

**Bharat Heavy Electricals Limited**  
**Heavy Plates & Vessels Plant**  
Visakhapatnam . 530 012  
Andhra Pradesh, INDIA  
PAN-AAACB4146P, GSTIN-37AAACB4146P7Z8



Tel. : +91(0) 891 668 1332 / 1348 / 1358  
E-mail : [yvrao@bhel.in](mailto:yvrao@bhel.in)  
[venugopalb@bhel.in](mailto:venugopalb@bhel.in)

## INVITATION TO TENDER

Ref: OS/20-21/7843 & 7897/HR Galv/11/029

Date : 31.07.2020

**Sub :** Hot Dip Galvanization of fabricated Hand Rails for HRSG Boiler and Air Filter Structure of M/s. HPCL, Vizag against S.O. 7843 & 7897 respectively

Dear Sir,

Sealed tenders are invited for the subject work in **two part bid** system from vendors who are experienced in execution of similar jobs. Bidders shall enclose Work Orders, Work Completion Certificates and all other relevant documents in support of their experience in execution of similar jobs.

### **1. VENDOR'S SCOPE OF WORK :**

- a) Total Wt. of Hand Rails . **17.6 MT** (approx.) Handrails are already fabricated and sizes & quantity of finished fabricated handrails are detailed in Annexure-II.
- b) Surface cleaning of the Hand Rails by Blast Cleaning to SA 2½ (SSPC. SP-10) specification (attached in Annexure -IV)
- c) Any fabrication work required for carrying out the subject job like Cutting of Fabricated Hand Rail Pipes / Frames wherever necessary to suit to the existing facilities, Re-welding the same and applying cold galvanized coat on the welded joints, Drilling of Holes in the pipes to facilitate galvanization of inside portion of Hand Rails during the process and closing (welding & grinding) of the holes after galvanization.
- d) Hot Dip Galvanization for Handrail Assemblies, Hand Rail Posts, Loose Hand Rail Pipes & Hand Rail Bends etc. against S.O. No. 7843 & 7897 with a coating weight of 600 - 610 g/m<sup>2</sup> (minimum) and a coating thickness of 80-85 microns (minimum) as per applicable Painting Schedule & Specifications (Annexure-IV) and QAP.
- e) After galvanization, the Hand Rails shall be painted with One coat of Epoxy Zinc Phosphate Primer (P6) @ 40 microns DFT/coat and One coat of Acrylic Polyurethane finish paint (F2) @ 40 microns DFT/coat.  
(Paint Colour Shade no. 557 of IS 5 - Light Orange). Supply of Paints from BHEL approved paint vendors as per painting schedule & specifications.
- f) Vendor's scope includes procurement of all the raw materials / chemicals and other consumables used in Galvanization Process.
- g) Manufacturer's Test Certificates for the raw materials / chemicals used in Galvanization Process are to be submitted along with the inspection reports.

### **2. BHEL's SCOPE : BHEL will only issue the following as free issue:**

- 1) Handrails fabricated as per Drawings along with necessary Gate Pass.
- 2) Approved Painting Scheme/ Schedule, Specifications & other documents as required.

**Note: BHEL will not issue any raw materials or chemicals required for Galvanization.**

### **3. LOCATION OF WORK SPOT :**

The Galvanization is to be carried out **at Vendor's works**.

### **4. TRANSPORTATION :**

Vendor's Scope includes Collection & Transportation of fabricated items from BHEL, Visakhapatnam to Vendor's works and Transportation of Galvanized items from Vendor's works to BHEL Logistics including Transit Insurance.

**5. INSPECTION :**

Inspection shall be carried out at Vendor's works by M/s. BHEL / any nominated agency as per approved QAP. All the documentation related to inspection such as BHEL / TPI / Customer Clearance, Generation of Inspection Reports, Preparation of Final Documents as per BHEL standard formats etc., is in the scope of vendor and soft copy as well as hard copy of the same are to be submitted to BHEL-QA.

**6. DELIVERY :**

Galvanized items along with all inspection documents & certificates are to be delivered within 4 **weeks** from the date of issue of Fabricated Items.

**7. PRICE :**

The prices shall be quoted for the detailed scope of work in the Schedule of Rates enclosed at Annexure . I. The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.

The quoted prices shall be **inclusive of all applicable taxes & duties except GST**. Income tax shall be deducted at applicable rates from the vendor's bills. GST shall be reimbursable to the vendor as detailed in as per annexure - GST.

**8. GOODS & SERVICES TAX (GST) :**

Bidders shall make a note of the following points of GST before submission of their offer: -

- Vendors shall have to mention their GSTIN no. (15 Digits) in their Technical Bid. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer.
- Semi-finished goods are to be delivered by the Vendors in BHEL, HPVP premises within a maximum period of one year from the date of issue of the material, failing which the whole transaction will be considered as Supply and Sale and GST is required to be paid along with interest (calculated @ SBI Base Rate + 6%) along with penalty, if any, from the date of Challan on the whole value of materials. Hence vendors shall have to ensure that materials issued to them are returned within 365 days.
- After fabrication, the vendors shall have to deliver the Semi - finished Goods by fulfilling the following formalities: GST invoice should be raised by the vendors by paying GST on job work charges at applicable rates and by incorporating the HPVP GSTIN no. in the invoice for availing the reimbursement of GST from HPVP.

The vendor shall also have to enter in their GST Return -1 (GSTR-1) the details of invoice raised for payment of GST so as to enable HPVP to avail input credit.

**9. SECURITY DEPOSIT :**

Vendors shall have to submit a Bank Guarantee for **10%** of the order value in case of **HPVP ADM site** or **25%** of the material cost in case of Vendor works towards Security Deposit and safe custody of materials within one week from the date of issue of Order. The BG shall be valid for the contract period with a claim period of 12 months. This Bank Guarantee shall be released to the contractor after completion of work and on acceptance of the same by BHEL / Owner and on submission of Performance BG for 10 % of the order value covering for the defects liability period. If PBG is not submitted, 10% of the order value shall be deducted towards PBG from the final bill and shall be refundable after performance guarantee period, if no defects are found during this period.

**10. PENALTY :**

If delivery exceeds the stipulated delivery schedule, penalty @ 1/2 % per week subject to a maximum of 10% on the value of delayed supplies will be levied. However, time taken for the following will not be considered as delay on the part of the Sub-Contractor: -

- a) Intermediate operations carried out by BHEL.

(Time Period from the date of Handing over to BHEL to the date of Receipt after completion of intermediate operations will be excluded for the LD Calculation)

- b) Waiting time for BHEL / Third party Inspection beyond a normal time of 3 days.

**11. PAYMENT TERMS :**

Payment shall be made against RA Bills within 45 days from the date of submission of Bill.

90% payment will be made after handing over of the finished items along with all inspection documents to HPVP shops / Logistics dept. / ADM site, duly inspected & cleared by Inspection authority. Balance 10% payment shall be made along with the Final Bill against completion of total order in all respects including documentation.

Vendors shall have to submit the bills in the formats specified by HPVP-Outsourcing and the bills submitted in the specified format along with necessary supporting documents are only admitted for processing. The following documents shall be submitted along with the Final Bill: -

1. No Claim Certificate from the contractor
2. No Dues Certificate from BHEL
3. Work Completion Certificate from BHEL
4. Material Reconciliation Statement submitted by the Contractor and certified by concerned authority of BHEL (if applicable)
5. Workmanship Guarantee certificate from the contractor

**12. WORKMANSHIP GUARANTEE :**

The vendors shall have to give workmanship guarantee for the work carried out by them for a period of 18 months from the date of last delivery against order.

**13. WORK PROGRESS :**

Outsourcing dept. personnel will visit vendor's works from time to time to assess and review the work progress. Free access shall be provided to BHEL or its inspection agency at all reasonable times of the day / night.

In case the progress is not satisfactory or supplies are delayed abnormally beyond the contractual delivery date, BHEL-HPVP, Visakhapatnam reserves the right to cancel the order in part or full or get the balance job in as is where is condition completed elsewhere by another agency at the risk and cost of Fabricator. The value of the work carried out by the party will be assessed by BHEL and the same shall be final. No compensation will be given to the fabricator in case of cancellation of order or diversion of balance job even if the jobs have been processed partly.

**14. RISK PURCHASE :**

In case the contractor fails to execute the work within the scheduled time or due to any other reasons, BHEL . HPVP reserves the right to get the same completed through some other party at the risk & cost of the contractor and any additional expenditure incurred due to the same shall be charged to the contractor.

**15. SECRECY :**

All the documents of BHEL inclusive of Drawings, GMS and Standards made available to the fabricator should be kept in strict confidence and under no circumstance be made available to others or allow others to make use of them. Such documents shall be returned to BHEL on demand after completion of the job. This secrecy clause is binding on the employees of the fabricators also. Violation of the same may lead to suspension of business with the vendor and necessary legal action.

**16. SUB-LETTING :**

In general, sub-letting of jobs will not be permitted. But in special circumstances, this may be allowed. In such case, the party should obtain written approval from BHEL-HPVP, Visakhapatnam before sub-letting.

**17. TERMINATION OF CONTRACT :**

In the event of any failure on the part of the contractor, BHEL reserves the right to terminate the contract by giving a notice of 2 weeks for any of the following lapses and contractual violations: -

- a) Failure to progress the job according to the agreed schedule
- b) Failure to mobilize adequate man power, tools & tackles and consumables in time
- c) Failure to adhere to Quality Standards of BHEL

BHEL shall also be free to intervene and take necessary remedial measures. All costs incurred with interest and overheads shall be recovered from contractor by such foreclosing or off-loading any part of the contract work

**18. DISPUTES :**

Head of BHEL- HPVP Unit will be the final authority for any disputes arising out of this contract. The disputes / arbitration / settlement of contractual or legal issues shall be under the Jurisdiction of Visakhapatnam Court.

**19. For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of Contract / PO / WO against this NIT.**

In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable.

**20. GENERAL :**

- a) The bidders shall study the Tender documents, Drawings, Quality Documents and all other relevant documents in detail for understanding the scope of work and the processes involved before submission of offer. Bidders shall get clarifications, if any, on the scope of work or any other details of the tender document, over phone or through e-mail from concerned officials.
- b) Bidders shall confirm their acceptance to all the terms & conditions of the tender enquiry. Any deviations to the tender terms & conditions are not acceptable and BHEL reserves the right to reject such offers without further correspondence.
- c) BHEL reserves the right to modify or cancel the tender enquiry at any stage without assigning any reasons thereof.

**21. The following documents shall form part of the tender enquiry: -**

|  |                  |
|--|------------------|
| a) Schedule of Rates                                     | : Annexure - I   |
| b) Details of Hand Rail Pipes to be Galvanized & painted | : Annexure - II  |
| c) Acceptance to tender terms & conditions               | : Annexure - III |
| d) Painting Schedule & specifications                    | : Annexure - IV  |
| e) GST Compliance for Indigenous Suppliers               | : Annexure - GST |

**22. VALIDITY OF OFFER :**

The offer shall be valid for a period of 3 months from the last date for tender submission.

**23. TENDER SUBMISSION (Through E - Mail) :**

Techno-commercial bids along with the **tender document duly signed by the bidder on all pages** and a covering letter on Company's Letter Head addressed to DGM (Outsourcing), BHEL . HPVP, Visakhapatnam shall be sent through an e-mail to **technicalbid-hpvp@bhel.in**

Price bid (i.e. Annexure-I) shall be sent separately through e-mail to another e-mail ID **pricebid-hpvp@bhel.in**

Offers completed in all respects along with the supporting documents shall be sent through the above e-mails only latest by **14.00 Hrs. on or before 10.08.2020** duly mentioning the Name of Work, Tender Ref. No. & Date and Technical Bid / Price Bid in the subject of the e-mail.

**TENDERS RECEIVED AFTER THE DUE DATE & TIME ARE NOT ACCEPTABLE. OFFERS SENT IN ANY OTHER FORM WILL BE TREATED AS INVALID AND WILL BE SUMMARILY REJECTED.**

**21) TENDER OPENING :**

Techno-commercial Bids will be opened on **10.08.2020 at 14.00 Hrs.** The bidders may depute their representatives at the time of opening of Technical bids. After evaluation of the Techno-commercial Bids, Intimation regarding the date of opening of sealed price bids shall be given to the techno – commercial qualified bidders through an e-mail in advance at appropriate time.

For Bharat Heavy Electricals Limited,

*Y.V.Rao*  
Y.V.Rao  
DGM (OS)

**SCHEDULE OF RATES**

**Sub:** Hot Dip Galvanization of fabricated Hand Rails for HRSG Boiler and Air Filter Structure of M/s. HPCL, Vizag against S.O. 7843 & 7897 respectively

| Sl. No.  | S.O. No.    | Description of work  | Unit | Total Qty. | Rate per Kg (Rs.) | Total Amount (Rs.) |
|--|-------------|--|------|------------|-------------------|--------------------|
| 1.0  | 7843 & 7897 | Hot Dip Galvanization of fabricated Handrails with a coating thickness of 80-85 microns (600 - 610 gm per M <sup>2</sup> ) minimum and One coat of Epoxy Zinc Phosphate Primer (P6) @ 40 microns DFT/coat & One coat of Acrylic Polyurethane finish paint (F2) @ 40 microns DFT/coat including Blast Cleaning, Collection of free issue items from HPVP & Handing over of the Painted items back to BHEL Logistics dept. including both ways transportation etc. complete as per the detailed scope of work, Painting schedule, specifications, QAP as mentioned in the tender document. | MT   | 17.6       |                   |                    |
| <b>Total Amount (in Words) : Rupees.....only</b> |             |  |      |            |                   |                    |

**Notes:**

- i) The quoted price shall be inclusive of all applicable taxes & duties except GST. GST shall be reimbursable to the vendor as per applicable guidelines. Income tax shall be deducted at applicable rates from the vendor's bills.
- ii) The quoted price shall be fixed & firm without any escalation during the entire period of contract and till completion of work.
- iii) The quantity indicated above is approximate and may slightly vary depending upon actual requirement. However, payment shall be made as per the weights given in the shipping List.
- iv) The bidders are advised to go through all the drawings & documents before quoting the tender.
- v) Tenderer should quote the amount in figures & words. It may be noted that corrections, overwriting etc. are not allowed. If there is a discrepancy between amount in figures & words, the amount in words shall prevail unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail. If there is an error in the total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and total shall be corrected accordingly.

In case of any mismatch between rate and amount in figures, rate in figures shall be taken into consideration for further evaluation and processing.

**Signature of the Bidder with Stamp**

## Details of Handrails to be painted

| Sl. No. | S.O. No. | PGMA  | DU No. | Item Description                        | Pipe Size (mm) | Unit | Qty. | Weight (Kg) | Specification  |
|---------|----------|-------|--------|---|----------------|------|------|-------------|--|
| 1       | 7843     | 36850 | 1      | HR ASSY FOR FLOOR L=3M                  | 42.4 x 3.2 mm  | NO   | 45   | 1,886.940   | Hot Dip Galvanization to a coating thickness of 80-85 microns (600-610 gm/m <sup>2</sup> ) + One coat of Epoxy Zinc Phosphate Primer (P6) @ 40 microns DFT/coat + One coat of Acrylic Polyurethane finish paint (F2) @ 40 microns DFT/coat Total DFT in microns (minimum) 80 of finish coat (Excluding the thickness of Galvanizing) (Paint Colour Shade no. 557 of IS 5 (Light Orange)) |
| 2       | 7843     | 36850 | 2      | HR ASSY FOR FLOOR L=4.5M                | 42.4 x 3.2 mm  | NO   | 30   | 1,808.700   |  |
| 3       | 7843     | 36850 | 3      | HR ASSY FOR FLOOR L=6M                  | 42.4 x 3.2 mm  | NO   | 10   | 786.500     |  |
| 4       | 7843     | 36850 | 4      | HR ASSY FOR FLOOR L=7.5M                | 42.4 x 3.2 mm  | NO   | 10   | 970.090     |  |
| 5       | 7843     | 36850 | 5      | HR ASSY FOR FLOOR L=1M                  | 42.4 x 3.2 mm  | NO   | 25   | 462.925     |  |
| 6       | 7843     | 36850 | 6      | HR ASSY FOR FLOOR L=1.2M                | 42.4 x 3.2 mm  | NO   | 50   | 1,026.950   |  |
| 7       | 7843     | 36850 | 7      | HR ASSY FOR FLOOR L=1.5M                | 42.4 x 3.2 mm  | NO   | 40   | 942.920     |  |
| 8       | 7843     | 36850 | 8      | HR ASSY FOR FLOOR L=2M                  | 42.4 x 3.2 mm  | NO   | 30   | 954.600     |  |
| 9       | 7843     | 36850 | 9      | HR ASSY FOR FLOOR L=2.4M                | 42.4 x 3.2 mm  | NO   | 20   | 717.300     |  |
| 10      | 7843     | 36850 | 10     | LOOSE POST FOR PLATFORM                 | 42.4 x 3.2 mm  | NO   | 350  | 1,333.500   |  |
| 11      | 7843     | 36850 | 11     | HR ASSY FOR STAIR L=3M                  | 42.4 x 3.2 mm  | NO   | 30   | 899.610     |  |
| 12      | 7843     | 36850 | 12     | HR ASSY FOR STAIR L=4.5M                | 42.4 x 3.2 mm  | NO   | 8    | 341.304     |  |
| 13      | 7843     | 36850 | 13     | NB 32 MEDIUM 90 DEG BEND FOR FLOOR      | 42.4 x 3.2 mm  | NO   | 650  | 919.100     |  |
| 14      | 7843     | 36850 | 14     | NB 32 MEDIUM 90 DEG BEND FOR STAIR      | 42.4 x 3.2 mm  | NO   | 80   | 64.800      |  |
| 15      | 7843     | 36850 | 15     | NB 32 MEDIUM 135 DEGBEND FOR FLOOR      | 42.4 x 3.2 mm  | NO   | 20   | 23.440      |  |
| 16      | 7843     | 36850 | 16     | NB 32 MEDIUM 140 DEGBEND FOR STAIR      | 42.4 x 3.2 mm  | NO   | 80   | 79.200      |  |
| 17      | 7843     | 36850 | 17     | SPECIAL BEND FOR STAIR                  | 42.4 x 3.2 mm  | NO   | 4    | 12.496      |  |
| 18      | 7843     | 36850 | 18     | PL 6.0 MM MAKE UP STRIP FOR FLOOR GRILL | -              | NO   | 200  | 195.200     |  |
| 19      | 7843     | 36850 | 19     | ANGLE 50 X 50 X 6 HRFIXING ANGLE        | -              | M    | 200  | 900.000     |  |
| 20      | 7843     | 36850 | 20     | NB 32 MEDIUM LOOSE TOP AND MIDDLE RAIL  | 42.4 x 3.2 mm  | M    | 300  | 927.900     |  |
| 21      | 7843     | 36850 | 21     | PLATE 5.00 MM LOOSE TOE GUARD           | -              | NO   | 80   | 785.040     |  |
| 22      | 7843     | 36850 | 22     | ERW TUBE NB 32 MEDIU110 DEGREE BEND     | 42.4 x 3.2 mm  | NO   | 4    | 4.504       |  |
| 23      | 7843     | 36850 | 23     | ERWTUBE NB32 MEDIUM POST                | 42.4 x 3.2 mm  | NO   | 4    | 2.636       |  |
| 24      | 7843     | 36850 | 24     | ERWTUBE NB32 MEDIUM POST                | 42.4 x 3.2 mm  | NO   | 4    | 4.552       |  |
| 25      | 7843     | 36850 | 25     | ERWTUBE NB32 MEDIUM 90 DEGREE BEND      | 42.4 x 3.2 mm  | NO   | 4    | 3.240       |  |
| 26      | 7843     | 36850 | 26     | ERWTUBE NB32 MEDIUM VERTICAL RAIL       | 42.4 x 3.2 mm  | NO   | 4    | 12.992      |  |
| 27      | 7843     | 36850 | 27     | ERWTUBE NB32 MEDIUM TOP RAIL            | 42.4 x 3.2 mm  | NO   | 4    | 24.744      |  |
| 28      | 7843     | 36850 | 29     | LOOSE POST FOR STAIR                    | 42.4 x 3.2 mm  | NO   | 56   | 224.840     |  |
| 29      | 7843     | 36850 | 30     | HR ASSY FOR STAIR L=1.5M                | 42.4 x 3.2 mm  | NO   | 4    | 69.240      |  |
| 30      | 7843     | 36850 | 31     | HR ASSY FOR FLOOR L=9M                  | 42.4 x 3.2 mm  | NO   | 4    | 461.472     |  |
|         |          |       |        | Sub Total -1                            |                |      | 2350 | 16846.74    |  |

| Sl. No. | S.O. No. | PGMA  | DU No. | Item Description                        | Pipe Size (mm) | Unit | Qty.        | Weight (Kg)     | Specification  |
|---------|----------|-------|--------|---|----------------|------|-------------|-----------------|--|
| 31      | 7897     | ST830 | 1      | 1M HR ASSY. ON FLOOR                    | 42.4 x 3.2 mm  | NO   | 5           | 92.775          | Hot Dip Galvanization to a coating thickness of 80-85 microns (600-610 gm/m <sup>2</sup> )<br>+ One coat of Epoxy Zinc Phosphate Primer (P6) @ 40 microns DFT/coat + One coat of Acrylic Polyurethane finish paint (F2) @ 40 microns DFT/coat Total DFT in microns (minimum) 80 of finish coat (Excluding the thickness of Galvanizing)<br>(Paint Colour Shade no. 557 of IS 5 (Light Orange)) |
| 32      | 7897     | ST830 | 2      | 1.5M HR ASSY. ON FLOOR                  | 42.4 x 3.2 mm  | NO   | 4           | 94.444          |  |
| 33      | 7897     | ST830 | 3      | 3M HR ASSY. ON FLOOR                    | 42.4 x 3.2 mm  | NO   | 2           | 83.978          |  |
| 34      | 7897     | ST830 | 4      | LOOSE POST ON FLOOR                     | 42.4 x 3.2 mm  | NO   | 10          | 38.290          |  |
| 35      | 7897     | ST830 | 5      | ERW TUBE NB 32 FLOOR90 DEGREE BENDS     | 42.4 x 3.2 mm  | NO   | 20          | 28.280          |  |
| 36      | 7897     | ST830 | 6      | 3M HR ASSY. ON STAIR                    | 42.4 x 3.2 mm  | NO   | 4           | 120.236         |  |
| 37      | 7897     | ST830 | 7      | 4.5M HR ASSY. ON STAIR                  | 42.4 x 3.2 mm  | NO   | 2           | 85.518          |  |
| 38      | 7897     | ST830 | 8      | LOOS POST ON STAIR                      | 42.4 x 3.2 mm  | NO   | 4           | 16.156          |  |
| 39      | 7897     | ST830 | 9      | ERW TUBE NB 32 STAIR90 DEGREE BENDS     | 42.4 x 3.2 mm  | NO   | 20          | 15.900          |  |
| 40      | 7897     | ST830 | 10     | ERW TUBE NB 32 STAIR135 DEGREE BENDS    | 42.4 x 3.2 mm  | NO   | 20          | 21.340          |  |
| 41      | 7897     | ST830 | 11     | ERW TUBE NB 32 STAIRSPECIAL BEND        | 42.4 x 3.2 mm  | NO   | 2           | 6.558           |  |
| 42      | 7897     | ST830 | 14     | NB32 PIPE FOR SITE USE - 10 RM          | 42.4 x 3.2 mm  | NO   | 2           | 30.930          |  |
| 43      | 7897     | ST830 | 15     | ISA75X75X6_HAND RAILFIXING ANGLE - 6 RM | -              | NO   | 1           | 40.800          |  |
| 44      | 7897     | ST830 | 16     | PLATE-5X3000X12000 LOOSE TOE GAURD      | -              | NO   | 1           | 9.813           |  |
|         |          |       |        | <b>Sub Total -2</b>                     |                |      | <b>97</b>   | <b>685.018</b>  |  |
|         |          |       |        | <b>TOTAL</b>                            |                |      | <b>2447</b> | <b>17531.75</b> |  |

**ANNEXURE – III**

Ref : OS/20-21/7843 & 7897/HR Galv/11/029

Date : 31.07.2020

**Acceptance to Tender Terms & Conditions**

I / We hereby confirm that the Tender documents, Drawings, Quality documents etc. have been studied in detail and the scope of work is fully understood.

I / We accept to all the Terms and Conditions of the Tender Enquiry and the prices quoted are in accordance with the same.

Tender documents duly signed on all the pages by the Owner / authorized representative of the bidder are attached herewith.

**Signature of the Bidder with Stamp**

ANNEXURE – IV

Ref.: OS/20-21/7843 & 7897/HR Galv/11/029

Date : 31.07.2020

BHARAT HEAVY ELECTRICALS LIMITED  
HPVP UNIT - VISAKHAPATNAM - 530012



M/S. VISAKHAPATNAM MEDERNISATION UNIT-1X75 MW CCPP PLANT  
VISAKHAPATNAM, 1x185 TPH - HRSG UNIT  
HPVP S.O. No. 7843  
PAINTING SCEDULE

|             |   |  |  |
|-------------|---|--|--|
| Prepared by | S Sankara Rao<br>Sr Engineer (HT-Engg.) |  | Document No:<br>PS/7843 HPVP S.O. No. 7843 |
| Reviewed by | S Vijay<br>Manager (HT-Engg.)           |  |  |
| Approved by | L RAJASEKHAR<br>DGM (HT-Engg.)          |  |  |
|             |   |  | Sheet No. 01 of 9.                         |

*Rao*  
29-07-2020

*Sahoo*  
29.07.2020

ए. राजा शेखर/L. RAJA SEKHAR  
उप महा प्रबंधक (अभियांत्रिकी)  
DY. GENERAL MANAGER(ENGG.)  
बीएचएल-एवरीजीपी/BHEL-HPVP  
विशाखापट्टनम्/VISAKHAPATNAM-530 012

**RECORD OF REVISIONS**

| <b>Rev. No</b> | <b>Date</b> | <b>Details of revision</b>   | <b>Remarks</b> |
|----------------|-------------|--|----------------|
| 00             | 31.07.2018  | New  |                |
| 01             | 29.02.2020  | Painting specification shall be read in conjunction with Annexure-III of Standard painting scheme document no: SIP: H: PP :22, dated:04.08.2018.<br>Note no:19 added.  |                |
| 02             | 26.06.2020  | Painting specification for handrail revised and added at Serial no.10. Revision marked<br>  |                |
| 03             | 08.07.2020  | SL NO:5, Paint shade has been changed to Aluminium only for duct and duct supports and balance items of SL. No. 5 (External pipelines, tanks, vessels, CLH & VLH) has been moved to SL. No. 11.<br> |                |
|                |             |  |                |

| SL.No. | PGMA / Description  | Surface Preparation & Surface Profile  | Primer coat   |              | Intermediate coat   |              | Finish coat  |              |                                   | Total DFT $\mu\text{m}$ (min) |
|--------|---|--|---|--------------|---|--------------|--|--------------|-----------------------------------|-------------------------------|
|        |   |  | Paint   | No. of coats | Paint   | No. of coats | Paint  | No. of coats | Shade                             |                               |
| 1      | Drum (Except Internals), Drum suspension<br>04-116  | SSPC-SP-10   | Heat Resistant silicone Aluminium Paint (F12), DFT=20 $\mu\text{m}$ /coat.  | 1            | --  | --           | Heat Resistant silicone Aluminium Paint (F12), DFT=20 $\mu\text{m}$ /coat.   | 2            | --                                | 60                            |
| 2      | <u>Drum Internals, foundation materials &amp; Dd items</u><br>04-116,148,158, 07-504,24-955, 960, 989, 994,28-700<br>35-010,700, 011,37-810, 42-700, 48-700   | SSPC-SP1/ or<br>SSPC – SP3<br>Solvent / Power Tool Cleaning  | Rust Preventive Fluid to PR: CHEM: 09 – 04<br>DFT=25 $\mu\text{m}$ per coat | 1            | --  | --           | --   | --           | --                                | 25                            |
| 3      | <u>Structures, supports etc (uninsulated) Temp 80 deg cent</u><br>35 – 110, 120, 131,140,220, 390, 540, 591, 592,593, 594,595, 596,597,610, 24-401, 425.<br><br><u>Galleries, Stair-ways &amp; inter connecting walkways</u><br>36– 210, 220, 230, 240, 390, 39-110,311, 993.<br><br>12-901, 902,903, 912, 913, 19-901, 902, 908,911, 912, 913, 914, 915, 916.<br><br><u>Structures, supports in Oil &amp; gas, Igniter &amp; Scanner Air system</u><br>41-130, 390.42-070, 076, 152, 157, 252, 256, 270,352,357. | Blast cleaning to SA21/2 (Near white metal)/SSP C-SP10 with surface free of all visible residues with desired surface profile. | Inorganic Zinc Silicate Primer (F9)<br>DFT=75 $\mu\text{m}$                 | 1            | Epoxy zinc phosphate primer (P6)<br>DFT/Coat=40 $\mu\text{m}$ | 1            | Epoxy high build coating, polyamide cured epoxy resin medium suitably pigmented (F6B)<br>DFT= 2*100 $\mu\text{m}$ + Acrylic polyurethane finish paint (F2)<br>DFT=40 $\mu\text{m}$ | 2            | Phiroji Blue Shade No: 176 of IS5 | 355                           |

|   |   |   |  |   |  |    |   |    |                                    |     |
|---|---|---|--|---|--|----|---|----|------------------------------------|-----|
| 4 | <u>Stair case side channels,</u><br><u>Monkey ladder side beam,</u><br><u>Channel, Cage, etc</u><br><br>36-820<br><br>39-303*.  | Blast cleaning to SA21/2 (Near white metal)/SSPC-SP10 with surface free of all visible residues with desired surface profile. | Inorganic Zinc Silicate Primer (F9)<br>DFT=75µm                                | 1 | Epoxy zinc phosphate primer (P6)<br>DFT/Coat=40 µm | 1  | Epoxy high build coating, polyamide cured epoxy resin medium suitably pigmented (F6B)<br>DFT= 2*100µm + Acrylic polyurethane finish paint (F2)<br>DFT=40 µm | 2  | Light orange, Shade no:557 of IS 5 | 355 |
| 5 | <br><u>Duct &amp; Duct supports.</u><br>48-012, 48-015, 200, 422, 424, 452, 454, 482, 432<br>HL-098,501 to 514, 601 to 607.  | Blast cleaning to SA21/2 (Near white metal)/SSPC-SP10 with surface free of all visible residues with desired surface profile. | Inorganic Zinc Silicate Primer (F9)<br>DFT=75µm                                | 1 | Epoxy zinc phosphate primer (P6)<br>DFT/Coat=40 µm | 1  | Epoxy high build coating, polyamide cured epoxy resin medium suitably pigmented (F6B)<br>DFT= 2*100µm + Acrylic polyurethane finish paint (F2)<br>DFT=40 µm | 2  | Aluminium shade                    | 355 |
| 6 | <u>Components in the gas path like</u><br><u>SH, RH &amp; Economizer coils,</u><br><u>loose tubes and erection</u><br><u>materials, Commissioning</u><br><u>spares etc Temperature: 750</u><br><u>deg cent (Max)-Furnace</u><br><u>atmosphere.</u><br>07-993, 12-993, 19-850, 851, 852, 853, 854, 855, 856, 993<br>HL-101 to 106, 131 to 134, 151 to 160, 171, 172, 201 to 204, 231 to 260, 271, 272, 301, 302, 331, 332, 351 to 360, 24-993, 48-993. | Mechanical or power tool cleaning St3/SSPC-SP-3   | Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744<br>DFT= 30µm per coat | 2 | --   | -- | --  | -- | Red oxide                          | 60  |

| SL.No.  | PGMA / Description  | Surface Preparation &- Surface Profile                   | Primer coat   |              | Intermediate Coat |              | Finish coat   |              |       | Total DFT $\mu\text{m}$ (min) |
|---|---|--|---|--------------|-------------------|--------------|---|--------------|-------|-------------------------------|
|   |   |  | Paint   | No. of coats | Paint             | No. of coats | Paint   | No. of coats | Shade |                               |
| 7   | <u>Components &gt;95° C Insulated other than components in Sl.No.6 (Gas path) Headers, Down Comer pipes, Hot and flue gas ducts etc (Design temperature)</u><br><u>125 deg cent but less than 450 deg cent.</u><br>07-206, 207, 210, 212,<br>10-121, 135, 136, 221, 235.<br>12-850, 851, 852, 900<br>19-101, 102.<br>21-600, 601, 800, 850.<br>24-400, 460, 465, 473, 475, 480, 420, 485, 490.<br>80-145, 81-005, 011, 411.<br><u>Pipes in Oil &amp; gas, Igniter &amp; Scanner Air system</u><br>41-130, 390.42-070, 076, 152, 155, 156, 165, 176, 177, 200, 201, 252, 256, 270, 352, 357. | Blast cleaning to SA2 1/2 (Near white metal)/ SSPC-SP-10 | Heat Resistant silicone Aluminium Paint (F12), DFT=20 $\mu\text{m}$ / coat. | 1            | --                | --           | Heat Resistant silicone Aluminium Paint (F12), DFT=20 $\mu\text{m}$ / coat. | 2            | --    | 60                            |
| 8   | <u>Seal Air, Scanner Air, Augmenting Air Piping.</u><br><u>43-002, 003, 008, 202, 203, 208</u>  | Blast cleaning to SA2 1/2 (Near white metal)/ SSPC-SP-10 | One Coat of In organic zinc silicate (F9)<br>DFT:75 $\mu\text{m}$ / coat.   | 1            | --                | --           | Heat Resistant silicone Aluminium Paint (F12), DFT=20 $\mu\text{m}$ / coat. | 2            | ---   | 115                           |
| 9  | Floor Grills, & guard plates<br>36-811<br>Guard plates SL No:4 shall be followed.   |  |   | Galvanized   |                   |              |   |              |       |                               |

|    |   |   |   |   |   |   |  |   |                                    |     |
|----|---|---|---|---|---|---|--|---|------------------------------------|-----|
| 10 | <b><u>Handrails, toe plates.</u></b><br><br>36-850**  | Blast cleaning to SA21/2 (Near white metal)/SSPC-SP10 with surface free of all visible residues with desired surface profile. | Hot dip Galvanizing to 80-85 microns (600- 610 g/m <sup>2</sup> as per IS 4759, 2629, 4736, 2633 + 1 coat of Epoxy Zinc Phosphate Primer (P6) @ 40 microns DFT/coat + 1 coat of Acrylic Polyurethane finish paint (F2) @ 40 microns DFT/coat. Total DFT in microns (minimum) 80 of finish coat (Excluding the thickness of Galvanizing)<br><br>Paint color shade no: 557 of IS5 (Light orange). |   |   |   |  |   |                                    |     |
| 11 | <b>39-303*.</b><br><br><u>External pipelines, tanks, vessels.</u><br><u>80-219, 273, 274, 600.</u><br><br><u>For CLH &amp; VLH</u><br>PGs:07, 08, 12, 17, 19, 21, 24, 47, 48 & 80 | Blast cleaning to SA21/2 (Near white metal)/SSPC-SP10 with surface free of all visible residues with desired surface profile. | Inorganic Zinc Silicate Primer (F9)<br>DFT=75 $\mu$ m   | 1 | Epoxy zinc phosphate primer (P6)<br>DFT/Coat=40 $\mu$ m | 1 | Epoxy high build coating, polyamide cured epoxy resin medium suitably pigmented (F6B)<br>DFT= 2*100 $\mu$ m<br>+<br>Acrylic polyurethane finish paint (F2)<br>DFT=40 $\mu$ m | 2 | Phiroji Blue Shade No: 176 of IS 5 | 355 |

\*\*

1. No galvanized specimen shall have thickness less than 80 microns.
2. Repair of the damaged areas of galvanized coatings due to welding during erection shall be carried out as per recommended practice IS: 11759, using cold galvanizing spray process. Organic paint systems are not acceptable for the repair.
3. After repair of damaged galvanized coating by cold galvanization (P-7), the repaired area shall be top coated with paint system as given in serial no:10 (i.e. 1 coat of P-6 @ 40 $\mu$  DFT/coat + 1 coat of F-2 @ 40 $\mu$  DFT/coat).
4. Suggested cold galvanizing manufacturers are ZINGA, LOCTITE or Z.R.C.

**NOTES:**

01. Rust Preventive Coating should be given on HSFG Bolt and nut threads.
02. Machined surfaces and Retainers A & C types are to be applied with a coating of Temporary Rust Preventive oil.
03. All threaded and other surfaces of foundation bolts and its materials, insulation pins, Anchor channels, Sleeves shall be coated with Temporary Rust Preventive Fluid and during execution of civil works; the dried film of coating shall be removed using organic solvents.
04. Ground shade/colour of Finish paints & identification tag/Band for equipments, pipings pipe service, boiler supporting structures and other boiler components shall be followed as per tender.
05. PGAs under Sub-Vendor items are not indicated. For all bought-out and sub-vendors items including PGAs mentioned above falling under the scope of BHEL the same scheme as for main equipment as covered in this document shall be followed.
06. The Painting Scheme is valid for only Customer No: HPVP SO:7843 of VISAKHA REFINERY 75MW CCPP-1X185 TPH HRSG PACKAGE, Visakhapatnam.
07. No painting is required for Stainless Steel, Non-ferrous & galvanized components.
08. Wherever inside surfaces of components under PGMA 48 – XXX & other PGs, need protection till erection, two coats of Red-oxide zinc phosphate primer paint to IS12744 to a DFT of 60 microns shall be applied, after power tool cleaning.
09. The Temporary Rust Preventive coating that already been applied on any components, tubes, pipes etc., shall be removed by suitable solvents / heating to 350 – 400 °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).
10. In components, wherever plates / sheets of thickness less than or equal to 5 mm and rods of <25mm/tubes/drain pipes are used, power tool / hand tool cleaning to SSPC- SP3 / SP2 shall be followed and the painting shall be done as described in Sl. No: 08.
11. For all commissioning components-erection materials (xx-993) two coats of Red Oxide Zinc Phosphate Primer shall be applied to meet the temporary protection till erection, after power tool cleaning.
12. Touch-up painting of damaged areas shall be carried out as per clause applicable painting scheme.
13. All components covered under different PGMA's are to be painted In case any component is left out, the same shall be deemed to be included under the relevant section based on paint logic approved.
14. For very small components like clamps etc. Sl. no.8 shall be followed. Only weldable primer shall be applied on surfaces, which required to be welded subsequently at site.
15. For very small components with weldable primer at edges, the entire component shall be applied with weldable primer.
16. All temporary/ transport structures (PGAs:35-391, 392, 393, 593) are to be painted with one coat of Red-oxide zinc phosphate primer paint to IS12744 to a DFT of 30  $\mu$ /coat and 2 coats of synthetic enamel paint (Long oil Alkyd) to IS 2932-DFT-2x20  $\mu$ , shade yellow as per shade no:356 of IS 5 DFT-70  $\mu$ .
17. For internal protection of Pipes, tubes, headers and other pressure parts, Volatile Corrosion Inhibitor (VCI) pellets shall be put (after sponge testing/draining/ or drying) and subsequently end capped. The dosage of VCI pellets shall be approximately 100 g/cu.m. For tubes typically 4 – 5 tablets per end are to be put. For C & I items the dosage of self-indicating Silica Gel (colourless) shall be 250 g/ cu.m. (About 2 to 3 bags weighing approximately 100 grams each). VCI pellets shall not be used for stainless steel components and its composite associates.
18. All threaded components of spring assemblies and turnbuckles shall be galvanized and chromated to 15 microns' minimum thickness.
19. This painting specification shall be read in conjunction with Annexure-III of standard painting scheme document no: SIP:H: PP:22, dated:04.08.2020.

**Painting Scheme – Details for procurement & application purposes**

| 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 IS5   | Mode of appln. | Over coating interval, Hrs. |
|--------|--|---|-------------|--------------------------|-------------------------------|------------------------------|--------------------|----------------|-----------------------------|
| 1      | Inorganic zinc silicate coating (F9)   | 8   | 2           | 57                       | 65                            | Phiroji Blue/ Required shade | 176                | Spray          | 12                          |
| 2      | Heat resistant Silicone Aluminium paint (F12)  | 15  | 1           | -                        | 18                            | Aluminiu m                   | --                 | Brush / Spray  | 24                          |
| 3      | Red oxide zinc phosphate primer paint as per IS 12744                                | 10  | 1           | As per IS 12744          | 30                            | Red Oxide                    | --                 | Brush / Spray  | 12                          |
| 5      | Epoxy zinc phosphate primer (P6)   | 8   | 1           | 49                       | 15-20                         | Reqd. shade                  | Corrpdg. Shade no. | Brush / Spray  | 12                          |
| 6      | Temporary Rust preventive fluid to PR: CHE: 09 – 04                                  | 10  | 1           | --                       | --                            | Amber                        | --                 | --             | 12                          |
| 7      | Epoxy high build coating (Polyamide cured epoxy resin medium suitably pigmented) F6B | 10  | 2           | 57                       | 30                            | Phiroji Blue                 | 176                | Spray          | 24                          |
| 9      | Acrylic Polyurethane finish paint (F2)   | 8   | 1           | 40                       | 30                            | Phiroji Blue                 | 176                | Brush / Spray  | 12                          |
| 10     | Epoxy high build coating (Polyamide cured epoxy resin medium suitably pigmented) F6B | 10  | 2           | 57                       |                               | Light Orange                 | 557                | Spray/ Brush   | 12                          |
| 11     | Acrylic Polyurethane finish paint (F2)   |   |             |                          |                               | Light Orange                 | 557                | Spray          | 24                          |

## Brush painting is accepted, if recommended by the Paint suppliers. The covering capacity of paints specified is only approximate. The paints and Rust Preventive fluid shall be procured from BHEL's approved suppliers. \*\* Values are indicative.

## Painting of Damaged Areas

(Areas where the paint has deteriorated badly by erosion and areas where the paint film has lost its adhesion and where the steel has rusted appreciably, should be repainted as follows)

| Sl.No. | Components   | Surface Preparation | Primer coat                            |                    | Intermediate coat  |              | Finish coat        |                    |                    | Total DFT $\mu\text{m}$ (min) |
|--------|--|---------------------|--|--------------------|--------------------|--------------|--------------------|--------------------|--------------------|-------------------------------|
|        |  |                     | Paint                                  | No. of coats       | Paint              | No. of coats | Paint              | No. of coats       | Shade              |                               |
| 1      | Paint damaged components fall under Sl.no: 3, 4, 5, 8,11 | SSPC-SP-3           | Inorganic zinc silicate primer         | 2                  | As given in scheme | --           | As given in scheme | 2                  | As given in scheme | As given in scheme            |
| 2      | Paint damaged components fall under Sl.no: 1,7.          | SSPC-SP-3           | Heat resistant silicon Aluminium Paint | As given in scheme | --                 | --           | As given in scheme            |

Following Painting specification shall be followed for Hand rails of Filter supporting structure.

PGMA ST830 Weight 685 Kg Surface area:30 Sq.m

|  |   |                               |  |
|--|---|-------------------------------|--|
|  | <u>Handrails, toe plates,</u><br>ST-830 | SSPC-<br>SP8/Acid<br>Pickling | Hot dip Galvanizing to 80-85 microns (600- 610 g/m <sup>2</sup> as per IS 4759, 2629, 4736, 2633 + 1 coat of Epoxy Zinc Phosphate Primer (P6) @ 40 microns DFT/coat + 1 coat of Acrylic Polyurethane finish paint (F2) @ 40 microns DFT/coat. Total DFT in microns (minimum) 80 of finish coat (Excluding the thickness of Galvanizing)<br><br>Paint colour shade no: 557 of IS5 (Light orange). |
|--|---|-------------------------------|--|

**GST COMPLIANCE FOR INDIGENOUS SUPPLIERS**

1. In Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GSTIN which 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.
2. Supplier shall mention their GSTIN in all their invoices and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No which is linked/uploaded in GSTN network shall be clearly indicated), item description as per P0, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, etc.
3. All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).
4. A declaration to the effect that all invoice particulars are/were uploaded in the GSTN network/ portal & all tax liability as per GST rules and regulations have been and will be discharged, shall be mentioned in the invoice. If not mentioned in the invoice, a separate declaration shall be submitted as per the requirement of BHEL.
5. All documents like Test Certificate, LR copy, Guarantee/Warranteer certificate, work completion certificate, any other document mentioned in PO, shall be sent along with the vehicle/consignment where ever applicable. For all consignments received within the calendar month, input credit will be availed within that month in line with monthly returns filing cycle. In case of any discrepancy in the document or non-submission of documents mentioned in the PO, then BHEL will not be able to accept or account the material, in such case availing of tax credit will be deferred to next month or so.
6. In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the suppliers, within the calendar month notified by BHEL.
7. For any such delay in availing of tax credit for reasons attributable to supplier (as mentioned above), interest (calculated @ SBI Base Rate + 6%) along with penalty if any will be deducted for the delayed period i.e. from the month of receipt till the month tax credit is availed, from the running bills.
8. Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contractors. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Debit note will be issued by BHEL indicating the respective supply invoice number.
9. This is to inform that GST portion of invoice, shall be released only upon Vendor declaring such invoice in his GSTR-1 and receipt of goods and Tax invoice by BHEL and Confirmation of payment of GST thereon by vendor on GSTN portal. Alternatively, BG of appropriate value may be obtained from vendor which shall be valid At least one month after the confirmation of date of payment of GST by vendor on GSTN portal and receipt of Tax invoice and receipt of goods, whichever is later. Above is subject to receipt of goods/service and tax invoice thereof along with vendor declaring invoice in his return and paying GST within timeline prescribed for availing ITC by BHEL.
10. That in case vendor delays Declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from vendor/contractor along with interest levied/ leviable on BHEL.

***Note: The above will be followed strictly for processing vendor payments to ensure GST Compliance.***

**Signature of the Bidder with Stamp**