

Encl. to Tender No. EKM/OS/013/Hull Valves/11-12, Dt.17.01.2012
Enclosure-1

A) Scope of work for Installation of Hull Valves and Pressure Testing on board INS Sindhukirti

1. **Introduction** : INS Sindhukirti is fitted with 124 nos. hull valves as per the list placed at **Appendix - 2**. All hull glands and valves have been repaired and kept under preserved condition. Diameter wise categorization of the valves are as follows:

<u>Sl. No</u>	<u>Size</u>	<u>Qty</u>
(a)	Diameter up to 50 mm	98 Nos.
(b)	Diameter 51 to 100 mm	14 Nos.
(c)	Diameter 101 to 200 mm	08 Nos.
(d)	Diameter 201 to 300 mm	02 Nos.
(e)	Diameter 301 to 450 mm	02 Nos.

2. **Brief Description of Work**: The work involves installation and pressure testing of above mentioned 124 nos. hull valves at various locations on PH of INS Sindhukirti as per the technical document listed at **Appendix - 1** to this document. After installation of the hull valve along with the hull glands are to be pressure tested hydraulically for 38Kg/cm². Test duration (holding time) is determined by the time required for the inspection, however it shall not be less than 10 minutes. Detailed Scope of Work and Scope of supply enumerated in the succeeding paragraphs.

3. **Scope of work of Contractor**:

- (a) Collection of valves, fittings, fasteners, accessories and raw material from engineering department.
- (b) De-preservation, cleaning and preparation of hull glands and hull valves.
- (c) Installation of hull valves in accordance with drawings listed at **Appendix - 3** to these specifications. List of the valves is placed at **Appendix - 2**.
- (d) Design, fabrication and installation of pressure testing blanks and pressure testing chambers as per the details given in doc 8779KM-902-9023, 17B/3172. Hull glands are to be prepared for pressure testing by reconditioning of the threaded holes on the gland for fitment of testing chambers. Guidelines contained in ASME Section VIII may also be followed.
- (e) Arrangement for hydraulic pressure testing.
- (f) Hydraulic pressure testing of the valves and hull glands for 38 Kg/cm² as per document 8779KM-902-9023, 17B/3172.
- (g) Hull valves are to be installed onboard as per the orientation shown in drawings. After installation of the valves, adjustment of the drive and chalk mark on the stool and horizontal coaming is to be carried out.
- (h) On completion of pressure testing, chambers are to be removed and threaded holes are to be preserved with grease.

(i) Hull valves flange, hull gland opening are to be preserved / protected covering them by round plywood and rubber sheet. Hull valve to be preserved by covering it with fire retardant cloth.

(j) Phosphotizing and oil treatment of fasteners to be carried out prior to fitment to the Hull valves.

4. Drawings : Drawings as listed at **Appendix- 1** to these specifications are held with engineering department of HSL and the same shall be made available to prospective bidders for studying and understanding the scope of work for hull valves installation and hull glands pressure testing. A sample drawing for one no. of valve gland to be pressure tested with the hull valve by fabrication of pressure testing chamber is as per **Appendix - 3** The drawings 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-Engg.

5. Quality Inspections. The contractor shall offer stage inspections to EKM-QC and WOT(V) as per the approved Quality Assurance Plan (QAP).

6. Documentation. The contractor shall maintain all details of inspections, testing and trials and present the same to EKM-QC and WOT(V) on completion of the work.

7. Contractor Scope of Supply.

a) Welding machines, welding cables and accessories, tools, jigs & fixtures, gaskets, o-rings, fittings fasteners, pressure gauges, relief valves, lifting devices, chain pulley blocks accessories required for installation and pressure testing of hull valves are to be arranged by the contractors.

b) Consumables viz cotton rag, kerosene, oil, wire brushes, emery paper, polythene sheet, plywood, consumable for phosphite / oil treatment for fasteners and fittings and consumables required for pressure testing of the valves to be arranged by the contractor.

c) Pressure gauges required for pressure testing of the hull valves are to be arranged by the contractor. Range of the pressure gauge should not be more than 60 Kg/ cm² and it should have valid calibration certificate from govt. approved or NABL accredited lab.

8. HSL Scope of Supply

(a) Steel plates and electrodes for manufacture and blanks, pressure testing chambers, Jigs & fixtures.

(b) Spares and fasteners required for assembly and installation of the hull valves.

(c) Oxy-acetylene gases, Compressed air, water and grease.

(d) EOT and mobile crane for handling of valves.

B) COMMERCIAL TERMS & CONDITIONS

1. **TIME SCHEDULE:** The completion schedule is **60 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 workman ship will be guaranteed for 12 months from the date of undocking of submarine.
3. **PERFORMANCE BANK GUARANTEE :** 10% Performance Bank Guarantee to be submitted up to the period of satisfactory completion of the work within 15 days of issuing Work Order and the same will be released after completion of the job.
5. **LIQUIDATED DAMAGE :** 0.5% per week subject to a maximum of 10% of the Work Order Value, if the work is delayed by the contractor beyond the schedule completion date.
6. **FORCE MAJEURE:** Unforeseeable reasons beyond the control and without any fault or negligence of either party which effect delay or failure to fulfil this arrangement partially or wholly shall be regarded as Force Majeure and shall include causes such as Acts of God. War, Fires, Floods, Epidemics, Quarantines, Govt. restrictions, Nationwide Strikes, Severe Storms, Typhoons etc. HSL will examine such claims and reserves the right to accept or reject them, depending upon the merits of each case.
7. **ENERAL TERMS & CONDITIONS :** As per Enclosure – 2

CM (EKM)