rejected. Vendor has to study carefully all the technical requirements before quoting.

## Section - III D Extra RS Applicable

Enq .No:- 651002E

Dt 29/07/2022

SI No	E_RS No	Extra RS Desc	Unit	Rate
1	E01	CONVERSION CHARGES FOR FLAT OUT OF PLATES .	MT	55
2	E03	MAGNETIC PARTICLE INSPECTION/TESTING [MPI].	MR	30
3	E04	RADIOGRAPHY [RT]	MR	677
4	E07X	DEDUCTION OF TRANSPORT CHAGES FOR DTS 0 TO 100 KMS	MT	1200
5	E07Y	DEDUCTION OF TRANSPORT CHAGES FOR DTS 101 TO 350 KMS	MT	1500
6	E07Z	DEDUCTION OF TRANSPORT CHAGES FOR DTS 351 TO 450	MT	1750
7	E11	25 MIC OF EPOXYZINC RICH PRIMER [EXCEPT WM XXX]	SM	83
8	E13	25 MIC OF EPOXY ZINC PHOSPHATE PRIMER	SM	62
9	E14	40 MIC OF WHITE ENAMEL PAINT	SM	50
10	E16	25 MIC OF HEAT RESISTANT BLACK BITUMINOUS PAINT TO IS-158	SM	23
11	E17A	TRANSPORT CHARGES FOR TO AND FRO MOVEMENT OF SEMIFINISHED COMPONENTS FROM YOUR WORKS TO THE WORKS OF CONTRACTOR SITUATED WITH IN 60 KMS FROM YOUR WORKS DOING THE INTERMITTENT OPERATION SUCH AS GALVANIZING/BLAST CLEANING / BALANCING / HEATTREATMENT/ OTHER SPECIFIC OPERATION ETC AS PER ENQUIRY.	MT	400
12	E17B	TRANSPORT CHARGES FOR TO AND FRO MOVEMENT OF SEMIFINISHED COMPONENTS FROM YOUR WORKS TO THE WORKS OF CONTRACTOR SITUATED BETWEEN 61 KMS AND 160 KMS FROM YOUR WORKS DOING THE INTERMITTENT OPERATION SUCH AS GALVANIZING/BLAST CLEANING/BALANCING/HEATTREATMENT/ OTHER SPECIFIC OPERATION ETC AS PER ENQUIRY	MT	900
13	E17C	TRANSPORT CHARGES FOR TO AND FRO MOVEMENT OF SEMIFINISHED COMPONENTS FROM YOUR WORKS TO THE WORKS OF CONTRACTOR SITUATED BETWEEN 161 KMS AND 350 KMS FROM YOUR WORKS DOING THE INTERMITTENT OPERATION SUCH AS GALVANIZING/ BLAST CLEANING/ BALANCING/ HEATTREATMENT/ OTHER SPECIFIC OPERATION ETC AS PER ENQUIRY	MT	2200
14	E18	40 MIC OF HIGH BUILD CHLORINATED RUBBER ZINCPHOSPHATE PRIMER.	SM	65
15	E19	5 MIC OF ETCH PRIMER/WASH PRIMER	SM	55
16	E20	20 MIC OF SYNTHETIC ENAMEL LONG OIL ALKYD TOIS-2932 [ SMOKE GREY]	SM	25
17	E23	25 MIC RED OXIDE ZINC CHROME PRIMER TO IS 2074/RUST PREVENTIVE OIL.	SM	11
18	E24	20 MIC BLACK ENAMEL PAINT TO IS - 2932	SM	25
19	E27	50 MIC HIGH BUILD EPOXY PAINT DARK GREY.	SM	66
20	E28	30 MIC EPOXY FINISH PAINT LIGHT GREY	SM	60
21	E29	75 MIC INORGANIC ZINC SILICATE PRIMER	SM	73
22	E30	30 MIC CHLOROKOTE ZINC PHOSPHATE TO IS 8632.	SM	30
23	E40	TRIAL ASSY OF TOTAL INLET/OUTLET FUNNEL ASSY[PYRAMID SHAPE] COLUMNS, LONGITUDINAL ROOF BEAMS, TRUSSES (X55), SPIRALCASINGS, TURBINE HALL STRUCTURES, DUCTS ,SILENCERS (ASSEMBLED FROM MULTIPLE BLOCKS), BRACKETS IN X25, SUCTION HOOD OF FANS AND ROOF ASSEMBLY OF FANS ETC.	MT	725
24	E41	RECOVERY RATE FOR CS/AS, ASBESTOS , WOOL , CAF SCRAP ETC.	MT	19000
25	E42	BIG SIZE SCRAP [CS/AS SHEETS/ PLATES]	MT	23500

## Section - III D Extra RS Applicable

Enq .No:- 651002E

Dt 29/07/2022

SI No	E_RS No	Extra RS Desc	Unit	Rate
26	E43	RECOVERY RATE FOR STAINLESS STEEL [NON-MAGNETIC], NONFERROUS METAL SCRAP.	MT	96000
27	E51	HR ALUMINIUM PAINT [20 MIC] [UP TO 200 DEGREE C] IS 13183 / 1991 GRADE - III	SM	30
28	E52	HR ALUMINIUM PAINT [20 MIC] [ABOVE 200 DEGREE C] IS 13183 / 1991 GRADE - II	SM	50
29	E54	HR CHIMNEY BLACK PAINT [>250 DEGREE C] / FERROTOL BLACK CHIMNEY [50 MIC]	SM	50
30	E55	EPOXY HB MIO INTERCOAT [125 MIC]	SM	55
31	E56	ALIPHATIC PU FINISH OR EQVT. [75 MIC]	SM	60
32	E57	CHLORINATED RUBBER FINISH PAINT DARK GREY [40 MIC]	SM	61
33	E59	ETHYL ZINC SILICATE/ZINC DUST ETHYL SILICATE[75 MIC]	SM	64
34	E60	HB EPOXY ZINC RICH PRIMER [50 MIC]	SM	68
35	E61	CHLORINATED RUBBER BASED TITANIUM OXIDE PIGMENTED INTERMEDIATE PAINT [WHITE] - [50 MIC]	SM	115
36	E62	EPOXY RESIN BASED TWO PACK, TITANIUM OXIDE PIGMENTED INTER- MEDIATE PAINT [WHITE] -[100 MIC]	SM	50
37	E63	ZINC CHROME PRIMER IS104 40 MICRONS	SM	29
38	E64	RED OXIDE ZINC PHOSPHATE PRIMER 80 MICRONS	SM	40
39	E65	UT OF WELD,BUTT JOINTS OR FILLET WELDS OF COLUMN BASE [ALL WELDS] THICKNESS 12 TO 32MM ASPER AWS D.1.1	MR	48
40	E68	LABOUR COST FOR ONE COAT OF PAINTING. [PAINT- BHEL SUPPLY].	SM	5.5
41	E69	SYNTHETIC ENAMEL TO IS 2932 GREY SHADE RAL 9002 [20 MICRONS].	SM	26
42	E71	ULTRASONIC TESTING [UT] OF PLATES / STRUCTURALS	SM	33
43	E72	CONVERSION CHARGES FOR EXPORT PACKING [FOR FINISHED COMPONENT WEIGHT [DU WEIGHT]]	MT	1113
44	E73	RECOVERY RATE FOR STAINLESS STEEL [MAGNETIC] SCRAP	MT	52000
45	E76	CONVERSION CHARGES FOR STRUCTURALS TO STRUCTURALS	MT	1010
46	E77	JOINTS OF CS/ HIGH TENSILE PLATES UPTO 4 MM/RM	MR	55
47	E78	JOINTS OF CS/HIGH TENSILE PLATES 5MM TO 10 MM/RM	MR	175
48	E79	JOINTS OF PLATES 12 TO 20 MM /RM	MR	290
49	E80	JOINTS OF BEAM/CHANNEL UPTO 200 MM /JT.	NO	95
50	E81	JOINTS OF BEAM/CHANNEL 201MM - 300 MM /JT.	NO	116
51	E82	JOINTS OF BEAM/CHANNEL 301- 450 MM /JT.	NO	149
52	E83	JOINTS OF ANGLES UPTO 75X75X8	NO	42
53	E84	JOINTS OF ANGLES ABOVE 75X75X8 UPTO 100X100X12	NO	78
54	E85	JOINTS OF ANGLES ABOVE 100X100X12	NO	110
55	E86	JOINTS IN BEAM /CHANNEL ABOVE 450 MM	NO	291
56	E87	ADDITIONA JOINTS FOR PLATES 21-25 MM/RM	MR	575
57	E88	ADDITIONAL JOINTS FOR PLATES 26-32MM/RM	MR	665
58	E89	ADDITIONAL JOINTS FOR PLATES 33-36 MM /RM	MR	150
59	E90	ADDITIONAL JOINTS FOR PLATES 37-40 MM/RM	MR	980
60	E91	ADDITIONAL JOINTS FOR PLATES 41 - 50 MM /RM	MR	880
61	E92	ADDITIONAL JOINTS FOR PLATES 51-56 MM /RM	MR	1001
62	E93	ADDITIONAL JOINTS FOR PLATES 57 MM AND ABOVE/RM	MR	1600
63	E94	CHLORINATED RUBBER PAINT (RAL)- 40 MICRONS	SM	35
64	E95	TESTING CHARGES OF GATE/DAMPER ASSEMBLY ELECTRICALLY OPERATED UPTO 7 MT	NO	5000

## Section - III D Extra RS Applicable

Enq .No:- 651002E

Dt 29/07/2022

SI No	E_RS No	Extra RS Desc	Unit	Rate
65	E96	TESTING CHARGES OF GATE / DAMPER ASSY ELECTRICALLY OPERATED ABOVE 7 AND UPTO 10 MT.	NO	6000
66	E97	TESTING CHARGES OF GATE / DAMPER ASSY ELECTRICALLY OPERATED ABOVE 10 MT.	NO	10800
67	E98	EXTRA CHARGES PAYABLE FOR FIXING OF BULB SEALS (BULB SEALS ISSUED AS FREE BY BHEL AND APPLICABLE FOR GATE ASSEMBLIES LOADED UNDER RS-NO 117E, 117F, 117G, 118B, 118C,119A)	MT	27000
68	E99	JOINTS OF Stainless Steel PLATES UPTO 4 MM/RM	MR	150
69	E100	JOINTS OF Stainless Steel PLATES 5 mm TO 10 MM/RM	MR	340
70	E102	Painting - Zinc phosphate primer - grey shade 35 microns	SM	46
71	<b>E103</b>	<b>% for full CORTEN - A material fabrication - all Rate schedules in Gen , CHIM A , B &amp; C</b>	<b>%</b>	33



Enquiry Number: 651002E

Dt. **29/7/2022**

## **SECTION IV**

### **GENERAL TERMS & CONDITIONS OF THE TENDER**

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

#### **A] Vendor Classification**

**Vendors who are all having Blast Cleaning facility to SA 2½ finish, located within 60 KM from BHEL, Ranipet is classified as MAIN vendor in OS.**

#### **B] Eligibility of Vendors to Quote:**

Firms who are having required Blast cleaning facility and able to meet Eligibility Criteria (Facility Requirement) mentioned in Annexure-FB is eligible to quote for this tender.

Firms already registered with Outsourcing (OS) BHEL/BAP/Ranipet shall indicate vendor code in their offer and indicate PO/IP number for the RS quoted if available. If vendor is new, then mention as "New" in the space provided for Vendor Code.

Vendors registered with any unit of BHEL for the similar jobs, shall give details of their registration along with the category registered for.

#### **i) Evaluation Methodology For Eligibility Criteria :**

- a. The Techno Commercial bids submitted by the firm will be scrutinized. The eligibility of the firms will be verified based on the pre-qualification criteria of the tender and compliance / confirmation to the tender requirements by BHEL vendor evaluation team including spot verification if necessary for approval. Only those firms complying with the pre-qualification criteria shall be considered for participation in the tender.
- b. Once the vendor is found to be technically suitable meeting all the technical and commercial requirements of BHEL, Reverse auction will be conducted.
- c. New vendor shall submit **Filled-in Vendor Registration form as in Annexure-K**

#### **Note:**

(i) The facilities indicated in the RS should be available in working condition as on date at the time of submission of offer and to be made available for the whole contract period. Vendors shall not quote for the ranges-which are beyond their manufacturing capacity.

(ii) Firm Land shall be owned either by the partners/ proprietor or registered in the name of the firm. In case of Leased land, the lease agreement shall be registered in the name of either by the partners/ proprietor or registered in the name of the firm and valid for a minimum period of 3 years from the date of Tender Opening. Self attested Copy of Lease agreement / own land document to be enclosed along with the tender.

#### **C] 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 tender opening will not be considered. Offers if any received such vendors shall not be considered.

Vendors under HOLD by BHEL are not eligible for such RS and vendor delisted/banned are not eligible for whole tender.



## D] Distance Criteria for the New Firms

Vendors, located within 60 KM from BHEL Ranipet, are eligible to quote.

## 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 (Original copy should reach BAP RANIPET before tender opening). **EMD is applicable for Medium category vendor also.**

BHEL has now made arrangements for payment of EMD thru' Online. The steps to make online payment is detailed as below:

- 1) Visit <https://www.onlinesbi.sbi/sbicollect/collecthome.htm>
- 2) Click 'Proceed' button
- 3) Select '**Tamilnadu**' in the drop down menu under 'State of Corporate/Institution \*'
- 4) Select '**PSU-PUBLIC SECTOR UNDERTAKING**' in the next drop down menu under " Type of Corporate/Institution"
- 5) Click 'Go' button
- 6) Select '**BHEL BAP RANIPET**' in the drop down menu under "PSU-PUBLIC SECTOR UNDERTAKING"
- 7) Click 'Submit' Button
- 8) Select '**EMD**' in the drop down menu under ' Select Payment Category'
- 9) Now Fill in the required details and ensure correctness of data filled. Ensure that you are entering correct enquiry/tender number and other details correctly.
- 10) Make payment for EMD as required in tender after entering the details and enclose copy of receipt along with tender documents.

(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 finalisation of Annual Rate Contract; 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."S" of Section IV - Suspension of Business Dealings with vendors).

## G] Submission of Offer

### TENDERS

**An electronic Bids shall be submitted in three parts** namely (i) Earnest Money Deposit (EMD) fee Cover/ Valid MSE document (ii) Techno Commercial Bid Cover and (iii) Price bid cover.

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

### Cover I: EMD / MSME Requirements

- a) **Check list for Cover-I**
- b) **Earnest Money Deposit (EMD) Rs. 2.00 lakh** in the form of Demand Draft, as called for (for Non MSE supplier) **(OR)**



c) **MSE documents** to avail exemption from submission of EMD: –

i) UDYAM REGISTRATION CERTIFICATE (URC)

Date to be reckoned for determining the deemed validity will be the date of Tender opening. Non submission of such documents will lead to consideration of their bids at par with other bidders and MSE status of such suppliers shall be shifted to Non MSE supplier till the supplier submits these documents.

**Cover II: Qualifying Criteria, Techno-Commercial Bid**

a) **Check list for Cover-II (Annexure-B)**

b) **Signed in Standard Commercial Terms & Conditions format** given as **Annexure-E.**,

c) **Signed in Technical Bid** for each Group quoted in this tender (without Price) as per **Annexure-C.**

d) **Affidavit** in Rs.100 stamp paper as per **Annexure-I**

e) **Own land** - Document copy / **Lease Land** –Copy of Registered Lease Agreement valid for a minimum period of 3 years from the date of Tender Opening and Encumbrance Certificate covering past 20 years for Own/Lease land.

f) **Documents to be enclosed for Partnership Firm –Self Attested Copies**

i) Latest Form- A, issued after 01.04.2022

ii) Partnership Deed Copy (AT WILL).

g) **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

h) **Vendor Registration Form** given as **Annexure-K** along with all necessary documents (**For New Vendor**)

i) **Eligibility Criteria format** given in **Annexure-FB**

j) **Integrity pact** as given in **Annexure -H**

**Note:**

(i) All new firms shall submit vendor registration forms (**Annexure-K**) along with supporting documents. Price bids of firms failing to meet the Technical Qualification / Eligibility Criteria of the quoted Rate Schedule shall not be considered for further processing in the tender.

(ii) Offers shall be submitted along with PAN No., GST No failing which BHEL will not be liable for payment. Our PAN No. AAACB4146P, 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 Annexures 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 of cover-II)**



### Cover-III : Price Bid

**Price Bid** - Price duly filled-in the Price Bid format provided in the tender document as **Annexure -D - Blasting BOQ**

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

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

#### **Note:**

- i) The price should be on “EX-Works” basis only (Inclusive of packing, forwarding). 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 during the operation of Rate Contract for one year from the date of award of Contract. No price escalation/variations shall be entertained during the ARC period on any account. The rates are operative for placement of orders for **ONE YEAR** on Rate Contract basis to be entered into between BHEL and the Contractor.
- iii) Tenderer shall bear all cost incidentals to preparation, submission and negotiations of the tender.
- iv) 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.
- v) 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 II) shall hold good and the commercial term quoted in the Price Bid (Cover III) shall not be considered.
- vi) In their own interest, all Tenderers are advised to double check their prices before submitting the offer.
- vii) The quotation should be valid at least for a period of 180 days from the tender opening date.
- viii) Vacant
- ix) The offers should invariably contain Signature (ink-signed) & Office Stamp of the Supplier..
- x) Bidders should submit the prices in Indian Rupees only.

#### **HJ Persons Authorized for Signing the Offers:**

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

- i) Proprietary Firm:** In case of Single Ownership / Proprietorship establishment, the Tender shall be signed by the Owner / Proprietor Only.
- ii) Partnership Firm:** In case the Bidder is a Partnership Firm under Partnership Act, the Tender shall be signed by all the Partners of the firm or by the Managing Partner who have Signature and Seal of the Firm authorized to do so **OR** by a person holding the Power of Attorney on behalf of the Partnership Firm. Power of Attorney attested by a **Public Notary** shall accompany the Techno-Commercial-Bid. Power of Attorney shall be submitted as per format given as **Annexure J** only.
- iii) Private Firm:** Authorized signatory shall be the person holding “Power of Attorney” on behalf of the firm/company/Bidder-concerned and authorized/empowered by MD or Board of Directors or owner of the firm, to act on behalf of the firm for quoting this Tender and all proceedings connected with, till finalization and execution of the Contract. Power of Attorney attested by a **Public Notary** shall accompany the Techno-Commercial-Bid.



- iv) This tender is being floated through E Procurement Portal. Submission of requisite documents for tender are being submitted by the Authorized Signatory of the Firm.
- v) **For participating in the e-tender, Digital Signature Certificate Class III is mandatory for the subcontractor to quote.**
- vi) Subcontractors should quote the rate and fill other required details only in the respective fields provided.
- vii) The offer should be submitted on or before the due date & time mentioned in the Procurement portal. Further tender due date extension, if any, will be communicated through E-procurement portal only. Hard copy bid or bids through E-mail / fax shall not be accepted.
- viii) Subcontractor should take utmost care for the use of their Digital Key registered while participating in a Tender.
- ix) Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Revisions, etc. to Tender Specifications will be hosted in E Procurement portal or B2B portal.

#### **I] Opening of Offers**

**a) Tenders (Offers) shall be received upto 10.00 Hours on the said due date. 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.

c) First Cover I containing EMD / MSME documents shall be opened, only if EMD as mentioned above OR the valid MSME certificate is available, the respective Cover II - Techno Commercial bid will be opened subsequently.

d) Price Bid opening will be finalized through Reverse Auction method ( English method). All tenderers would have to specifically give their acceptance for this in their bid/s. The date / time of Price Bid opening will be communicated to the technically qualified Bidders separately.

#### **J] Evaluation of Techno Commercial Offers**

The Techno commercial bids submitted by the firm will be scrutinized. 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 Rate Schedule 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 for respective category only will be considered for further processing.

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

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

f) **Conditions for rejection of offers:**

**Following is the list of situations which would lead to rejection of offer/s.**

**This list is not exhaustive but only indicative.**

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

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



2. If the offer does not meet the commercial terms & conditions, such as but not limited to delivery period specified in the tender, Delivery terms, payment terms, Liquidated damages, Risk Purchase, cancellation clause etc., specified in the tender.

3. If the bidder fails to respond to clarification sought, within a reasonable period. In case of doubts / lack of clarity on the technical and commercial offer of the bidder, BHEL will seek clarifications. Bidders are required to respond completely to such BHEL's queries within 3 working days unless otherwise agreed to in writing by BHEL for period beyond 3 days. If supplier fails to respond within 3 working days or maximum 2 working days on a reminder thereon, the offer of such bidders will be automatically dis-qualified in the tender without further recourse to informing the bidder.

#### **KJ Evaluation of Price Bid**

i) The rates quoted shall be evaluated on the basis of "Rate quoted per Square meter".

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 differentiate (a) to decide the L1-vendor eligible for negotiation and (b) to decide H1-vendor for elimination of higher ranked vendors.

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
- (3) Having OWN land,
- (4) 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 rate schedule 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) Elimination of Vendors: ***In any case the H1 vendor will not be considered.***

vii) The rates shall be quoted only in the Price Bid format for the concerned Rate Schedule

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 is 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 Rate Schedule or quantities, specifications, drawings and for other tender documents, the decision of BHEL in writing is final, binding and conclusive for the purpose of this contract.

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.

xv) BHEL reserves the right to restrict the number of parties for award of contract for any or all the Rate schedule and restrict the number of parties to be called for negotiation (if necessary) based on their competitive bidding, past performance etc.

#### **LJ 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.

#### **MJ Counter offer**

i) Once the L1 rates for the rate schedule is finalized by BHEL, then the L1 rate shall be counter offered to the other technically qualified vendors for their acceptance.

ii) Based on the acceptance of vendors for the Rate Schedule, rate contract will be entered with them.

v) Counter offering will not be extended to top higher ranked (H1) eliminated vendors as per **clause K (vi).**

vi) If none of the vendors are accepting for the counter offer given by BHEL, then BHEL will place orders on the L1 ranked vendor for the tentative quantity mentioned against RS subject to the capacity availability indicated by the vendor.

#### **NJ Placement of Orders and Loading**

a) ARC Contract will be entered only with the vendors who respond to this ARC-Enquiry. New vendors who have not responded to this ARC-Tender-but registered/approved later, if any will be permitted in the next year ARC (provided they respond to the next-year ARC).

b) Tentative quantity likely to be ordered against Rate Schedule is indicated in the Technical Bid. Tender quantity may increase/decrease during the rate contract period. BHEL does not guarantee any minimum load for any vendor.

d) The contract is to be signed in Rs.100/- stamp paper. Hence after getting a confirmation on signing of contract, vendor shall get a stamp-paper for a value of Rs. 100/- and submit to BHEL for contract preparation.

e) After finalization of tender, if the Contractor is awarded the Contract, Proprietor, Partners and Directors (as applicable) should physically present themselves and sign the contract in the presence of Head of OS Department with in the dates specified.

f) Orders would be placed as Addenda’s on the Annual Rate Contract signed by the vendors.

g) *L1 vendor will be given TWO splits of load, when all other ranked vendors (other than L1) were given One(1) split , during every bulk loading cycle, subject to meeting all the basic requirements such as Tender ranking, Capacity availability, BG & Delivery Performance, Quality Performance, Legal compliances, validity of lease document if applicable and Validity of constitution., required as per contract. In case the above said requirements are not complied, loading of two splits for L1 vendor and one split for other ranked vendor will not be considered for subsequent loading.*



h) If none of the vendors are accepting for the counter offer given by BHEL, then BHEL will place orders on the L1 ranked vendor for the tentative quantity mentioned against RS subject to the capacity availability indicated by the vendor.

i) The total available load from time to time will be distributed to those Contractors with preference to L1, L2 and L3, with whom Contract is entered into and to that Contract, the addenda shall be placed in a phased manner subject to the availability of potential for BHEL and also depending upon vendor performance such as, manufacture according to BHEL plans/requirements, meeting quality requirements, prompt returning & accountal of balance materials & paints and also the minimum required facilities available at the Contractor's works to meet the job requirements and submission of other reports as called for, then and there. BHEL does not guarantee ordering of any minimum quantity on any Contractor.

j) Purchase orders will be issued after entering into Rate contract with the Contractors. 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.

#### **O] 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.

Based on the Rate contract, to be finalized, the Sub-Contractors shall accept and undertake all jobs awarded to them under various Rate schedule allotted to them and execute them to the satisfaction of BHEL. Failure to comply with this requirement will be viewed seriously.

b) Vendor has to collect Raw materials / Components from BHEL stores / Shop to their works on clearance.

c) Vendor has to study the Drawings, Welding Procedure Specification (WPS), Standard Quality Plan (SQP), any Customer Hold Points (CHP), any stage inspection requirement etc. carefully before start of manufacture.

d) Vendor has to submit Cutting Plan (CP) for the collected Raw Materials within a week of collection and shall get approval from CP section before proceeding for manufacture if applicable.

e) 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.

f) 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.

g) 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.

h) Painting of one coat Red Oxide / applying of Rust Preventive oil on machined surfaces is to be made on the job.

i) Despatch the items to BHEL, Shipping / Stores 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.

j) On delivery, authorised representative of vendor shall follow Shipping / Stores to control the DC's/Stores Receipt Voucher(SRV).

k) Intimation of controlled DC's/SRV will be mailed by Finance to vendors for submitting the Invoices.

l) Vendors have to submit the invoice and relevant documents to finance in stipulated time for the release of payments.



m) 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.

n) The Contractors are responsible till the semi 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.

#### **P) Public procurement (Preference to Make in India), Order 2017**

a) For this procurement, the local content to categorize a supplier as a Class I local supplier / Class II local Supplier / Non- Local supplier and purchase preference to Class I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 16.09.2020 issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT.

b)The 'Class-I local supplier'/ 'Class-II local supplier' at the time of tender, bidder or subcontractor shall be required to indicate percentage of local content and provide self certification that the item offered meets the local content requirement for 'Class-I local supplier' / 'Class-II local supplier', as the case may be.

c) Subcontractor shall furnish the % of local content while offer submission in EProcurement system

#### **Q) Risk Purchase**

*Alternatively, the BHEL at his option will be entitled the contract and to manufacture elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute therefor. The supplier shall be liable for any loss which the BHEL may sustain by reason of such risk purchases in addition to penalty at the rate mentioned in LD clause.*

In case those vendors do not execute the orders, BHEL may get the job done through other sources at the Risk and cost of those vendors and the extra expenditure involved shall be recovered from these vendors from any amount due to them. In the event, the cost of the work so done as certified by BHEL which is final.

#### **R) Liquidated Damages:**

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 items for dispatch by BHEL. Supplier should quote a definite delivery period and any delay in delivery will attract penalty.

The delivery period includes time involved in material collection, cutting plan approval, collection of further materials if any and handing over of the finished goods to BHEL-Shipping. Finished goods items shall be door delivered at Shipping/Stores inside the factory, BHEL, Ranipet.

#### **S) 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 Vendor. 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.

### **T] 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](http://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".

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

### **U] Reverse auction (RA)**

1.1 BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on [www.bhel.com](http://www.bhel.com)) for this tender. RA shall be conducted among the techno commercially qualified bidders. Price bids of all techno commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.

1.2 The philosophy followed for reverse auction shall be English Reverse (No ties).

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



- 1.4 BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
- 1.5 Before reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
- 1.6 Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
- 1.7 Bidders have to fax/E mail the Compliance form before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
- 1.8 Reverse auction will be conducted on scheduled date & time.
- 1.9 The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, to the Service provider within two working days of Auction without fail.
- 1.10 Bidders are required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction“, which will be communicated before the Reverse Auction.
- 1.11 If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
- 1.12 The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
- 1.13 . The calculation sheet e.g. excel sheet (which will help to arrive at 'Total Cost to BHEL') will be communicated to respective bidders of RA by BHEL. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Goods & Services Tax (GST) and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.]
- 1.14 This calculation sheet will be finalized based on the evaluation criteria specified in the NIT.
- 1.15 Start price for RA shall be lowest of sealed envelope price bid.
- 1.16 Wherever more than one lowest sealed envelope price bids are identical and lower than the estimate, the start price, would be that price arrived by reducing the lowest sealed envelope price bid by maximum of one decrement.
- 1.17 The start price & bid decrement will be decided by RA committee of BHEL and the same would be communicated to the service provider, to start the bidding process.
- 1.18 Only those bidders who have submitted the 'Process compliance form' duly signed and within the scheduled time would be eligible to participate in RA process.
- 1.19 Reverse Auction will be conducted if two or more bidders are techno commercially qualified. In case of two or three qualified bidders, there shall be no elimination of H1 bidder (whose quote is highest in sealed envelope price bid). In case of four qualified bidders, the H1 bidder shall be eliminated whereas in case of five qualified bidders, H1 & H2 bidders shall be eliminated. However, in case of six or more qualified bidders are available, RA would be conducted amongst first 50% of the bidders arranged in the order of prices from lowest to highest. Number of bidders eligible for participating in RA would be rounded off to next higher integer value if number of qualified bidders is odd (e.g. if 7 bids are qualified, then RA will be conducted amongst lowest four bidders). However, there will be no elimination of qualified bidders who are MSE or qualifying under PPP-MII, Order 2017, irrespective of the number of bidders qualifying techno-commercially.
- 1.20 In case of multiple H1 bidders, all H1 bidders (excluding MSEs and bidders qualifying under PPP-MII, Order 2017) shall be removed provided minimum two bidders remain in fray, else no H1 removal.
- 1.21 The lowest bidder in sealed envelope price bid shall be shown as current L1 automatically by the system. System shall have the provision to indicate this bid as current L1 for further bidding. This price can be displaced by an even lower bid of a competing bidder.
- 1.22 If the start price is lower than the lowest sealed envelope price bid (in line with clause 8.0), on acceptance of such start price by any bidder this bid would be indicated as current L1 for further



- bidding. However, if no bidder accepts the start price, RA shall be treated as cancelled for the respective line item(s) and the tender shall be processed accordingly.
- 1.23 In case of no further bidding, RA will be deemed to have been successful with current L1 bidder.
  - 1.24 During RA, all bidders will see their rank and current L1 price on the screen. Once the RA is done, the ranking status would be based on the last quoted price of the bidder(s) irrespective of the quote received in RA or sealed envelope price bid.
  - 1.25 No bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.
  - 1.26 Wherever the evaluation is done on total cost basis, after RA, prices of individual line items shall be reduced on pro-rata basis.
  - 1.27 In case of splitting requirement, H1 bidder(s) who were removed from participation in RA may also be considered for counter offer if the pre-stated (NIT) number of suppliers do not accept the counter offer. However, the principle of splitting to N-1 bidder shall be maintained in line with extant Purchase Policy / Work Policy
  - 1.28 Reasonability of rates received through RA to be ascertained as per extant Policy provisions.
  - 1.29 In case of enquiry through e-Procurement, the sealed electronic price bid (e-bid) would be treated as sealed envelope price bid.

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

## **VJ 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.

## **WJ Integrity Pact**

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

The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer ) along with techno-commercial bid. Only those bidders who have entered into such an IP with BHEL



would be competed to participate in the bidding. In other words, entering into pact would be a preliminary qualification.

SI no	IEM	Email
1	Shri Otem Dai, IAS (Retd.)	iem1@bhel.in
2	Shri Bishwamitra Pandey, IRAS (Retd.)	iem2@bhel.in
3	Shri Mukesh Mittal, IRS (Retd.)	iem3@bhel.in

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

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

For all clarifications/ issues related to the tender, Please contact:

Name: B.Sivasubramanian Manager & S.Srinivasan, Exe.Addl.Engr II  
Deptt: Outsourcing  
Address: BHEL, Ranipet  
Phone: (Landline/ Mobile) 04172-284030/284158/ 9442586376 & 9442308554  
e-mail: [bsmanian@bhel.in](mailto:bsmanian@bhel.in) & [ssvasan@bhel.in](mailto:ssvasan@bhel.in)

Integrity Pact are applicable for all the BHEL enquiries whose estimated value is equal to or more than Rupees 02 Crores.

#### **X] Fraud Prevention Policy:**

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

As per BHEL's Fraud prevention Policy, Nodal officers were nominated by BHEL Management. The details of such Nodal officers are furnished below:

Name shri/smt	Designation	Email ID	Phone No
<b>Manimala K P</b>	GM-OS & WCM	manimala@bhel.in	04172-28 4050
<b>Ashok K</b>	GM-,SOM , PMS & DTG	apa @bhel.in	04172-28 4607
<b>Ravikumar P</b>	GM- OPERATIONS	pravi @bhel.in	04172-28 4574
<b>Saravanan G A</b>	GM- MM,Marketing & NGA	saravananga@bhel.in	04172-28 4446
<b>Sivaprakasam P</b>	GM-ENGINEERING	sprakasam@bhel.in	04172- 28 4964
<b>Suresh Kumar P</b>	GM – Coml ,RM & Shipping	psureshkumar @bhel.in	04172-28 4300
<b>Vijayalakshmi K G</b>	GM-Finance	kgviji@bhel.in	04172- 28 4518
<b>Umapathi N K</b>	SDGM-VIGILENCE	umapathi@bhel.in	04172-28 4463

Any bidder / contractor who come across any fraudulent behaviour of BHEL's employees may communicate the same to any / all of these Nodal officers.

#### **Y] 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 one week 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](mailto:bsmanian@bhel.in), [ssvasan@bhel.in](mailto: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 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 contractor have a relation or relations in the case of a firm or company of contractors, 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 Contractors/Contractors in favour of their bank for the collection of Invoice amounts on behalf of Contractors/Contractors 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.*

## **Z] 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 :

BHEL shall have the right to recover any money which in the sole opinion of BHEL is due from the Contractor from any money due to the Contractor under this Contract or any other contract or from the Security Deposit furnished by the Contractor under this Contract or any other contract.

"For the sake of clarity, the phrases "from any money due to the contractor" and "from the Security Deposit furnished by the Contractor" shall include money due from and Security Deposit furnished to any other Unit/ Office of BHEL as the case may be".

### 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 (ISO 45001) and Environmental Management System (ISO 14001)**

BHEL/BAP/RANIPET got accreditation Occupational Health and Safety Management System (ISO 45001) and Environmental Management System (ISO 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 ISO 45001 / 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 (particulary 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 ISO 45001 / ISO 14001 as given below:**

- \*\* To adopt ISO 45001 / 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.

#### **Attention to Vendors**

- **Attach only the documents mentioned above under Clause F – Submission of Offers.**
- **Write Vendor Code / Vendor reference Code legibly in the offer wherever required.**

## **SECTION V**

### **SPECIAL PROVISIONS FOR MICRO AND SMALL ENTERPRISE (MSE)**

In line with Gazette notification issued by Ministry of Micro small and medium enterprises on MSE suppliers, the following special provisions shall be applicable.

- I. 25% of the tendered value is earmarked for MSE suppliers in this tender.
- II. If L1 vendor (or) Counter Offer accepted vendor is from a Micro / Small enterprise which put together covers 25% of the total tendered quantum, then 25% earmarking provision is not applicable.
  - Out of the 25% tendered quantum reserved for MSE suppliers, 6.25% shall be earmarked for procurement from MSE owned by SC / ST entrepreneurs. In event of failure of such Micro and Small enterprises to participate in the tender process or meet the tender requirements and the L1 price, the 6.25% sub-target for procurement ear-marked MSE owned by SC / ST entrepreneurs shall be met with other MSE enterprise/s.
  - Out of the 25% tendered quantum reserved for MSE suppliers, 3% shall be earmarked for procurement from MSE owned by women entrepreneurs. In event of failure of such Micro and Small enterprises to participate in the tender process or meet the tender requirements and the L1 price, the 3% sub-target for procurement ear-marked MSE owned by SC / ST entrepreneurs shall be met with other MSE enterprise/s.
- III. In case MSE vendor participating in the tender quotes within the price band of L1 + 15%, they will be allowed to supply the portion of the requirement subject to acceptance of L1 price by MSE vendor. In case of more than one such MSE, the supply shall be shared proportionately, provided the package can be split.
- IV. In case the Package cannot be split / not envisaged for splitting as per tender, and if a non- MSE vendor becomes L1, and MSE vendor also participates in the tender, the MSE vendor will be given preference for ordering the package provided the MSE vendor quoted price is within L1 + 15%, and if the MSE vendor accepts the L1 rate.
- V. In case of a similar package required for two boilers, if a non-MSE vendor becomes L1, and MSE vendor also participates in the tender, then L1 will be ordered with one package of one boiler and MSE vendor will be given preference for ordering the other package of other boiler, provided the MSE vendor's quoted price is within L1 + 15%, and if the MSE vendor accepts the L1 rate.

- VI. MSE suppliers can avail the intended benefits only if they submit UDYAM REGISTRATION CERTIFICATE (URC). Date to be reckoned for determining the deemed validity will be the last date of technical bid submission. Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefits shall be applicable for the enquiry in case any deficiency in the above required documents is found and the same is not corrected by the sub-contractor before price bid opening. This provision for MSE will apply subject to the condition that the participating MSE meets the tender requirements.
- VII. In case of any change in the MSE status of the bidder, it shall be the responsibility of the bidder to notify the change as a part of the bid document. If at a later date it comes to the knowledge of BHEL that the change in the status has not been intimated by the bidder and the order is obtained under the premise of an MSE, then BHEL would cancel the pending order against this tender and take necessary steps for suspension of the business dealing with the bidder as per the procurement policy of BHEL.
- VIII. In case after the bid opening it is seen that no MSE has become L1, then depending on the nature of the item, if it is not possible to split the tendered items / quantities on account of reasons like customer contract requirements of supplying one make for a given project or technical reasons like tendered items being a system, tendered quantity being low etc., then BHEL would not counter offer the L1 prices even though there may be MSE bidders within the + 15% band of L1.

## **2.0 DEFINITIONS OF MSEs OWNED BY SC/ST IS AS UNDER:**

- I. In case of proprietorship firm, proprietor must be SC/ST.
- II. In case of partnership firm, the SC/ST partners must be holding at least 51% shares in the unit.
- III. In case of private limited companies, at least 51% share must be held by SC/ST promoters.
- IV. The caste/Tribe/Community certificate issued by the following authorities in the prescribed form for SCs/STs can be considered.

## **3.0 AUTHORITY TO ISSUE SC/ST CERTIFICATE:**

- I. District Magistrate/Additional District Magistrate/Collector/Deputy commissioner/Additional Deputy Commissioner/Deputy collector/1st class stipendiary magistrate/Sub divisional Magistrate/Taluka Magistrate/Executive magistrate/Extra Assistant commissioner.
- II. Chief Presidency magistrate/Additional chief presidency magistrate/Presidency magistrate.
- III. Revenue Officer not below the rank of tahsildar.
- IV. Sub-Divisional officer of the area where the individual and / or his family normally resides.

To avail the benefits of MSE under SC/ST category, the related documents as stated above should be submitted along with tender documents. No benefits shall be applicable for the enquiry if any deficiency in the above required documents is not submitted before the price bid opening.

4.0 **DEFINITIONS OF MSEs OWNED BY WOMEN ENTREPRENEURS IS AS UNDER:**

- I. In case of proprietorship firm MSE, proprietor must be Women.
- II. In case of partnership firm MSE, Women partners shall be holding at least 51% shares in the unit.
- III. In case of private limited companies, at least 51% share must be held by Women promoters.

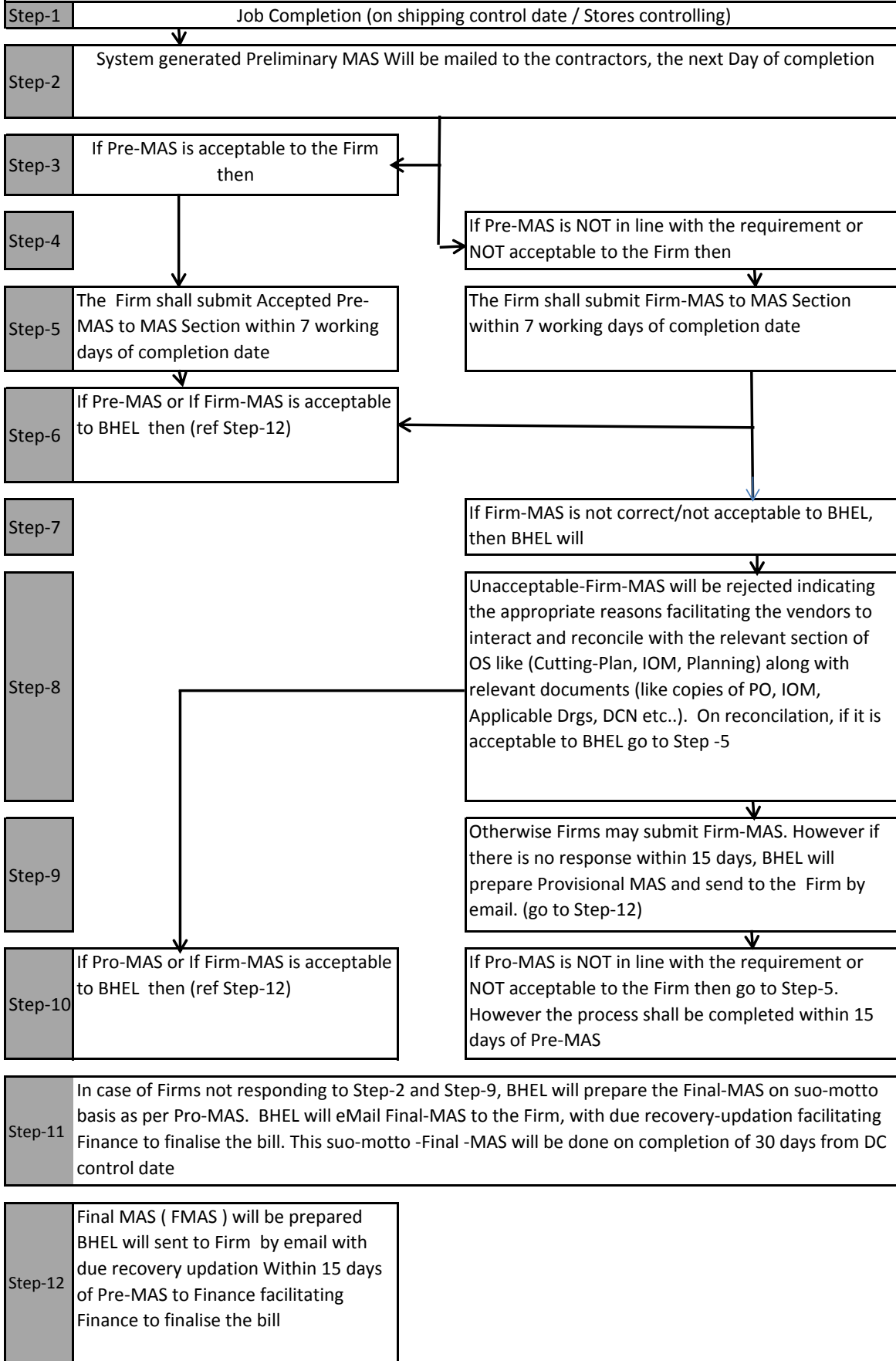
To avail the benefits of MSE under women entrepreneur's category, the related documents as stated above should be submitted along with tender documents. No benefits shall be applicable for the enquiry if any deficiency in the above required documents is not submitted before the price bid opening.

**Section-VI**

**Enquiry No.651002E**

**Dt.29.07.2022**

**Flow chart for processing of Material Account Statement (MAS)**



**NOTE:** Even in the case of activities not covering in the above process, the overall process lead time to book FMAS is 30 days from date of completion of the job.

## **SECTION: X**



**PROCEDURE FOR SURFACE PREPARATION  
& PAINTING**

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## PROCEDURE FOR SURFACE PREPARATION AND PAINTING

**PREPARED BY**

DEPARTMENT	NAME & DESIGNATION S/Shri	SIGNATURE
QA	Rajamanickam. M Sr.Engr/ QA	

**REVIEWED BY**

DEPARTMENT	NAME & DESIGNATION S/Shri	SIGNATURE
ENGINEERING	S.S. Mani AGM/ Engg	
QUALITY ASSURANCE	R. Aruchachalam DGM/ QA& QC-OLI	 24/1/18

**APPROVED AND ISSUED BY**

DEPARTMENT	NAME & DESIGNATION S/Shri	SIGNATURE
QUALITY	B. Srinivasa Rao AGM/ Quality	 9/2/18

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### Record of Revision

<b>Rev. No</b>	<b>Effective Date</b>	<b>Details of Revision</b>
00	10.10.2002	RP0674199 Rev 05 requirements and PRQA rev 12 requirements were fully reviewed and this document is released as Rev 00 taking care of painting requirements of BAP projects. For project specific painting schemes respective CIS or contract specific painting schemes to be referred
01	22.05.2007	Painting requirement are fully reviewed. Red oxide Zinc chromate for primer application (IS 2074) is corrected as Red oxide Zinc phosphate primer (IS 12744) and also number of coats & DFT corrected
02	24.01.2018	Painting requirement are fully reviewed and totally revamped. Specific painting scheme for different environments are envisaged and other details added for overall painting document.

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## 1.0 SCOPE

- 1.1 This procedure specifies the requirements for surface preparation, application of primer, intermediate and finish paints, personnel qualification, testing, inspection of manufactured and sub contracted components of APH, Fans, ESP, Gates and Dampers and Chimney. (For desalination, please refer PRQA:526/ Latest respectively)
- 1.2 As these standard painting schemes have evolved well over the years, and the performance of these paint systems have been satisfactory in many sites, these schemes will be offered to the customers during the tender stage. The use of standard painting scheme has several advantages including the avoidance of certain time consuming surface preparations and also the use of the proven techno-economic options for painting of the products.
- 1.3 In case of special contract requirements, wherein the customer is specific about having a painting scheme different from the above, then those special contractual requirements will be addressed through a Contract Specific Document with customer approval, when required. The linkage will be provided in the CQR issued by QA.
- 1.4 Good preservation/ transportation enhances the life of painted products. Suitable lasing method (use of rubber, nylon, rope/bel) shall be used while transporting and avoid metal slings to tie up the product with the load carrier.

## 2.0 GENERAL

- 2.1 This procedure specifies the painting requirements to
- Provide adequate surface protection of components under prescribed storage conditions at Shop/ Site.
  - Temporary protection for components coming under the flue gas path till they are erected and
  - Protection for a reasonable time till completion of erection for components continuously exposed to atmospheric environment.
- 2.2 The scheme is based on the site practice of need based touch-up/ re-preservation program based on the duration of storage and the condition.
- 2.3 No painting shall be applied on the stainless steel, galvanized and any plated surfaces. For estimation of requirements of painting, the approximate area of coverage on non-absorbing surface is as given below,

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SL NO	Generic nature of paint	Theoretical covering area (Sq.m/ litre)	DFT/ Coat (Min)	Shade
01	Red oxide zinc phosphate primer to IS 12744	10	30	Red oxide
02	Synthetic enamel paint to IS 2932	10	20	Smoke grey
03	Heat resistant aluminum paint to IS 13183	10	20	Aluminum

2.4 For bought-out items, the painting scheme shall be specified in Engineering Drawing/ purchase Specification. Wherever it is not specified, the following is the minimum requirement,

- a) Primer: Two coats of red oxide Zinc phosphate primer to IS 12744- DFT 30 microns
- b) Finish: Two coats of synthetic enamel to IS 2932 smoke grey shade no:692 of IS: 5. DFT 20 microns per coat

Manufactured items for bough-out items shall be as per the painting scheme of the applicable PGMA in this document.

2.5 All currently active PGMA's are covered. Requirements for Missing/ new PGMA's can be obtained from Engineering and Quality Assurance department.

### **3.0 PAINTING SCHEME & REFERENCE ANNEXURES**

3.1 The surface preparation, primer coat, intermediate coat and finish coat requirements for various painting schemes are given as part of this document.

3.2 Section I deals with the surface preparation schedule and section II deals with painting and coating.

3.3 Standard painting scheme for normal environment/ coastal (or) refinery (or) chemical environment/ export projects can be referred in Part- I/ II / III in Section II available with this document.

3.4 Annexure I shall be referred for notes on painting scheme furnished in this document. Necessary instructions given for protective coating of various components.

3.5 Inspection and testing plan on surface preparation and painting is given under Annexure II. Description given for various grade of surface cleanliness and inspection techniques.

3.6 Procedure for painter qualification given under Annexure III.

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- 3.7 The paints envisaged as per this document are indicated in this document under the Annexure IV- Painting scheme details for procurement and application purposes.
- 3.8 Good painting practices, which will be of assistance to task performer, have been detailed in Annexure VI.

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## SECTION - I

### 4.0 SURFACE PREPARATION REQUIREMENTS FOR PAINTING AND COATING

- 4.1 The effectiveness and duration of the protection provided by organic, Inorganic and metallic coatings for corrosion protection depends among other things decisively on proper surface preparation. This section deals with the methods of surface preparation, their effectiveness and fields of application.
- 4.2 This section is largely based on ISO 8501-1; 1988 that in turn is based on the Swedish standard SS 05 59 00.

### 4.3 SURFACE PREPARATION METHODS

- 4.3.1 Surface preparation depends on the initial condition of uncoated surfaces. The details of rust level, rust removal methods and characteristics surfaces are given in Table 1.0.

### 4.4 DEFINITIONS AND METHODS OF CLEANING

#### 4.5 CLEANLINES OF SURFACES

- 4.5.1 Cleaning requirement and levels of cleanliness, contaminants such as dirt, oil that will interfere with the adhesion or effectiveness of the proposed coating must be removed. Coats of materials related to the metal (scale, rust) and coats of different materials (e.g existing coating) should be removed until the agreed level of cleanliness is attained.
- 4.5.2 Contaminants/ coats, both of related material and of materials different from the metal may be removed in one operation if the nature, level and thickness permits this. The required level of cleanliness depends on
- The corrosion protection system selected
  - The type of corrosion exposure expected
  - The initial condition of the surface being prepared
  - The possible rust removal method
  - Economic considerations
- 4.5.3 Generally, the standard levels of cleanliness as in table 1.0 should be used as basis. This does not cover the removal of weld spatter, weld or flame cutting slag or chips, repair grinding of rolling defects (laminations) deburring and similar operations.

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#### **4.6 MECHANICAL METHODS OF REMOVING DUST**

##### **4.6.1 Manual rust removal:**

4.6.1.1 This applies to standard levels of cleanliness St 2, St 3 as per table 1.0 manual cleaning uses wire brush, stripping knife, Swedish scraper, rust removing hammer etc., the method must not damage the metal being derusted. Subsequent cleaning by sweeping or brushing off or by blowing off with dry air.

##### **4.6.2 Mechanical rust removal:**

4.6.2.1 This applies to standard levels of cleanliness St2, St3 as per table 1.0 cleaning can be done by mechanically driven rust removing tools viz. rotating wire brush, impact piston devices or rotary descalers, sanding discs etc. The surface areas where the power driven tool cannot enter, manual cleaning should be done. The method must not damage the metal being derusted. Subsequent cleaning by sweeping or brushing off or blowing off with dry air.

##### **4.6.3 Blast cleaning**

4.6.3.1 This applies to standard levels of cleanliness Sa 1, Sa 2½, Sa 3 as per table 1.0. Chemically contaminated surfaces must be pre-washed. Surfaces having coarse rust must be pre-cleaned with impact tools prior to blast cleaning.

4.6.3.2 Compressed air blasting is generally recommended for our operations. It is freely directed air blasting in blasting cubicles, Rooms or sheds with re-circulation of blasting abrasives.

##### **4.6.4 Removal of contaminants/ coat of material different from the metal**

4.6.4.1 Surface of metal contaminated with cutting fluid (machine coolant) oil or grease shall be wiped with mineral turpentine/ tri-chloroethylene prior to applying any methods of mechanical surface preparation.

4.6.4.2 If any old paint film or rust preventive films are present they may be removed with paint removing jelly.

4.6.4.3 As far as possible the cleaning method should be so chosen that all the scale is removed from the metallic surface to be coated. For heavily scaled metallic surfaces either blasting or picking may be adopted over and above the requirements called for in the table 1.0

##### **4.6.5 Notes to Table 1.0**

4.6.5.1 Initial condition of uncoated surfaces (rust grade as per SS 05 59 00)

a) Steel surface largely covered with adhering mill scale but little, if any rust.

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- b) Steel surface, which begun to rust and from which the mill scale has begun to flake.
- c) Steel surface on which the mill scale has rusted away or from which it can be scrapped, but with slight pitting visible under normal vision.
- d) Steel surface on which the mill scale has rusted away and on which general pitting is visible under normal vision.

4.6.5.2 Standard levels of cleanliness equivalent to steel structures painting council of US (SSPC) also given in brackets in table 1.0.

**Table 1.0**

<b>Standard levels of cleanliness</b>	<b>Rust removal method</b>	<b>Initial conditions of steel surfaces (Uncoated ref. 4.5)</b>	<b>Essential characteristics of the prepared steel surface</b>
<b>St 2 (SSPC- SP 2)</b>	Thorough hand and power tool cleaning	B, C, D	When viewed without magnification, the surface shall be free from visible oil, grease and dirt and from poorly adhering mill scale, rust coatings and foreign matter.
<b>St 3 (SSPC SP 3)</b>	Very thorough hand and power tool cleaning	B, C, D	As for St 2, but the surface shall be treated much more thoroughly to give a metallic sheen arising from the metallic substrate.
<b>Sa 1 (SSPC SP 7)</b>	Light blast cleaning	B, C, D	When viewed without magnification, the surface shall be free from visible oil, grease and dirt and from poorly adhering mill scale, rust coatings and foreign matter.
<b>Sa 2 (SSPC SP 6)</b>	Thorough blast cleaning	B, C, D	When viewed without magnification, the surface shall be free from visible oil, grease and dirt and from most of the mill scale, rust, paint coatings and foreign matter. Any residual contamination shall be firmly adhering.

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<b>Standard levels of cleanliness</b>	<b>Rust removal method</b>	<b>Initial conditions of steel surfaces (Uncoated ref. 4.5)</b>	<b>Essential characteristics of the prepared steel surface</b>
<b>Sa 2½ (SSPC SP 10)</b>	Very thorough blast cleaning	B, C, D	When viewed without magnification, the surface shall be free from visible oil, grease and dirt and from the mill scale, rust, paint coatings and foreign matter. Any remaining traces of contaminations shall show only as slight stains in the form of spots or stripes.
<b>Sa 3 (SSPC SP 5)</b>	Blast cleaning to visually clean steel	A, B, C, D	When viewed without magnification, the surface shall be free from visible oil, grease and dirt and from the mill scale, rust, paint coatings and foreign matter. It shall have a uniform metallic colour.

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**SECTION –II**

**PART- I**

**STANDARD PAINTING SCHEME FOR NORMAL ENVIRONMENT**

SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
<b>A REGENERATIVE AIR PRE- HEATERS</b>										
01	Heating element baskets (without elements) 52010, 024, 025	Power tool cleaning to ST- 3 (SSPC SP3)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60
02	Heating element baskets (with elements) 52010, 024, 025	--	Temporary rust preventive oil non dry type (*) (Dipping)	--	--	--	--	--	--	--
03	Rotor post assembly machined items of (52011), Pin rack assembly (52012), Seals (52013, 52054, 52055), sector plates (52041, 52042) and machined components of APH	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
04	<b>Components in flue gas path and insulated</b> Rotor post assy (52011), T bars (52013), Rotor housing assy (52030), Hot and cold connecting plate assy (52041,52042)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60

(\*) Specification as per PRQA 522/ Rev 00

(\*\*) Specification as per PRQA 523/ Rev 00; For CE coil- TEP/AQCS/RP (Latest)



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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
05	<b>Components exposed to atmosphere</b> Rotor drive assy (52100), Access door (52220), Air seal piping (52211), observation port other than glass part (52220), Rotor stoppage alarm other than aluminium (52220), Loose items of air receiver (52220), Guide bearing assy (52261), Support bearing assy (52262), Oil piping GB, SB (52271, 52272), Oil circulation unit (52274), Deluge and wash pipe assy (52301, 52302), Cleaning device assy (52339, 52340), Thermocouple pipe assy other than SS	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	01/ DFT=30 $\mu$ / coat	--	--	Synthetic Enamel paint to IS 2932	02/ DFT= 20 $\mu$ / coat;  Total 40 $\mu$	Smoke grey Shade 692 of IS 5	70
<b>B</b>	<b>TUBULAR AIR PRE-HEATER</b>									
01	Side walls (external surfaces and internal surfaces)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60

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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
02	Machined surfaces, tubes of TAPH, tube plates and intermediate plates	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
<b>C</b>	<b>FANS</b>									
01	Foundation materials 550XX, 560XX (Threaded portion)	Power tool cleaning to St-3 (SSPC SP3)	Temporary rust preventive oil	40	--	--	--	--	--	--
				Other areas except threaded portion- Red oxide Zinc phosphate primer to IS 12744, DFT- 30 $\mu$						
02	<b>Components exposed to atmosphere</b>									
02.a	Bearing pedestals, Base frame, servomotor assy, shaft with bearing assy, OGV, IGV (55-1XX, 55-2XX, 55-3XX, 55-5XX, 55-6XX, 56-4XX) Bearing pedestals, Base frame, shaft with bearing assy, RVC, IGV, Support for seal, shaft protecting tube, Spiral casing (if no insulation is applicable), Damper (56-1XX, 56-2XX, 56-3XX, 56-4XX) Coupling guard (56-8XX, 55-8XX), Tools (56-000, 55-000)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	01/ DFT=30 $\mu$ / coat	--	--	Synthetic Enamel paint to IS 2932	02/ DFT= 20 $\mu$ / coat;  Total 40 $\mu$	Smoke grey Shade 692 of IS 5	70
<p style="text-align: center;">General notes for SI no: 02.a &amp; 02.b for C. Fans</p> <ol style="list-style-type: none"> <li>1) As a assy, no blasting to be done for servomotor assy &amp; shaft with bearing assy.</li> <li>2) Before assy, all external un-machined surfaces of bearing housing/ cylinder to be painted.</li> <li>3) AP impeller painting to be done before assembly except oil chamber area &amp; mating component contact area.</li> <li>4) After SR/ Before machining, blasting and primer painting to be done.</li> </ol>										
02.b	AP fan components like Servomotor assy, Shaft with bearing assy	Power tool cleaning to St-3 (SSPC SP3)	Epoxy based zinc phosphate primer to IS 13238	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60

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Sl no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
03	<b>Components in Air/ Gas and under insulation</b>									
03.a	Suction chamber, diffuser, housing, OGV, Spiral casing, damper, IG, RVC, impeller, shaft (56-1XX,56-2XX, 56-3XX, 56-4XX) Silencer (55-9XX, 56-9XX)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60
03.b	AP fan impeller (55-2XX, 55-3XX)	Power tool cleaning to St-3 (SSPC SP3)	Epoxy based zinc phosphate primer to IS 13238	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60
04	Journal area of shaft (55-1XX, 56-1XX, 55-2XX, 56-2XX, 55-3XX, 56-3XX, 56-4XX)- Refer PRQA 341/ Latest									
05	All machined surfaces shall be applied with rust preventive.									
<b>D</b>	<b>ELECTROSTATIC PRECIPITATOR</b>									
01	GD drive arrangement (7X X10), Drive arrangement for emitting system (7X X17), Inspection doors (7X X23), Drive arrangement for CE rapping (7XX26), Outer roof (7X X42), ESP Penthouse other items (7XX55), ESP test equipment (7XX61), Water washing system (7X X66), Tools & Tackles (7X 996), Lifting beam (7X X20)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	01/ DFT=30 $\mu$ / coat	--	--	Synthetic Enamel paint to IS 2932	02/ DFT= 20 $\mu$ / coat;  Total 40 $\mu$	Smoke grey Shade 692 of IS 5	70



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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
02	ESP Penthouse columns & Trusses (7X-X55), ESP columns (7X X81), Hopper approach platform (7X X65)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Epoxy based Zinc phosphate primer to IS 13238 (Latest)	01/ DFT= 30 $\mu$ m	Epoxy based MIO pigmented intermediate coat	01/ DFT= 75 $\mu$ m	Epoxy based polyamide cured finish paint to IS 14209 (Latest) + Aliphatic acrylic polyurethane paint to IS 13213 (Latest)	01/ DFT= 30 $\mu$ m	Smoke grey Shade 692 of IS 5	165
		Columns below 0.0 level- Chlorinated rubber based zinc phosphate primer to 50 $\mu$ m (min) to be applied.								
03	Stringer and guard plates (8X 610), Hand rails, post, step treads, Floor grills (8X 611,612,613)	Hot dip galvanizing to a coating weight of 610gm per sq. m (minimum) and to a coating thickness of 85 microns (minimum)								

SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
04	Insulator housing assy (7X X06), Gas distribution assy (7X X08), GD rapping mechanism (7X X09), Gas screening (7X X11), Emitting system suspension (7X X13), Emitting Electrode rapping (7X X16), Suspension arrangement for CE (7X X19), Frame of Emitting system Top, middle & bottom (7X	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60



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X21, X22, X32), shock bars(7X X24), CE rapping mechanism (7X X25), contd... Contd... Ridges (7X X43), Hopper upper, lower & middle part (7X X44, X45), Insulator support panel (7X X46), Roof panel assy (7X X47) Casing structure (7X X28, X48), Casing shell (7X X49, ESP funnel (7X X50), Splitter & Guide vane (7X X57)									
--	--	--	--	--	--	--	--	--	--

SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
05	EE (7X X15) (EE hook), EE suspension hook (7X X13), CE (7X X20), CE suspension hook (7X X19), Foundation material for ESP structures & ducts (7X X80)	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
<b>E</b>	<b>GATES AND DAMPERS</b>									
01	Gates and Damper Temperature $\leq 95^{\circ}\text{C}$ (57-0XX, 57-1XX)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	01/ DFT= 30 $\mu$ / coat	--	--	Synthetic Enamel paint to IS 2932	02/ DFT= 20 $\mu$ / coat;  Total 40 $\mu$	Smoke grey Shade 692 of IS 5	70
02	Gates and Damper Temperature $\geq 95^{\circ}\text{C}$ (57-2XX, 57-3XX, 57-4XX, 57-6XX)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60



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03	Gates blades, Machined components of G&D	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
<b>F</b>	<b>CHIMNEY</b>									
01	Foundation bolt (87010)	Power tool cleaning to St-3 (SSPC SP3)	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
02	Shells- Inside and Uninsulated side, base plate (87 100)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Heat resistant aluminium paint as per IS 13183 (Gr I- Upto 600°C, Gr II- 200°C to 400°C Gr. III- Upto 200°C)	02/ DFT= 20 $\mu$ / coat	--	--	--	--	--	40
03	Ducts uninsulated, Strakes, (87150), Painter trolley (87200)	Power tool cleaning to St-3 (SSPC SP3)	Heat resistant aluminium paint as per IS 13183 (Gr I- Upto 600°C, Gr II- 200°C to 400°C Gr. III- Upto 200°C)	02/ DFT= 20 $\mu$ / Coat	--	--	--	--	--	40
04	Shells- Outside insulated (87100), Ducts- Insulated (87150)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60
05	Ladders, Hand rails, Floor grills. Platforms (87300)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	01/ DFT= 30 $\mu$ / coat	--	--	Synthetic Enamel paint to IS 2932	02/ DFT= 20 $\mu$ / coat; Total 40 $\mu$	Smoke grey Shade 692 of IS 5	70

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**SECTION –II**

**PART- II**

**STANDARD PAINTING SCHEME FOR COASTEL/ REFINERY ENVIRONMENT**

SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
<b>A</b>	<b>REGENERATIVE AIR PRE- HEATERS</b>									
01	Heating element baskets (without elements) 52010, 024, 025	Power tool cleaning to ST- 3 (SSPC SP3)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60
02	Heating element baskets (with elements) 52010, 024, 025	--	Temporary rust preventive oil non dry type (*) (Dipping)	--	--	--	--	--	--	--
03	Rotor post assembly machined items of (52011), Pin rack assembly (52012), Seals (52013, 52054, 52055), sector plates (52041, 52042) and machined components of APH	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
04	<b>Components in flue gas path and insulated</b> Rotor post assy (52011), T bars (52013), Rotor housing assy (52030), Hot and cold connecting plate assy (52041,52042)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60

(\*) Specification as per PRQA 522/ Rev 00

(\*\*) Specification as per PRQA 523/ Rev 00; For CE coil- TEP/AQCS/RP (Latest)



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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
05	<b>Components exposed to atmosphere</b> Rotor drive assy (52100), Access door (52220), Air seal piping (52211), observation port other than glass part (52220), Rotor stoppage alarm other than aluminium (52220), Loose items of air receiver (52220), Guide bearing assy (52261), Support bearing assy (52262), Oil piping GB, SB (52271, 52272), Oil circulation unit (52274), Deluge and wash pipe assy (52301, 52302), Cleaning device assy (52339, 52340), Thermocouple pipe assy other than SS	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 75 $\mu$ m/ coat	Epoxy based MIO/TiO <sub>2</sub> pigmented intermediate coat	01/ DFT= 75 $\mu$ m/ coat	Epoxy based polyamide cured finish paint to IS 14209 (Latest)	01/ DFT= 75 $\mu$ m/ coat	Smoke grey Shade 692 of IS 5	225
<b>B</b>	<b>TUBULAR AIR PRE-HEATER</b>									
01	Side walls (external surfaces and internal surfaces)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60

Part- II contd....



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Sl no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
02	Machined surfaces, tubes of TAPH, tube plates and intermediate plates	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
<b>C</b>	<b>FANS</b>									
01	Foundation materials 550XX, 560XX (Threaded portion)	Power tool cleaning to St-3 (SSPC SP3)	Temporary rust preventive oil	40	--	--	--	--	--	--
				Other areas except threaded portion- Red oxide Zinc phosphate primer to IS 12744, DFT- 30 $\mu$						
02	<b>Components exposed to atmosphere</b>									
02.a	Bearing pedestals, Base frame, servomotor assy, shaft with bearing assy, OGV, IGV (55-1XX, 55-2XX, 55-3XX, 55-5XX, 55-6XX, 56-4XX) Bearing pedestals, Base frame, shaft with bearing assy, RVC, IGV, Support for seal, shaft protecting tube, Spiral casing (if no insulation is applicable), Damper (56-1XX, 56-2XX, 56-3XX, 56-4XX) Coupling guard (56-8XX, 55-8XX), Tools (56-000, 55-000)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	01/ DFT=30 $\mu$ / coat	--	--	Synthetic Enamel paint to IS 2932	02/ DFT= 20 $\mu$ / coat;  Total 40 $\mu$	Smoke grey Shade 692 of IS 5	70
<p align="center">General notes for Sl no: 02.a &amp; 02.b for C. Fans</p> <ol style="list-style-type: none"> <li>As a assy, no blasting to be done for servomotor assy &amp; shaft with bearing assy.</li> <li>Before assy, all external un-machined surfaces of bearing housing/ cylinder to be painted.</li> <li>AP impeller painting to be done before assembly except oil chamber area &amp; mating component contact area.</li> <li>After SR/ Before machining, blasting and primer painting to be done.</li> </ol>										
02.b	AP fan components like Servomotor assy, Shaft with bearing assy	Power tool cleaning to St-3 (SSPC SP3)	Epoxy based zinc phosphate primer to IS 13238	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60

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Sl no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
03	<b>Components in Air/ Gas and under insulation</b>									
03.a	Suction chamber, diffuser, housing, OGV, Spiral casing, damper, IGV, RVC, impeller, shaft (56-1XX,56-2XX, 56-3XX, 56-4XX)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60
03.b	Silencer (55-9XX, 56-9XX)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 75 $\mu$ m/ coat	Epoxy based MIO/TiO <sub>2</sub> pigmented intermediate coat	01/ DFT = 75 $\mu$ m/ coat	Epoxy based polyamide cured finish paint to IS 14209 (Latest)	01/ DFT= 75 $\mu$ m / coat	Smoke grey Shade 692 of IS 5	225
03.c	AP fan impeller (55-2XX, 55-3XX)	Power tool cleaning to St-3 (SSPC SP3)	Epoxy based zinc phosphate primer to IS 13238	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60
04	Journal area of shaft (55-1XX, 56-1XX, 55-2XX, 56-2XX, 55-3XX, 56-3XX, 56-4XX)- Refer PRQA 341/ Latest									
05	All machined surfaces shall be applied with rust preventive.									
<b>D</b>	<b>ELECTROSTATIC PRECIPITATOR</b>									
01	ESP Penthouse other items (7XX55), Water washing system (7X X66), Tools & Tackles (7X 996), Lifting beam (7X X20) Ridges (7X X43), Hopper upper, lower & middle part (7X X44, X45)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	01/ DFT= 30 $\mu$ / coat	--	--	Synthetic Enamel paint to IS 2932	02/ DFT= 20 $\mu$ / coat; Total 40 $\mu$	Smoke grey Shade 692 of IS 5	70

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Insulator support panel (7X X46), Roof panel assy (7X X47) contd... Contd... Casing structure (7X X28, X48), Casing shell (7X X49, ESP funnel (7X X50), Splitter & Guide vane (7X X57)										
--	--	--	--	--	--	--	--	--	--	--

SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
02	GD drive arrangement (7X X10), Drive arrangement for emitting system (7X X17), Inspection doors (7X X23), Drive arrangement for CE rapping (7XX26), Outer roof (7X X42)ESP Penthouse columns & Trusses (7X-X55), ESP columns (7X X81), ESP test equipment (7XX61), Hopper approach platform (7X X65),	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 30 $\mu$ m/ coat	Epoxy based MIO/TiO <sub>2</sub> pigmented intermediate coat	01/ DFT= 75 $\mu$ m/ coat	Epoxy based polyamide cured finish paint to IS 14209 (Latest) + Aliphatic acrylic polyurethane paint to IS 13213 (Latest)	01/ DFT= 30 $\mu$ m/ coat	Smoke grey Shade 692 of IS 5	165
<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;">           ESP columns- Below 0.0 level- Two coats of primer as mentioned above shall be applied since this item will be embedded inside the concrete pedestal.         </div>										
03	Stringer and guard plates (8X 610), Hand rails, post, step treads, Floor grills (8X 611,612,613),	Hot dip galvanizing to a coating weight of 610gm per sq. m (minimum) and to a coating thickness of 85 microns (minimum)								

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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
04	Insulator housing assy (7X X06), Gas distribution assy (7X X08), GD rapping mechanism (7X X09), Gas screening (7X X11), Emitting system suspension (7X X13), Emitting Electrode rapping (7X X16), Suspension arrangement for CE (7X X19), Frame of Emitting system Top, middle& bottom (7X X21, X22, X32), shock bars(7X X24), CE rapping mechanism (7X X25)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60

SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
05	EE (7X X15) (EE hook), EE suspension hook (7X X13), CE (7X X20), CE suspension hook (7X X19), Foundation material for ESP structures & ducts (7X X80)	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
<b>E</b>	<b>GATES AND DAMPERS</b>									
01	Gates and Damper Temperature $\leq 95^{\circ}\text{C}$	Blast cleaning to	Inorganic Ethyl zinc	01/	--	--	Epoxy based	01/	Smoke grey	160



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(57-0XX, 57-1XX)	near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50µm	silicate primer to IS 14946 (Latest)	DFT= 80µm/ coat			polyamide cured finish paint to IS 14209 (Latest)	DFT= 80µm/ coat	Shade 692 of IS 5	
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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT µ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
02	Gates and Damper Temperature > 95°C (57-2XX, 57-3XX, 57-4XX, 57-6XX)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50µm	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 80µm/ coat	--	--	Heat resistant aluminium paint as per IS 13183 (Gr I- Upto 600°C)	02/ DFT= 20µ/ coat	Aluminium	120
03	Gates blades, Machined components of G&D	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
<b>F</b>	<b>CHIMNEY</b>									
01	Foundation bolt (87010)	Power tool cleaning to St-3 (SSPC SP3)	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
02	Shells- Inside and Uninsulated side, base plate (87 100)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50µm	Heat resistant aluminium paint as per IS 13183 (Gr I- Upto 600°C, Gr II- 200°C to 400°C Gr. III- Upto 200°C)	02/ DFT= 20µ/ coat	--	--	--	--	--	40
03	Ducts uninsulated, Strakes, (87150), Painter trolley (87200)	Blast cleaning to near white metal Sa 2½	Heat resistant aluminium paint as per IS 13183	02/ DFT= 20µ/ Coat	--	--	--	--	--	40



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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/DFT	Paint	No of coats	Paint	No of coats	Shade	
04	Shells- Outside insulated (87100), Ducts- Insulated (87150)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60
05	Ladders, Hand rails, Floor grills. Platforms (87300)	Hot dip galvanizing to a coating weight of 610gm per sq. m (minimum) and to a coating thickness of 85 microns (minimum)								

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**SECTION –II**

**PART- III**

**STANDARD PAINTING SCHEME FOR EXPORT CONTRACTS**

SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
<b>A REGENERATIVE AIR PRE- HEATERS</b>										
01	Heating element baskets (without elements) 52010, 024, 025	Power tool cleaning to ST- 3 (SSPC SP3)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60
02	Heating element baskets (with elements) 52010, 024, 025	--	Temporary rust preventive oil non dry type (*) (Dipping)	--	--	--	--	--	--	--
03	Rotor post assembly machined items of (52011), Pin rack assembly (52012), Seals (52013, 52054, 52055), sector plates (52041, 52042) and machined components of APH	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
04	<b>Components in flue gas path and insulated</b> Rotor post assy (52011), T bars (52013), Rotor housing assy (52030), Hot and cold connecting plate assy (52041,52042)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60

(\* ) Specification as per PRQA 522/ Rev 00 (\*\* ) Specification as per PRQA 524/ Rev 00 (Sea worthy rust preventive oil); CE coil- TEP/AQCS/RP (Latest)



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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
05	<b>Components exposed to atmosphere</b> Rotor drive assy (52100), Access door (52220), Air seal piping (52211), observation port other than glass part (52220), Rotor stoppage alarm other than aluminium (52220), Loose items of air receiver (52220), Guide bearing assy (52261), Support bearing assy (52262), Oil piping GB, SB (52271, 52272), Oil circulation unit (52274), Deluge and wash pipe assy (52301, 52302), Cleaning device assy (52339, 52340), Thermocouple pipe assy other than SS	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 75 $\mu$ m/ coat	Epoxy based MIO/TiO <sub>2</sub> pigmented intermediate coat	01/ DFT= 75 $\mu$ m/ coat	Epoxy based polyamide cured finish paint to IS 14209 (Latest)	01/ DFT= 75 $\mu$ m/ coat	Smoke grey Shade 692 of IS 5	225
<b>B</b>	<b>TUBULAR AIR PRE-HEATER</b>									
01	Side walls (external surfaces and internal surfaces)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60

Part- III contd....

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Sl no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
02	Machined surfaces, tubes of TAPH, tube plates and intermediate plates	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
<b>C</b>	<b>FANS</b>									
01	Foundation materials 550XX, 560XX (Threaded portion)	Power tool cleaning to St-3 (SSPC SP3)	Temporary rust preventive oil	40	--	--	--	--	--	--
				Other areas except threaded portion- Red oxide Zinc phosphate primer to IS 12744, DFT- 30 $\mu$						
02	<b>Components exposed to atmosphere</b>									
02.a	Bearing pedestals, Base frame, servomotor assy, shaft with bearing assy, OGV, IGV (55-1XX, 55-2XX, 55-3XX, 55-5XX, 55-6XX, 56-4XX) Bearing pedestals, Base frame, shaft with bearing assy, RVC, IGV, Support for seal, shaft protecting tube, Spiral casing (if no insulation is applicable), Damper (56-1XX, 56-2XX, 56-3XX, 56-4XX) Coupling guard (56-8XX, 55-8XX), Tools (56-000, 55-000)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT=80 $\mu$ / coat	--	--	Epoxy based polyamide cured finish paint to IS 14209 (Latest)	01/ DFT= 80 $\mu$ m/ coat	Smoke grey Shade 692 of IS 5	160
<p style="text-align: center;">General notes for Sl no: 02.a &amp; 02.b for C. Fans</p> <ol style="list-style-type: none"> <li>5) As a assy, no blasting to be done for servomotor assy &amp; shaft with bearing assy.</li> <li>6) Before assy, all external un-machined surfaces of bearing housing/ cylinder to be painted.</li> <li>7) AP impeller painting to be done before assembly except oil chamber area &amp; mating component contact area.</li> <li>8) After SR/ Before machining, blasting and primer painting to be done.</li> </ol>										
02.b	AP fan components like Servomotor assy, Shaft with bearing assy	Power tool cleaning to St-3 (SSPC SP3)	Epoxy based zinc phosphate primer to IS 13238	02/ DFT=30 $\mu$ / coat	--	--	--	--	--	60

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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
03	<b>Components in Air/ Gas and under insulation</b>									
03.a	Suction chamber, diffuser, housing, OGV, Spiral casing, damper, IGV, RVC, impeller, shaft (56-1XX, 56-2XX, 56-3XX, 56-4XX)	Commercial blast cleaning (Sa 2) (SSPC SP6)	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60
03.b	Silencer (55-9XX, 56-9XX)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 75 $\mu$ m/ coat	Epoxy based MIO/TiO <sub>2</sub> pigmented intermediate coat	01/ DFT = 75 $\mu$ m/ coat	Epoxy based polyamide cured finish paint to IS 14209 (Latest)	01/ DFT= 75 $\mu$ m / coat	Smoke grey Shade 692 of IS 5	225
03.c	AP fan impeller (55-2XX, 55-3XX)	Power tool cleaning to St-3 (SSPC SP3)	Epoxy based zinc phosphate primer to IS 13238	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60
04	Journal area of shaft (55-1XX, 56-1XX, 55-2XX, 56-2XX, 55-3XX, 56-3XX, 56-4XX)- Refer PRQA 341/ Latest									
05	All machined surfaces shall be applied with rust preventive.									
<b>D</b>	<b>ELECTROSTATIC PRECIPITATOR</b>									
01	ESP Penthouse other items (7XX55), Water washing system (7X X66), Tools & Tackles (7X 996), Lifting beam (7X X20) Ridges (7X X43), Hopper upper, lower & middle part (7X X44, X45) Insulator support panel (7X X46),	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT= 30 $\mu$ / coat	--	--	Synthetic Enamel paint to IS 2932	02/ DFT= 20 $\mu$ / coat;  Total 40 $\mu$	Smoke grey Shade 692 of IS 5	100

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Roof panel assy (7X X47) contd... Contd... Casing structure (7X X28, X48), Casing shell (7X X49, ESP funnel (7X X50), Splitter & Guide vane (7X X57)										
---	--	--	--	--	--	--	--	--	--	--

Sl no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
02	GD drive arrangement (7X X10), Drive arrangement for emitting system (7X X17), Inspection doors (7X X23), Drive arrangement for CE rapping (7XX26), Outer roof (7X X42)ESP Penthouse columns & Trusses (7X-X55), ESP columns (7X X81), ESP test equipment (7XX61), Hopper approach platform (7X X65),	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 75 $\mu$ m/ coat	Epoxy based MIO/TiO <sub>2</sub> pigmented intermediate coat	01/ DFT= 75 $\mu$ m/ coat	Epoxy based polyamide cured finish paint to IS 14209 (Latest) + Aliphatic acrylic polyurethane paint to IS 13213 (Latest)	02/ DFT= 35 $\mu$ m/ coat  01/ DFT= 30 $\mu$ m/ coat	Smoke grey Shade 692 of IS 5	250
<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;">           ESP columns- Below 0.0 level- Two coats of primer as mentioned above shall be applied since this item will be embedded inside the concrete pedestal.         </div>										
03	Stringer and guard plates (8X 610), Hand rails, post, step treads, Floor grills (8X 611,612,613),	Hot dip galvanizing to a coating weight of 610gm per sq. m (minimum) and to a coating thickness of 85 microns (minimum)								

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			Paint	No of coats/DFT	Paint	No of coats	Paint	No of coats	Shade	
04	Insulator housing assy (7X X06), Gas distribution assy (7X X08), GD rapping mechanism (7X X09), Gas screening (7X X11), Emitting system suspension (7X X13), Emitting Electrode rapping (7X X16), Suspension arrangement for CE (7X X19), Frame of Emitting system Top, middle & bottom (7X X21, X22, X32), shock bars (7X X24), CE rapping mechanism (7X X25)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Red oxide zinc phosphate primer (Alkyd base) to IS 12744	02/ DFT= 30 $\mu$ / coat	--	--	--	--	--	60

SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/DFT	Paint	No of coats	Paint	No of coats	Shade	
05	EE (7X X15) (EE hook), EE suspension hook (7X X13), CE (7X X20), CE suspension hook (7X X19), Foundation material for ESP structures & ducts (7X X80)	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
<b>E</b>	<b>GATES AND DAMPERS</b>									
01	Gates and Damper Temperature $\leq 95^{\circ}\text{C}$ (57-0XX, 57-1XX)	Blast cleaning to near white metal Sa 2½	Inorganic Ethyl zinc silicate	01/ DFT= 80 $\mu$ m/ coat	--	--	Epoxy based polyamide cured	01/ DFT= 80 $\mu$ m/ coat	Smoke grey	160



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		(SSPC SP10) Surface profile of 35-50µm	primer to IS 14946 (Latest)				finish paint to IS 14209 (Latest)		Shade 692 of IS 5	
--	--	--	-----------------------------	--	--	--	-----------------------------------	--	-------------------	--

SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT µ (min)
			Paint	No of coats/DFT	Paint	No of coats	Paint	No of coats	Shade	
02	Gates and Damper Temperature > 95°C (57-2XX, 57-3XX, 57-4XX, 57-6XX)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50µm	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/DFT= 80µm/coat	--	--	Heat resistant aluminium paint as per IS 13183 (Gr I-Upto 600°C)	02/DFT= 20µ/coat	Aluminium	120
03	Gates blades, Machined components of G&D	--	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40



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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/DFT	Paint	No of coats	Paint	No of coats	Shade	
<b>F</b>	<b>CHIMNEY</b>									
01	Foundation bolt (87010)	Power tool cleaning to St-3 (SSPC SP3)	Temporary rust preventive oil dry type (**)	40	--	--	--	--	--	40
02	Shells- Inside and Uninsulated side, base plate (87 100)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 80 $\mu$ m/ coat	--	--	Heat resistant aluminium paint as per IS 13183 (Gr I- Upto 600°C, Gr II- 200°C to 400°C Gr. III- Upto 200°C)	02/ DFT= 20 $\mu$ / coat	Aluminium	120
03	Ducts uninsulated, Strakes, (87150), Painter trolley (87200)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 80 $\mu$ m/ coat	--	--	Heat resistant aluminium paint as per IS 13183 (Gr I- Upto 600°C, Gr II- 200°C to 400°C Gr. III- Upto 200°C)	02/ DFT= 20 $\mu$ / coat	Aluminium	120

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SI no	PGMA/Description	Surface preparation & surface profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu$ (min)
			Paint	No of coats/ DFT	Paint	No of coats	Paint	No of coats	Shade	
04	Shells- Outside insulated (87100), Ducts- Insulated (87150)	Blast cleaning to near white metal Sa 2½ (SSPC SP10) Surface profile of 35-50 $\mu$ m	Inorganic Ethyl zinc silicate primer to IS 14946 (Latest)	01/ DFT= 80 $\mu$ m/ coat	--	--	Heat resistant aluminium paint as per IS 13183 (Gr I- Upto 600°C, Gr II- 200°C to 400°C Gr. III- Upto 200°C)	02/ DFT= 20 $\mu$ / coat	Aluminium	120
05	Ladders, Hand rails, Floor grills. Platforms (87300)	Hot dip galvanizing to a coating weight of 610gm per sq. m (minimum) and to a coating thickness of 85 microns (minimum)								

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## ANNEXURE I

### NOTES FOR PAINTING SCHEME PART I, II& III

1. This painting scheme covers a comprehensive list of PGMAs being used in 125 to 800MW in an effort to standardize the painting scheme. Therefore, entire list of PGMAs will not be applicable for any specific project and only those PGMAs applicable for the project may be used, while choosing the painting scheme applicable.
2. Rust preventive coating should be given on HSFG bolt and nut threads and inside surfaces of fabricated structure shall be painted with red oxide primer paint during fitup stage.
3. All threaded & machined surfaces are to be applied with a coating of Temporary Rust preventive oil.
4. All surfaces of foundation materials, insulation pins, Anchor channels, Sleeves Splice/ cover plate/ gusset plate and metal contact area usually bolted at site to enhance the load transfer by friction grip shall be coated with temporary rust preventive fluid and during execution of civil works; the dried film coating shall be removed using organic solvents.
5. PGMAs under sub vendor items are not indicated. Please refer respective Engineering document for all sub-vendor items. Whenever it is not specified, it shall be as per the painting scheme of the applicable PGMA.
6. No painting is required for Aluminium, Stainless steel components and galvanized items. Abrasive blast cleaning to SSPC – SP 6 (Sa 2) grade shall be done on any damaged painting area. This repair is not applicable to inorganic ethyl zinc silicate painted component.
7. The Temporary rust preventive coating that has already been applied on any component, tubes, pipes etc shall be visually inspected for good adherence. If the coating is intact, direct coating of alkyd based red oxide paints over the coating is permitted. In case the coating is peeled off over a large area, then the coating is to be removed by suitable solvents/ heating to 350- 400 deg C for an hour before primer paint application- but in this case, it should be ensured that the minimum surface cleanliness required for primer paint application shall be SSPC – SP2 (equivalent- Hand tool cleaning)
8. All currently active PGMAs are covered. Requirements for Missing / new PGMAs will be included under the relevant section following the appropriate paint logic.
9. Ground shade/ color finish paints & identification tag/ band for equipments, supporting structures and other components shall be followed as per tender.
10. In components, wherever plate/ sheets of thickness less than or equal to 4mm, tubes/ rods are used, power/ hand tool cleaning to SSPC- SP3/ SSPC-SP 2 shall be followed and the painting shall be done as per SL no: D/01 of PRQA:590- Section II A/B/C. For all commissioning components- erection materials two coats of Red oxide Zinc phosphate primer shall be applied to meet the temporary protection till erection, after power tool cleaning.
11. Touch-up painting of damaged areas shall be carried out as per clause applicable painting scheme.
12. Structural members having welded connections at site, relevant area can be painted with primer paint instead of weldable primer.
13. This painting scheme is the final document and it overwrites any other document indicating painting/ coating schemes. The component not covered in approved painting scheme, this is the document to decide the type of paint application.
14. All components covered under different PGMAs are to be painted. In case any component is left out, the same shall be deemed to be included under relevant section.

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## ANNEXURE II

### INSPECTION & TESTING PLAN FOR SURFACE PREPARATION, PAINTING

SL NO	COMPONENT/ OPERATION	CHARACTERISTICS	CL	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOC/ ACCEPTANCE NORM	TYPE OF RECORD	AGENCY			REMARKS
								M	C		
1.0	Surface preparation for plates/ rolled sections/ components										
1.1	Raw material	Rust, pitting	B	Visual	100%	Note 1	R	P	V	-	
1.2	Blasting media	Type of quality of abrasives	B	Random sample test	Abrasive quality for each lot	Note 1a	R	P	V	-	
1.2.1	Blasting/ Power tool cleaning	Surface roughness/ cleanliness	A	Visual, Measurement	100% 10 spots/ sq.m	Surface profile as per approved painting scheme, Note 2	R	P	W	-	
		Profile defects	B	Visual	100%	Note 3	R	P	W		
1.2.2	Substrate dust contamination (for blasting)	Adhesive Tape test	B	Measurement	Two spots/ component	Note 4	R	P	W	-	Randomly selected 10X magnifier, Transparent adhesive tape 25mm width
1.2.3	Substrate chemical contamination (for blasting)	Surface contamination test	B	Measurement	One test/ abrasive lot used	SSPC SP 12 Chloride <15µg/cm <sup>2</sup> (PPM) Sulphate <20 PPM	R	P	W	-	Any suitable method to identify salt contamination
1.2.4	Substrate-coating conditions	Flash rusting steel temperature environmental condition	A	Visual Measurement	100% One spot/ Lot	Note 5	R	P	V	-	
2.0	In process Painting										
2.1	Paint	Physical & Chemical	A	Review of documents	100%	Invoice/ data sheet	TC	P	V	-	Physical verification of shade, batch no, date of manufacture, supplier approval status
2.2	Mixing (Two pack system)	Mixing ratio & Durations	B	Documents	100%	Painting data sheet Note 6	R	P	V	-	Electrical/ pneumatic agitator



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SL NO	COMPONENT/ OPERATION	CHARACTERISTICS	CL	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOC/ ACCEPTANCE NORM	TYPE OF RECORD	AGENCY			REMARKS
								M	C		
2.2.1	Filtering	Free from foreign particle	B	Documents	100%	Use sieves 80-100 microns	R	P	V	-	Nylon mesh or muslin cloth
2.2.2	Paint testing	Physical & chemical properties	C	Lab test	Random	Supplier TC/ Data sheet/ IS specifications	R	P	W		Sample collected at each vendor at regular intervals as advised by BHEL shall be sent to BHEL/ NABL accredited lab
2.2.3	Painting	Personnel qualification	C	Review of documents	100%	In line with this PRQA- Annexure III  Certification by reputed institution or by an Expert. (NACE/SSPC/ Level II)	R	V	V		
		Inspection personnel	C				R	V	V		
2.3	Airless/ Air spray	Spray process pot life	B	Documents	100%	Supplier manual  Tip selections, Note 7	R	V	V		
							R	P	V		
2.4	Coating thickness & coating intervals	Wet film, Dry film thickness	B	Measurement	100%	SSPC- PA 2 Note 8	R	P	V		
		Intervals	B	Documents	100%	Painting data sheet/specification	R	P	V		Min: 24 hrs or as per paint specification / data sheet
3.0	Final Testing										
3.1	Peel off test Cross cut/ X-cut	Adhesive strength between substrate & primer and subsequent over coats	A	Test on each coat: Primer, Intermediate & final coat	3 spots	ASTM D3559-7 Note 9	R	P	W		4x magnifier lens, 25mm width pressure sensitive tape (P99), cutting edges with template

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SL NO	COMPONENT/ OPERATION	CHARACTERISTICS	CL	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOC/ ACCEPTANCE NORM	TYPE OF RECORD	AGENCY			REMARKS
								M	C		
3.2	Final Inspection	Dry film thickness	A	Document	15 spots/ sq.m	Approved painting scheme, SSPC PA 2	R	P	W		
		Finish, shade and paint defect	A	Visual	100%	Note 8	R	P	W		Use of shade card

### NOTE- 1: Rust Grade

As per ISO 8501-1, rust and painting are graded into four categories as A, B, C & D. Rust and pitting shall be removed by competent process prior to application of primer. Pitted area shall be cleaned by blasting/ power tool cleaning/ grinding provided thickness shall be met to the design requirement. Plates/ components identified under heavy pitted category C or D, acceptance/rejection reserved to QC/ BHEL.

### NOTE- 1a: Blasting media

Blasting media shall be copper slag, iron slag, steel shots/ grits & aluminum oxide. The abrasive used for blasting process shall be within chemical contaminations chloride <15ppm and sulphate <20ppm. Mixing ratio of shots/ grits (generally 3:1) shall meet the surface roughness 35-50 microns after blasting. Blasting media shall be suitably sieved to get the required particle size 0.5 to 1.0mm. (Steel shots ASTM G40/G80)

### NOTE- 2: Blast cleaning

- a) Air quality must be checked before start of blasting process by blotter test
- b) Surface finish: The blasted surface shall meet the SSPC- SP10 (SA 2.5) finish near white metal. Surface roughness shall be checked in 10 spots/Sq.m. Digital/ Analog instrument duly calibrated shall be used to measure the surface roughness. Power tool cleaned surface shall be met to SSPC- SP3. Blasting/ power tool cleaned surface shall be met as per ISO 8501-1 requirement.
- c) Surface roughness: Average value shall be 35-50 microns for blast cleaned surface.
- d) Blasting: Shall not be done during rainy/ mist seasons where relative humidity is more than 80%.
- e) Optimum blasting pressure and nozzle size (straight bore or venturi type) to get required surface roughness (90-100psi for mineral abrasives and 120-125 psi for metallic abrasives, standing distance 12-18 inches and standing angle 80-90 deg. for full blasting, sweep blast 45-60 deg. with respect to the substrate).

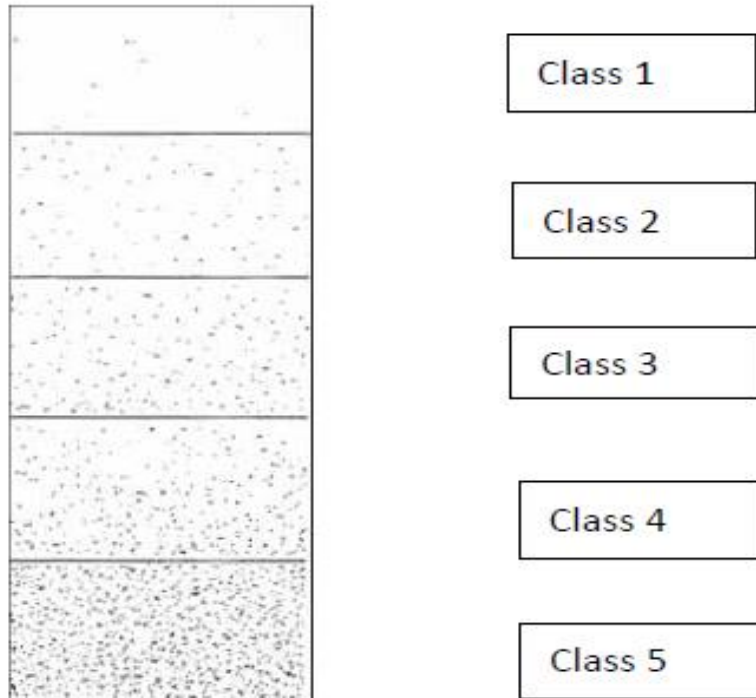
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**NOTE- 3: Profile defects**

- a) Surface shall be visually checked and free from defects such as rust, dust, grease, oil, sharp corner/edges, rolling imperfection/ overlap, vein, undulations, mill scales, improper weld beads/ shapes/ undercuts, weld slag, spatters etc.
- b) Sharp corner/edges shall be ground off to radius 1.5 to 2mm and blunted. Other profile defects if any shall be ground/chipped out/ repaired by suitable means

**NOTE- 4: Dust**

A transparent adhesive tape test shall be conducted on substrate to ensure cleanliness of the substrate and same shall meet the class 1 requirement.



**NOTE- 5: Coating conditions**

- a) Abrasive media used for blasting shall be free from moisture and other contaminations.
- b) Flash rusting if any shall be removed by sweep blasting

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- c) Primer paint shall be applied immediately or within 4 hours in case of blast cleaning and within 8 hours in case of power tool cleaning.
- d) Painting shall not be done during rainy/ mist seasons when relative humidity is >80%.
- e) Painting shall be commenced, when the metal surface temperature is >3°C above the dew point temperature
- f) Painting shall not be done, when the steel surface temperature is >45°C.
- g) A suitable instrument duly calibrated is required to check the dew point temperature and steel surface temperature.

**NOTE- 6: Mixing**

- a) Paint mixing ratio for two packs painting system shall be done as per the painting data sheet provided by the manufacturer. Individual component shall be mixed thoroughly and then mix the component as per data sheet ratio (by volume or by weight). Blend by boxing is prohibited for inorganic zinc rich primer (ie react with moisture). Off ratio (partial ratio) blends won't cure properly.
- b) Mixing of thinner is not required for airless spray, however mixing of thinner <5% is permitted. If required add thinner after mixing of paints and mix it with homogenously.
- c) Paint mixing shall be done at least for not less than 20 minutes or as per paint data sheet with electrical/ pneumatic operated tool to achieve mixing chemically matured.
- d) Mixed paint particles shall be filtered with sieves of 80-100 microns to avoid clogging of nozzle tip. Once components are blended, pot life begins and use the mixed paint immediately as specified pot life period indicated in the data sheet.
- e) Zinc rich primers dispersed slowly in to binder and agitate slowly while mixing process.
- f) Primer, Intermediate and final coat shall be the same supplier, if any change, compatibility certificate shall be obtained from the paint supplier.

**NOTE- 7: Spray process**

- a) Painting shall be done at controlled environment only and free from dust& paint soot.
- b) When volume of solids of paint s more than 50%, airless spray shall be selected for painting application.
- c) Select proper nozzle tip size and pressure to achieve uniform DFT and less wastage.
- d) Painting shall be done within pot life period specified in the paint product data sheet, to avoid premature paint failure.
- e) Avoid arcing, tilting and maintain constant distance (12-18 inch), tip selection, tip pressure according to paint, triggering at appropriate locations and banding while painting.
- f) While painting of inorganic zinc silicate, RH shall be above 65%, if painted below RH 65% water curing is required.
- g) Top coat over and above epoxy intermediate coat shall be done within a month and proper roughness shall be created before top coat.

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**NOTE- 8: Coating Thickness**

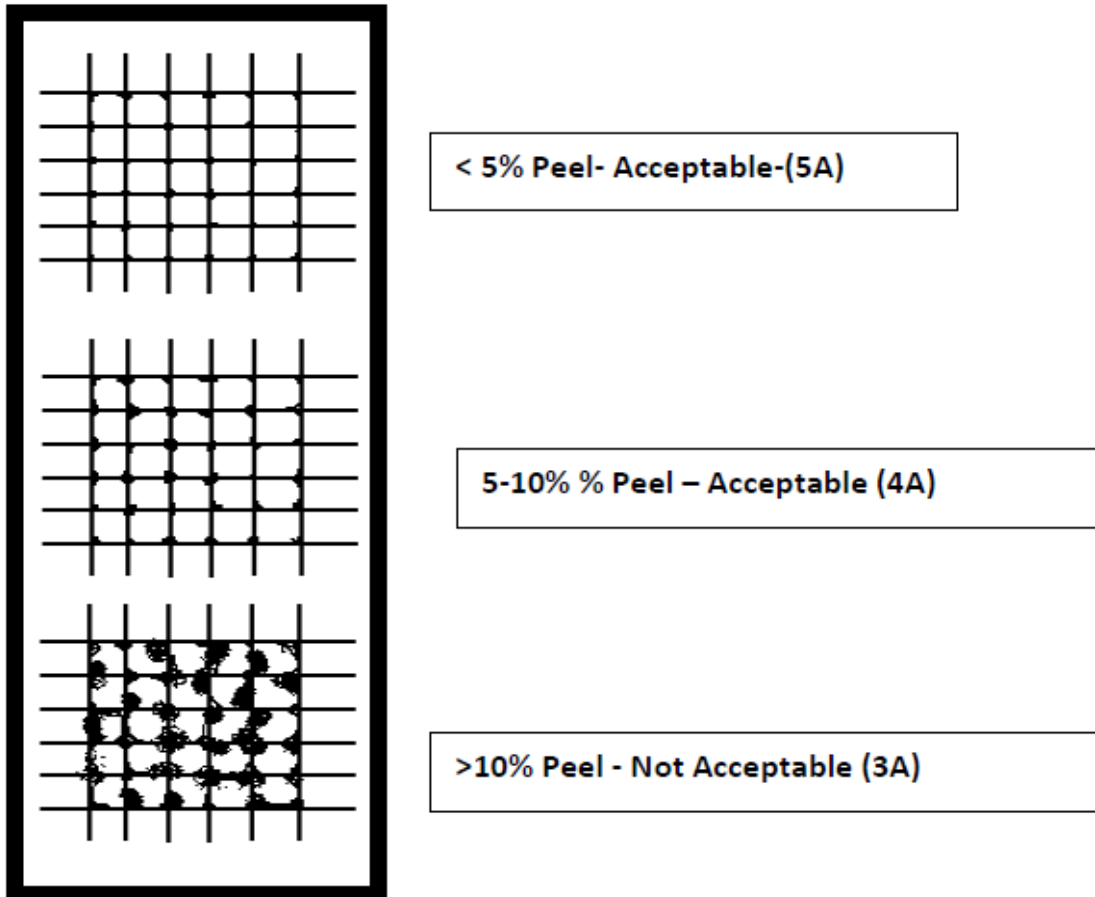
- a) Wet film thickness (WFT) shall be measured immediately after paint applications using Comb gauge/ eccentric wheel.
- b) WFT can be calculated as:  $WFT = (100 \times DFT) / VS$  where, DFT is the dry film thickness and VS= % of volume solid of supplied paint from data sheet.
- c) Dry film thickness shall be measured after hard dry condition of each coat.
- d) Dry spray/ Dust particles embedded after previous coat shall be cleaned/ removed with fine emery paper prior to application of subsequent coat. Coating thickness shall not be less than the requirement as specified in the painting scheme at any case tolerance on total DFT as specified in the applicable painting scheme shall be within -0/+20 microns or +10% of total DFT, whichever is higher.
- e) Coating thickness shall not be less than the requirement as specified in the painting scheme at any case tolerance on total DFT as specified in the applicable painting scheme shall be within -0/+20 microns as specified in the applicable painting scheme.
- f) Painted surface shall be free from paint defects namely crack, sagging, dry spray, orange peel etc.
- g) Finish and shade as per paint data sheet. A painted panel shall be made available with at works to check/ compare the painted surface.

**NOTE- 9: Peel off Test**

- a) Paint peel off test shall be done after 48 hours of painting operation, on single/ multi coated painted surface of the component for each coat.
- b) When total DFT is less than 125 microns- Cross cut method shall be followed.
- c) DFT up to 50 microns 1mm spacing with 6 cuts minimum to the length of 20mm.
- d) DFT more than 50 microns and less than 125 microns 2mm spacing with 6 cuts minimum to the length of 20mm.
- e) When total DFT is more than 125 microns- X cut method shall be followed. The smaller angle of cut shall be between 30 to 45 degrees cut to length of 40mm.
- f) For all tests, ensure that coating film has been penetrated and minimum three locations shall be tested.
- g) The adhesion test shall be conducted where the substrate temperature is below 35°C for alkyd base paints.

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**Acceptable norm for Cross cut method:**



**Acceptable norm for X cut method:**

5A- No peeling- Acceptable

4A- Trace peeling along incisions or at their intersection- Acceptable

3A- Jagged removal along incision up to 1.6mm on either side- Not acceptable

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**PAINTING INSPECTION FORMATS**

VENDOR CODE		<b>I ST VENDOR : FABRICATION/ 2 ND VENDOR BLASTING</b>						
		<b>SURFACE PREPARATION (POWER TOOL/BLASTING REPORT</b>						
PAINTING SCHEME				REPORT NO& date				
PROJECT				PO.NO.				
WO.NO.								
PRODUCT DESCRIPTION								
<b>SURFACE PREPARATION ( REF STANDARD ISO 8501)</b>								
Sieve size used and size of abrasive								
BLASTING MEDIUM USED				RAW MATERIAL RUST GRADE				
				A	B	C	D	
DU .NO	QTY	TEMPERATURE			RH	DATE	START TIME	END TIME REMARKS
		DRY BULB	WET BULB	DEW POINT				
MOISTURE CONTENT TEST FOR IF COMPRESSED AIR USED ( BLOTting PAPER CHECK )						OK / NOT OK		
SURFACE PROFILE GAUGE READING( IN MICRONS) DATE & TIME SURFACE FINESH TO SA 2.5 (SSPC SP 10)/ SURFACE CLEANLINESS FOR POWER TOOL CLEANING								
SURFACE SALT CONTAMINATION TEST(IF ANY) FOR BLASTED SURFACE				REPORT		OK / NOT OK		
DUST FREE CHECK TEST FOR BLASTED SURFACE	TAPE REPORT							
DUST FREE CHECK RESULT LEVEL FOR BLASTED SURFACE				1	2	3	4	5
Visual inspection(pitting, weld spatter/slag, rolling defects ,etc.,								
FIRM QC				TPI /BHEL QC				



**PROCEDURE FOR SURFACE PREPARATION  
& PAINTING**

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VENDOR CODE	1 <sup>ST</sup> VENDOR; FABRICATION, 2 <sup>ND</sup> VENDOR: PAINTING									
	PAINT REPORT									
PAINTING SCHEME		REPORT NO & date								
PROJECT		PO.NO.								
WO.NO.										
PRODUCT										
<b>PRIMER COAT PAINT</b>										
PAINT SPECIFICATION/STD IS No:..... /SHADE										
PAINT MANUFACTURER										
SUPPLIER/TRADER NAME										
MANUFACTURING DATE / BATCH NO. / TC No										
MIXING RATIO / TWO PART SYSTEM IF ANY										
NUMBER OF COAT										
DURATION OF MIXING (use of stirrer) DATE / TIME :										
DU NO	QTY	TEMPERATURE					DATE	START TIME	END TIME	REMARKS
		DRY BULB	WET BULB	METAL SURFACE	DEW POINT	RH				
WET FLIM THICKNESS (in microns )										
SPRAY GUN USED										
HARD DRY TIME (REQUIED)										
DFT REQUIRED										
DFT ACTUAL MEASURED (SSPC PA 2)										
Visual inspection(pitting,weld spatter/slag,rolling defects ,etc..) / paint defect										
PEAL OFF TEST(AST M- D3359)	CROSS CUT TEST DFT UP TO 50 MICRONS PITCH 1mm , cut Length 20mm					REPORT	OK / NOT OK			
	CROSS CUT TEST DFT BETWEEN 50 TO 125 MICRONS PITCH 2mm, cut length 20 mm					REPORT	OK / NOT OK			
	X CUT TEST ABOVE 125 MIC( included angle 30 to45 deg, cut length 40mm)					REPORT	OK / NOT OK			
FIRM QC						TPI /BHEL QC				

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VENDOR CODE		1ST VENDOR;FABRICATION 2ND VENDOR: PAINTING									
		PAINT REPORT									
PAINTING SCHEME		-				REPORT NO& Date					
PROJECT						PO.NO.					
WO.NO.											
PRODUCT											
INTERMEDIATE/FINAL COAT											
PAINT SPECIFICATION/ SHADE											
PAINT MANUFACTURER											
SUPPLIER/TRADER NAME											
MANUFACTURING DATE / BATCH NO. / TC No./DC											
MIXING RATIO / TWO PART SYSTEM IF ANY											
NUMBER OF COAT											
DURATION OF MIXING (use of stirrer) DATE / TIME :											
DU NO	QTY	TEMPERATURE				RH	DATE	START TIME	END TIME	REMARKS	
		DRY BULB	WET BULB	METAL SURFACE	DEW POINT						
WET FLIM THICKNESS (in microns )											
SPRAY GUN/NOZZLE NO USED											
HARD DRY TIME (REQUIRED)											
DFT REQUIRED											
DFT ACTUAL MEASURED (Not less than specified in painting scheme)											
Visual /paint defect ( if any)											
Peel of test (ASTM-D3359)	CROSS CUT TEST DFT BETWEEN 50 TO 125 MICRONS PITCH 2mm, cut length 20 mm						REPORT		OK / NOT OK		
	X CUT TEST ABOVE 125 MIC( cut included angle 30 to 45 deg, cut length 40mm)						REPORT		OK / NOT OK		
FIRM QC						TPI/BHEL QC					

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### ANNEXURE III

#### PROCEDURE FOR QUALIFICATION OF PAINTERS

##### 1.0 SCOPE

This standard describes, in general, the procedure and criteria to be followed for qualifying an operator/ painter for carrying painting work at BHEL Shop or at vendor works.

##### 2.0 OBJECTIVE:

To evolve criteria and procedure for qualification of operators/ painters.

##### 3.0 PROCEDURE:

Following procedure shall be adopted for certification of operator/ painter qualification for carrying out painting process.

- 3.1 Vendor shall initiate the format 'Record of personnel deployed for painting work' as shown in Annexure III A. This annexure is subsequently forwarded to concerned department of the unit.
- 3.2 Concern department is to forward to the reputed agency/expert having NACE/ SSPC (Level II) shall assess and certify the suitability of an operator / painter to conduct a painting process. In case, a new operator/ painter is inducted shall have experience in the painting field minimum 2 years and qualification not less than VII std, then he shall be assessed by reputed agency/expert. In case, an operator/painter does not carry out painting work for more than two years, then he shall be re-qualified and issued a certificate in line with the annexure.
- 3.3 An operator/ painter engaged in carrying special process like painting shall be re-qualified once in 3 years.
- 3.4 Following criteria have been identified and evaluated for each operator/ painter. Each criterion has been allocated 10 marks.
  - 3.4.1 Mainly, there are three types of painting processes which are being followed for carrying out painting, these are
    - Brush application
    - Air spray painting
    - Airless spray painting/ Air assisted airless spray

The operator is expected to know the basics of the above painting processes, technical details of process equipment and their salient features, awareness about Do's and Don'ts in painting work.

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### 3.4.2 Understanding of the documents/ specification

The operator/ painter should have the knowledge about surface cleaning and acceptance norms, paint systems, mixing ratio and pot life of two pack systems, drying and curing behavior, use of proper thinner, control of viscosity and its importance, over-coating interval, precautions to be observed during their use etc.

### 3.4.3 Awareness about handling of materials/ jobs

The operator/ painter is expected to have knowledge about handling of paint components like base, hardener and thinner, handling and upkeep of painting equipment, cleaning of brush, gun and other parts of equipment. He is also expected to know how to handle cleaned and painted jobs.

### 3.4.4 Performance evaluation based on job/samples

The operator / painter shall be asked to prepare the test panel/job which shall be evaluated for following parameters:

- Uniformity of coating + 10% DFT required.
- Visual defects like brush marks, wrinkles, pinholes etc.
- Surface finish, gloss
- Presence of dry spots, overflow marks

The operator/ painter shall first clean the test panels thoroughly followed by a coat of primer/ finishing paint etc, using requisite painting process , i.e., brush/ air spray/ airless spray etc. After evaluation of test panels and based on result, the marks shall be allotted. After evaluation of test panels and based on result, the marks shall be allotted.

### 3.4.5 Knowledge about safety and hygiene

Each operator/ painter is expected to know about the safety of self and surroundings, use of safety appliances, effect of solvent vapors on health etc. He is supposed to know personal hygiene as well as upkeep of painting equipment and painting area.

### 3.4.6 Classroom training

A class room training by the supplier/ expert (manufacturer like Nerolac, Berger etc) of the paint which we are procuring, must be arranged for the painters to have knowledge about the paints, enamels, coatings etc and their applications. The class room training must be arranged in local languages for understanding of the painters.

## 4.0 CERTIFICATION FOR QUALIFICATION

Each operator/ painter is evaluated for above criteria and marks are being allotted for each criterion. The operator/ painter must obtain a minimum marks 5 for each criteria and

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qualifying marks shall be 25 out of 50. The painter should pass in field/ practical test, even performed well in the written examination. The certification shall be specified in the area of type of application process as a painter is qualified. (example: airless/ spray/ pressure pot/ air spray) etc.

### **5.0 ISSUE OF CERTIFICATE**

The operator/painter who qualifies the test shall be issued a certificate in standard format shown below, which shall be kept in the concerned and certifying department/ vendor works for record. The format can be modified to suit the requirement at vendor works with prior approval from QA. This certificate shall be signed by initiating section in charge and certifying department/ reputed agency/expert

### **6.0 VALIDITY**

The validity of the certificate is for 3 years from the date of issue. The operator/ painter is required to appear for re-test to extend the validity.

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**Annexure III- A**

**RECORD OF TRAINING & QUALIFICATION FOR PERSONNEL TO BE DEPLOYED FOR  
PAINTING PROCESS**

**VENDOR NAME AND ADDRESS**

1. Name :  
2. Father's name :  
3. Date of birth/ Age :  
4. Basic Qualification :  
5. Experience in the painting field :  
  
Name of Expert trainer :  
Designation :



Date of start of training	Training subject	Faculty	Duration (Hrs.)	Certificate issued Yes/no	Remarks
	1.Painting process and Equipment		2		Issued on
	2.Painting Document/ Data sheet/Batch TC		1		Validity up to:
	3.Knowledge of paint component and mixing		1		
	4.Painting performance Evaluation on sample		2		
	5. Safety and hygiene		1		

**Marks obtained: (each section carry 10 marks)**

- 1) Knowledge of painting process and equipment : -----  
2) Understanding of documents / specification : -----  
3) Handling of components : -----  
4) Performance evaluation based on jobs/samples : -----  
5) Knowledge of safety and hygiene : -----

Qualifying marks are 25/50

Qualified for : Airless spray & air spray  
Painting System : Alkyd/ Epoxy/zinc silicate and heat Resistant based paints

Signature of  
Initiating Official

Signature of  
Certifying expert

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#### ANNEXURE IV

#### Painting Scheme- Details for procurement and application process

Sl no	Generic nature of paint	Theoretical covering capacity Sq. m per litre	No of pack	Volume solids % (min)	DFT in microns (min) per coat	Shade	Shade no to IS 5	Mode of appln	Over coating Interval hrs
01	Heat resistant Aluminium paint to IS 13183 Gr. I	10	1	--	--	Aluminium	--	Brush/Spray	24
02	Heat resistant Aluminium paint to IS 13183 Gr. II	10	1	--	--	Aluminium	--	Brush/Spray	24
03	Red oxide zinc phosphate primer to IS 12744	10	1	--	--	Red oxide	--	Brush/Spray	12
04	Epoxy Zinc rich primer to IS 14589 Gr.II	8	2	35	40	Grey	--	Spray	24
05	HB Chlorinated rubber based zinc phosphate primer	10	1	40	50	Grey	--	Brush/Spray	12
06	Epoxy based zinc phosphate primer to IS 13238	10	2	40	35	Grey	--	Spray	24
07	Inorganic Ethyl Zinc silicate to IS 14946	8	2	60	65	Grey	--	Spray	24
08	Polyamide cured Epoxy based MIO/ TiO <sub>2</sub> pigmented intermediate coat	8	2	50	75	Grey/Brown	--	Spray	16
09	Long oil alkyd synthetic enamel finish paint to IS 2932	10	1	--	--	Reqd. shade	Corrpdg. Shade no	Brush/Spray	12
10	Epoxy based polyamide cured finish paint to IS 14209	10	2	40	35	Smoke grey/ Grey white	692 RAL 9002	Spray	24
11	Aliphatic acrylic polyurethane paint to IS 13213	10	2	40	30	--	--	Spray	24

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Sl no	Generic nature of paint	Theoretical covering capacity Sq. m per litre	No of pack	Volume solids % (min)	DFT in microns (min) per coat	Shade	Shade no to IS 5	Mode of appln	Over coating Interval hrs
12	Temporary rust preventive fluid (Non- drying type) to PRQA 522 (Latest)- For APH Elements	10	1	--	--	Black	--	Dip	--
13	Temporary rust preventive fluid (Drying type) to TEP:AQCS:RP (Latest)- For CE coils	10	1	--	--	Black	--	Dip	--
14	Temporary rust preventive fluid (Drying type) to PRQA:523 (Latest) for other components	10	1	--	--	Amber	--	Brush/ Spray	12
15	Sea worthy rust preventive fluid to PRQA:524 (Latest) for other components	10	1	--	--	Amber	--	Brush/ Spray	12

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## ANNEXURE V

### GOOD PAINTING PRACTICES (DO's and DON'Ts IN PAINTING):

#### 1.0 Do's:

- a) Remember, painting is an important value adding activity. Give it all your care.
- b) Store paints in covered places. Avoid direct exposure to sunlight on paints.
- c) Ensure the validity of the shelf life of the paint before use.
- d) Roll the paint drum several times to ensure thorough mixing of the paint before use.
- e) Use proper tools to open lid of the drum.
- f) Mix the paints thoroughly to ensure homogeneity.
- g) Apply strip coat on edges, corners and weld beads.
- h) Follow instructions on the paint can or literature whenever a new scheme/ source of paint is used.
- i) Draw only the required quantity of the paint for the job and immediately recap the can.
- j) Ensure proper ratio of mixing in case of two pack system, as per norms.
- k) Use only the specified thinner prescribed by the supplier or standard.
- l) Ensure good quality of compressed air (free from moisture and oil) prior to spray painting.
- m) Use only clean/ new brushes of definite size for painting.
- n) Clean the bristles well in the thinner before they are used for the painting.
- o) Painting shall be done in a well-ventilated area/ identified area
- p) Ensure proper surface preparation as per the painting scheme.
- q) Ensure that the blasted surface be painted within 4 hours after blasting.
- r) Ensure that the surface to be painted is free from oil, grease, stay arcs, dents etc.
- s) Adhere to the number of coats shade, dry film thickness and inter-coat curing time interval as specified. Clarify with lab, if needed.
- t) Use lint free cloth/ clean wiping rags for cleaning the surfaces prior to the painting.
- u) Maintain the right distance between the surface and spray gun (6 inches to 8 inches)
- v) Ensure that the mixed paints will be used before the expiry of its pot life in case of two-pack systems.
- w) Ensure that the items to be painted are inspected and cleared by the inspection personnel concerned.
- x) Preserve the balance thinned paints in a separate closed container for future use, if they don't have any restricted pot life.
- y) Clean the brush before and immediately after painting. Keep them clean during interruptions too.

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## 2.0 Don'ts:

- a) Do not use the paint, which has crossed its expiry date.
- b) Do not draw more paint than necessary from the stores.
- c) Do not make holes in the drum to draw the paint.
- d) Do not keep the paint drum open for a long time.
- e) Do not interchange the thinners for the same generic paint between suppliers.
- f) Do not use kerosene as thinner.
- g) Do not smoke while painting.
- h) DO not leave the brush without cleaning after painting.
- i) Do not paint close to a welding area.
- j) Do not paint when there is rain or sandstorm or when the relative humidity is about 90%.
- k) Do not paint when the metal is chill (temp < (dew point + 3°C) or very hot (> 48°C)
- l) Do not paint when the surface is not cleaned/ prepared for painting requirements.
- m) Do not paint the finish coat if the primer coat is not satisfactory.
- n) Do not leave the balance paint open after painting.
- o) Do not use VCI pellets for stainless steel components and its composite assemblies.

## 3.0 CLEANING OF PAINTED & RUST PREVENTIVE COATED SURFACES

Wherever required, paints and rust preventive protection can be removed either by using the following commercial solvents or by flame cleaning/ blasting

For rust preventive	Acetone, Methyl Ethyl ketone or Tri-chloro Ethylene
For all paints	Alkaline paint strippers or Solvent based paint strippers

## 4.0 SURFACE PREPARATION

- Surfaces of components shall be thoroughly cleaned before the application of primer paint and shall be free from grease, oil, rust, weld slag, spatters etc.
- Abrasive blast cleaning to SSPC SP6 (Sa 2) grade shall be done to prepare the surfaces of hot worked pipes prior to application of primer.
- A comparative chart indicating the surface preparation standard equivalents is given below for ready reference.

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DESCRIPTION	SSPC SCHEME	SWEDISH STANDARD SIS - 05 - 5900
Solvent cleaning	SSPC- SP 1	-
Hand tool cleaning	SSPC- SP 2	St2
Power tool cleaning	SSPC- SP 3	St3
Flame cleaning	SSPC- SP 4	F1
Blast cleaning to White metal	SSPC- SP 5	Sa3
Commercial blast cleaning	SSPC- SP 6	Sa2
Brush off blast cleaning	SSPC- SP 7	Sa1
Pickling	SSPC- SP 8	-
Blast cleaning to near white metal	SSPC- SP 10	Sa 2½


## 5.0 APPLICATION OF PAINT

- a) Primer paint shall be applied immediately or within 4 hours in the case of shot blast cleaning and within 8 hours for mechanical cleaning.
- b) Wherever tubes/ pipes are not either shot blasted or heat treated during manufacture, the rust preventive coating provided by the tube/ pipe mill shall be treated as base for primer coating for subsequent painting of alkyd base paints like one coat of red oxide zinc phosphate (when called for). When special paint is specified in the painting scheme, the existing rust preventive fluid is to be removed by blast cleaning. However, rusted areas are to be cleaned free of oil, grease, rust etc. thoroughly using emery paper/wire brush and making rust preventive coated surfaces coarse.
- c) Ready mixed paints shall be used as supplied by the supplier without any addition of thinner unless otherwise specified. Two pack systems are to be used as per supplier's instructions.
- d) Wherever second coat of finish coat is to be applied in succession, 24 hours minimum drying time shall be provided between each coat for single pack paints. For two-pack system refer paint supplier's catalogue.
- e) No painting is required in case of Stainless Steel, Aluminium and Galvanized components, unless otherwise specified in contracts.
- f) For all machined components, rust preventive fluids shall be applied.
- g) All weld edge preparations for site welding shall be applied with one coat of weldable primer. For small components having weld ends on both sides, full surface can be painted with weldable primer.
- h) Part processed items meant for shop assembly shall be painted at sub-contractors works with primer/ special paints (when called for in the painting scheme) based on the scope

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of the indent/ purchase order. Further paint touchup/ Coating shall be given appropriately during assembly.

- i) For items meant for Spares and subcontracting where no further processing is involved, the painting scheme selected shall be the same as that of similar product configuration / description and not with respect to PGMA. All running meter items for spares one coat of red oxide primer and two coats of Synthetic enamel paint to IS 2932 (Latest) shall be supplied.
- j) Assemblies consisting of machined components and special equipments shall not be shot blasted wherever it may affect the system. In such cases power tool cleaning may be adopted for the localized areas only.

 An ISO Company	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> (A Government of India Undertaking) பாரதமிகுமின் நிறுவனம்	Ph: 04172-284030, 284158,, 241170  Email: <a href="mailto:bsmanian@bhel.in">bsmanian@bhel.in</a>
	<b>BOILER AUXILIARIES PLANT,</b> Indira Gandhi Industrial Complex, RANIPET- 632 406 (Tamil Nadu)	

**BHEL-BAP-OS- MAIN-BLAST-ARC 2022-23 Enq: 651002E/29.07.2022**

**SECTION – XI BANK GUARANTEE**

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

**Minimum base BG value of Rs.5.00 Lakhs should be provided by the vendor at the time of signing the contract.**

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 in Section -XII.
  - 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 one year.
  - 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 SDGM(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

## **SECTION XII**

## BANK GUARANTEE FOR SUPPLY FREE ISSUE MATERIAL

Bank Guarantee No:

Date:

NAME OF ISSUING BANK  
& ADDRESSES OF THE BENEFICIARY  
NAME OF ISSUING BANK  
& ADDRESS  
**BANK EMAIL ID:**  
**BANK PHONE NO:**  
**SFMS Serial No\* :**  
**AUTHORISED SIGNATORIES CELL PHONE NO:**  
**BANK FAX NO:**  
**IFSC AND MICR CODE**

Dear Sirs,

1. In consideration of Bharat Heavy Electricals Limited<sup>1</sup> (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at \_\_\_\_\_<sup>1</sup> through its Unit at.....(name of the Unit) having awarded to.....<sup>2</sup> (Name of the Vendor / Contractor / Supplier) (**VENDOR CODE**), with its registered office at \_\_\_\_\_<sup>2</sup> (hereinafter called "the Vendor/Contractor/Supplier" which expression shall include its successors and permitted assigns) a contract Ref No.....dated .....<sup>3</sup>valued at Rs.....( Rupees -----) /FC.....(in words.....) for .....<sup>4</sup>(hereinafter called the 'Contract')

AND WHEREAS the Employer having agreed as per the terms and conditions of the Contract to supply free issue materials for the manufacture/fabrication of the equipment at the 'Contractor/Supplier/Fabricator's' site on furnishing of a Bank Guarantee for Rs. \_\_\_\_\_ (Rupees.....)<sup>5</sup> in the manner hereinafter specified for the due safeguard of the free issue material,

2. we, ....., (hereinafter referred to as the Bank), having registered/Head office at ..... and inter alia a branch at ..... being the Guarantor under this Guarantee, hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount but not exceeding Rs ----- ( Rupees -----) without any demur, merely on a demand from the Employer and without any reservation, protest and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

3. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_.

4. We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the 'Contractor/Supplier/Fabricator in any suit or proceeding pending before any Court or Tribunal or Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

5. The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment hereunder and the 'Contractor/Supplier/Fabricator' shall have no claim against us for making such payment.

6. 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 and till the reconciliation of the free issue material has been carried out and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

7. We ..... Bank further agree that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said

Contract or to extend time of performance by the said 'Contractor/Supplier/Fabricator' from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier/Fabricator and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said 'Contractor/Supplier/Fabricator' or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said 'Contractor/Supplier/Fabricator' or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

8. The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor/Supplier/ Fabricator and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's/Supplier's/ Fabricator's liabilities.

9. This Guarantee shall remain in force upto and including.....<sup>6</sup> and shall be extended from time to time for such period as may be desired by Employer.

10. This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/ Supplier/ Fabricator but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

11. Unless a demand or claim under this guarantee is made on us in writing on or before the **claim period last date** we shall be discharged from all liabilities under this guarantee thereafter.

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

We, ..... BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....<sup>5</sup>
- b) This Guarantee shall be valid up to .....<sup>6</sup>
- c) Unless the Bank is served a written claim or demand on or before (minimum 3 to 6 months from the expiry date <sup>7</sup> all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

13. We, \_\_\_\_\_ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of  
(Name of the Bank)

Dated.....

Place of Issue.....

*NAME AND ADDRESS OF THE EMPLOER. i.e Bharat Heavy Electricals Limited*

<sup>1</sup> *NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER AND VENDOR CODE ASSIGNED BY BHEL . .*

<sup>2</sup> *DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE*

<sup>3</sup> *PROJECT/SUPPLY DETAILS AND CONTRACT VALUE*

<sup>4</sup> *BG AMOUNT IN FIGURES AND WORDS*

<sup>5</sup> *VALIDITY DATE (dd /mmm /yyyy)*

<sup>6</sup> *DATE OF EXPIRY OF CLAIM PERIOD (dd /mmm /yyyy)*

\* **Structured Financial Messaging System (SFMS)** has been/ is being implemented by the Banks as per the Ministry of Finance's instructions for Sending and receiving Bank Guarantee and also Inland Letter of Credit Instruments. The SFMS provides a platform for secure communication within the Bank and between Banks. As such, SFMS can prove to be an excellent IT enabled platform for getting secure confirmations from the Banks in respect of Bank Guarantees issued in favor of BHEL.

## List of Consortium Banks

Sl. No	Nationalised Banks	Sl. No	Public Sector Banks
1	State Bank of India	18	IDBI
2	Allahabad bank		
3	Andhra bank	Sl. No	Private banks
4	Bank of Baroda	19	Axis Bank
5	Canara Bank	20	HDFC
6	Corporation bank	21	ICICI
7	Central bank	22	The Federal Bank Limited
8	Indian Bank	23	Kotak Mahindra Bank
9	Indian Oversea Bank	24	Indusind Bank
10	Oriental bank of Commerce	25	Yes Bank
11	Punjab National Bank		
12	Punjab & Sindh Bank	Sl. No	Foreign banks
13	Syndicate Bank	26	CITI Bank N.A
14	UCO Bank	27	Deutsche Bank AG
15	Union Bank of India	28	HSBC
16	United Bank of India	29	Standard Chartered Bank
17	Vijaya Bank	30	J P Morgan