

ENCLOSURE-1

**A) SCOPE OF WORK FOR IN SITU FABRICATION OF PIPE SPOOLS  
(COPPER, CUPRO – NICKEL, STAINLESS STEEL AND MILD STEEL )  
FOR INS SINDHUKIRTHI**

1. **Description of work:** Approximately 2,734 nos. pipe spools of different material are to be fabricated in situ onboard INS Sindhukirti as per the list placed at **Annexure-I**. Detailed scope work and supply of contractor is enumerated in the subsequent paragraphs.
  
2. **Scope of work of Contractor:**
  - a) Carryout in situ fabrication of pipe spools as per para- 1 above.
  - b) Prepare in-situ wire (6 mm) templates for routing of pipes inside submarine to suit the system layout (Drawing).
  - c) The contractor shall collect the raw material such as pipes, flanges / end fittings from the production dept (EKM stores) for fabrication of the pipe spools.
  - d) Jigs and fixtures are to be manufactured and used to fabricate pipe spools as necessary.
  - e) Fabricate the pipe spools as per the template and weld flanges / end fittings as per the system drawing.
  - f) Copper & copper alloy and stainless steel pipe spool are to be done by Tig welding by qualified Tig welders.
  - g) Check the correctness of the shape of the fabricated pipe spool onboard and modify the shape of the pipe as required.
  - h) Markings are to be punched on flange edges of pipe spool and flanges of the connecting pipes.
  - i) Blank plate and dummies for carrying out pressure testing are to be manufactured by the contractor.
  - j) Pipe spools are to be pressure tested hydraulically as specified in the system drawings ( maximum pressure is 45 kg/cm<sup>2</sup>).
  - i) Blank plate and dummies for carrying out pressure testing are to be manufactured by the contractor.
  - k) Pipe spools are to be painted 1 coat of primer & 2 coats of enamel externally. Preservative oil to be applied internally for mild steel pipe spools. painting, preservation of the piping spools and protecting the pipe.
  - l) Pipe spool ends are to be preserved by polythene sheets covering.

**3. Contractors Scope of Supply.**

- (a) Welding equipment, tools, tap sets, hand lamps, relief valves, pressure gauges, hydraulic pump required for pressure testing of the pipe spools are to be arranged by the contractor. Pressure gauges should have valid calibration certificate from OEM/Govt approved lab.
- (b) Transportation for shifting of material required for undertaking the work as per above mentioned scope.
- (c) Consumables viz., 6mm wire for making template, Cotton rag, kerosene, oils, wire brushes and emery papers.

**4. HSL Scope of Supply**

- a) Pipes raw material.
- b) End fittings such as Flanges, Nut & Nipples, Weld neck flanges.
- c) Filler wire, Electrodes, Oxy acetylene gas, compressed air, argon gas for Tig welding.
- d) Polythene sheet, Paints, Thinner and preservative oils.
- e) Raw materials required for Jigs, fixtures, blanks and dummies.
- f) USG shall be taken at the bend of the pipes by our QC Dept.
- g) Mobile crane and fork lift provided.
- h) The drawings and repair manuals will be issued to the contractor for undertaking the work. No drawing and repair manual shall be allowed to be taken out of HSL without expressed permission of Manager-Plumbing.

**5. Quality Inspections.** The contractor shall offer stage inspections to EKM-QC and WOT(V) as per the QAP issued by EKM-QC

**6. Documentation.** The contractor shall maintain all record of inspections, material collected and consumed. The inspection reports and material reconciliation statement to be submitted to Manager (Plumbing).

In-Situ FABRICATION OF SPOOLS

| Sl. No.      | ODXTk. In mm | CU pipe spools Qty.in Nos & Length in Mtrs. (Approx) |             | CU-NI pipe spools Qty.in Nos & Length in Mtrs. (Approx) |            | SS pipe spools Qty.in Nos & Length in Mtrs. (Approx) |               | MS pipe spools Qty.in Nos & Length in Mtrs. (Approx) |             |
|--------------|--------------|--|-------------|---|------------|--|---------------|--|-------------|
|              |              | Qty  | Length      | Qty   | Length     | Qty  | Length        | Qty  | Length      |
| 1            | 6 X 1.5      | 142  | 426         |   |            |  |               | 8  | 24          |
| 2            | 10 X 1.5     | 400  | 1200        |   |            |  |               |  |             |
| 3            | 10 X 2       |  |             |   |            | 150  | 450           | 8  | 24          |
| 4            | 14 X 2       |  |             | 25  | 75         | 160  | 480           | 52   | 156         |
| 5            | 14 X 2.5     | 458  | 1374        |   |            | 20   | 60            |  |             |
| 6            | 22 X 2       | 227  | 567.5       | 14  | 35         | 10   | 25            |  |             |
| 7            | 22 X 3.5     |  |             |   |            | 5  | 12.5          |  |             |
| 8            | 25 X 2       | 223  | 557.5       |   |            | 50   | 125           |  |             |
| 9            | 25 X 3       |  |             | 20  | 50         |  |               | 120  | 300         |
| 10           | 25 X 2.5     |  |             |   |            |  |               |  |             |
| 11           | 28 X 4       |  |             |   |            | 30   | 75            |  |             |
| 12           | 32 X 2       | 28   | 56          |   |            |  |               |  |             |
| 13           | 32 X 3       |  |             | 5   | 10         |  |               |  |             |
| 14           | 38 X 3       | 57   | 114         | 6   | 12         | 10   | 20            | 50   | 100         |
| 15           | 45 X 2.5     | 15   | 30          |   |            |  |               |  |             |
| 16           | 45 X 3       |  |             |   |            | 30   | 60            | 60   | 120         |
| 17           | 45 X 3.5     |  |             | 18  | 36         |  |               |  |             |
| 18           | 55 X 2.5     | 38   | 76          |   |            |  |               |  |             |
| 19           | 56 X 3       |  |             |   |            |  |               |  |             |
| 20           | 57 X 3       |  |             |   |            |  |               | 65   | 130         |
| 21           | 57 X 5       |  |             |   |            |  |               | 45   | 90          |
| 22           | 60 X 4       |  |             | 32  | 64         |  |               |  |             |
| 23           | 73 X 11      |  |             |   |            |  |               | 6  | 12          |
| 24           | 75 X 2.5     | 19   | 38          |   |            |  |               |  |             |
| 25           | 76 X 5       |  |             |   |            |  |               | 25   | 50          |
| 26           | 80 X 4       |  |             | 3   | 6          |  |               |  |             |
| 27           | 85 X 2.5     | 34   | 68          |   |            |  |               |  |             |
| 28           | 89 X 4       |  |             |   |            |  |               | 25   | 50          |
| 29           | 89 X 6       |  |             |   |            |  |               | 12   | 24          |
| 30           | 90 X 5       |  |             | 10  | 20         |  |               |  |             |
| 31           | 105 X 2.5    | 10   | 20          |   |            |  |               |  |             |
| 32           | 110 X 5      |  |             | 1   | 2          |  |               |  |             |
| 33           | 108 X 5      |  |             |   |            |  |               | 4  | 8           |
| 34           | 127 X 14     |  |             |   |            |  |               | 2  | 4           |
| 35           | 130 X 2.5    | 2  | 4           |   |            |  |               |  |             |
| 36           | 159 X 8      |  |             |   |            |  |               |  |             |
| <b>TOTAL</b> |              | <b>1653</b>  | <b>4531</b> | <b>134</b>  | <b>310</b> | <b>465</b>   | <b>1307.5</b> | <b>482</b>   | <b>1092</b> |

**Note:- Length of each spool on an average is 2.5 mtrs.**

**B) COMMERCIAL TERMS & CONDITIONS**

1. **TIME SCHEDULE:** The completion schedule is **90 DAYS** from the date of issue of work order.

2. **PAYMENT TERMS:** 90% monthly on account payment will be made for completed quantity of work against the submission of satisfactory work done certificate duly certified by the competent authority and balance 10% amount of bill will be retained towards guarantee and the same will be released after completion of the guarantee period.

**Note :-** The above bills shall be submitted along with statutory requirements for the personnel engaged for the period of work.

3. **GUARANTEE :** The workmanship should be guaranteed for a period of 12 months from the date of completion of the total work.

4. **Performance Bank Guarantee (PBG) :-** Performance Bank Guarantee for 10% of the contract value is to be submitted in HSL standard format from any nationalized bank within 15 days from the date of issue of Work Order and this bank guarantee should be valid to cover the guarantee period and the same will be released after completion of the guarantee period.

5. **LIQUIDATED DAMAGE :** 0.5% per week subject to a maximum of 10% of the Work Order Value, if the delay is attribute to the contractor beyond the schedule completion date.

6. **GENERAL TERMS & CONDITIONS :** As per Enclosure – 2

7. **Tender Fee:-** You have to submit Demand Draft / Banker Cheque for an amount of Rs 800.00 (Rupees eight hundred only) in favor of Hindustan Shipyard Ltd. towards tender fee. (Non-returnable)

8. **EMD:-** You have to submit Demand Draft / Banker Cheque for an amount of Rs 75,000.00 (Rupees seventy five thousand only) in favor of Hindustan Shipyard Ltd. towards EMD. Offers received without EMD will not be considered. The EMD will be released after placement of work order for un-successful bidders. The EMD of successful bidder will be released after submission of PBG. (Returnable)

**Chief Manager (EKM)**