

### Technical Specification on Fabrication, Supply, Testing, Installation and Commissioning of Cooling Coil Assembly for Dia. 3m Hydroclave

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#### 1. Introduction:

Dia. 3m Hydroclave is operated under hydrostatic water pressure (up to 65 bar) and high temperature (up to 160°C) at CMSE/VSSC. Inside the main pressure vessel of this equipment, six numbers of cooling coils are connected with inlet and outlet ports and, water flows under internal pressure of 4 bar. Presently available cooling coil is in use for the last 20 years and needs replacement with new coils of same configuration.

The present enquiry is for the fabrication and supply of new cooling coils and its installation and commissioning with Dia. 3m Hydroclave at CMSE/VSSC.

#### 2. Scope of Work by the party:

The scope of work shall include

- 2.1. Fabrication of the cooling coils as per the attached drawings.
- 2.2. Packing, Transportation and Supply of the cooling coils at VSSC.
- 2.3. Testing of the cooling coils as per the details given in this annexure.
- 2.4. Installation and Commissioning of Cooling Coil Assembly for Dia. 3m Hydroclave at ABSG/CMSE, Vattiyookavu.

Details of major activities are listed below.

#### 3. Fabrication Details:

- 3.1. Six numbers of cooling coils with inlet and outlet connections are required for Dia. 3m Hydroclave.
- 3.2. Party shall **Fabricate 6 nos. of cooling coils** as per attached drawing no. 260-999-17-70-11-00 – sheet 1. Each cooling coil consists of several parts and its details like material, size and quantity are indicated in the drawing.
- 3.3. Each cooling coil shall be fabricated using pipes by rolling, welding and stress-relieving.
- 3.4. All the welding works shall be done by TIG welding process using suitable welding rods of SS or compatible rust-free material. Welding must be uniform with no visible starts and stops and without undercuts.
- 3.5. Welding shall be carried out by skilled and experienced welders.
- 3.6. All the required materials shall be arranged by the party. Material shall be free of any defect like void, porosity, crack etc. VSSC will **not** supply any FIM (free issue material).

#### 4. Quality Control Details:

- 4.1. Party shall carry out X-ray radiographic testing of all the weld joints. Any type of defect will be not be acceptable.
- 4.2. The party shall carry out DP test for all the weld joints. DP test report shall be submitted by the party.
- 4.3. Leak testing of all the weld joints shall be done by the party. No leak will be accepted.
- 4.4. The party shall submit the Material Test Certificate (along with supply) from the manufacturer.
- 4.5. The party shall provide all the weld test certificate, NDT certificate, dimensional inspection report etc., signed by the engineer in-charge or concerned authority.

#### 5. Pre-Delivery Inspection:

- 5.1. VSSC representatives will carry out pre-delivery inspection of the fabricated coils at party's site. The party shall intimate VSSC, 2 weeks in advance, regarding readiness for pre-delivery inspection.
- 5.2. During PDI, the party shall also produce material test certificate, weld test certificate, NDT certificate, dimensional inspection report etc.
- 5.3. During PDI, any recommendation by VSSC for modification / rework shall be carried out by the party without any extra cost. After verification of modifications / rework, if any, clearance will be given for dispatching the items to CMSE/VSSC.

#### 6. Installation & Commissioning:

- 6.1. Installation of new cooling coils with Dia. 3 m Hydroclave (reference drawing: 260-999-17-70-11-00 – sheet 2) shall be carried out by the party at VSSC.
- 6.2. **All the six cooling coils shall be assembled to respective inlet and outlet port of Dia. 3 m Hydroclave at VSSC.**
- 6.3. As part of commissioning, following tests shall be carried out at VSSC after the installation of new cooling coils with Hydroclave:
  - 6.3.1. Hydrostatic leak check at internal pressure of 6 bar(g) for 30 minutes. Operation of the hydroclave will be done by VSSC. However, the party's representative shall be available at site during the entire duration (approx. 10 hours) of leak test.
  - 6.3.2. Hydrostatic leak check under external pressure of 65 bar and internal pressure of 4 bar(g) at room temperature condition in Dia. 3m Hydroclave. Operation of the hydroclave will be done by VSSC. However, the party's representative shall be available at site during the entire duration (approx. 24 hours) of leak test.
  - 6.3.3. Hydrostatic leak check under external pressure of 40 bar and internal pressure of 4 bar(g) at 155°C temperature by trial run of the Dia. 3m Hydroclave. Operation of the hydroclave will be done by VSSC. However, the party's representative shall be available at site during the entire duration (approx. 48 hours) of leak test.

## **7. Safety:**

- 7.1. Safety of the personnel deputed by the party for installation & commissioning activities at VSSC is the sole responsibility of the party. The party shall take all safety precautions required for the execution of work. VSSC will not in any way be responsible for injury / damage caused to personnel engaged by the party.
- 7.2. All the personnel engaged by the party at VSSC shall abide by the safety regulation stipulated by VSSC from time to time.
- 7.3. All the necessary PPEs required for each activity shall be provided by the party to the personnel engaged by them.
- 7.4. No activity shall be done without the usage of appropriate PPEs.

## **8. Warranty:**

- 8.1. Party shall provide warranty for the material and workmanship for a period of two years from the date of commissioning of cooling coil at VSSC.

## **9. Delivery Period:**

The party shall meet the delivery period mentioned below for the entire activity.

- 9.1 Date of receipt of Purchase Order: T0
- 9.2 Visit by party to VSSC to understand the existing cooling coil construction and assembly:  
T0 + 3 weeks
- 9.3 Submission of overall plan for fabrication and assembly by party: T0 + 6 weeks
- 9.4 Approval from VSSC for the plan and Clearance for fabrication: T1
- 9.5 Fabrication of cooling coils and intimation for PDI: T1 + 3 months
- 9.6 Clearance from VSSC for dispatch of cooling coils to VSSC: T2
- 9.7 Dispatch of cooling coils to VSSC: T2 + 2 weeks.
- 9.8 Intimation by VSSC regarding readiness of site for installation & commissioning: T3
- 9.9 Installation & Commissioning: T3 + 1 month

## **10. General Conditions:**

- 10.1. Vendor Qualification: The party must have supplied minimum three numbers of fabricated metallic coil / toolings / fixture / components of Dia. 2m class or higher to different customers within the last five years, i.e., from January 2019 onwards. Details of such works executed by the party along with contact details of customers shall be submitted in technical bid. Parties who have executed similar works at government establishments like ISRO, DRDO, HAL, CSIR etc. will be preferred.
- 10.2. The party shall take up the activity as a turn key project and all the necessary materials, tools, fixtures, handling & loading equipment etc. required for the satisfactory completion of the activity, including the skilled and unskilled manpower, supervisors, engineers, etc. shall be arranged by the party.
- 10.3. If the party wants to visit the site prior to submission of offer to understand the details and construction of the cooling coils, the same is permitted with prior request to Purchase & Stores Officer (PSO). The request shall be forwarded to PSO within 2 weeks from the date

of release of tender. Visit by the party, if any, and submission of offer shall be completed within the due date mentioned in the tender document.

- 10.4. CMSE/VSSC will provide overhead crane (capacity: 15 Ton) available in the Dia. 3m Hydroclave area. However, if higher capacity cranes are required for any of the activities, the same shall be arranged by the party.
- 10.5. Qualified and experienced personnel shall be deputed to carry out the works.
- 10.6. All the items shall be properly packed to avoid any damage during transportation. The party shall take complete responsibility of transportation.
- 10.7. After receipt of purchase order, party shall visit VSSC within three weeks to see & understand existing cooling coils installed with Dia. 3m Hydroclave. Subsequently, the party shall submit overall plan for fabrication & assembly and obtain clearance from VSSC for fabrication. The party shall start fabrication of cooling coil only after getting clearance from VSSC for the same.
- 10.8. Any minor rework, as suggested by VSSC, shall be done by the party without any extra cost.
- 10.9. The party shall submit the quote on **two-part** basis - (1) Technical Bid and (2) Price bid with cost split up.
- 10.10. The technical bid from the party shall **not** contain price of any of the item, failing which the party shall stand disqualified from participating in the tender and their price bid will not be opened.
- 10.11. Party shall fill the compliance matrix format given in Annexure 2 and shall be uploaded along with technical bid. All the columns mentioned in the compliance matrix format shall be filled. Unfilled or partially filled format will not be accepted and such offers will be rejected. The price bid of such parties will not be opened for evaluation of offers.
- 10.12. **In the price bid**, party shall quote cost split-up in following format as a separate pdf document. Total cost will be considered for arriving at L1 party.

**Price bid format**

Sl No	Items / Works	Cost	Tax
1	Material cost		
2	Fabrication charges		
3	Cost for Testing of materials, weld joints etc.		
4	Transportation charges		
5	Installation & Commissioning charges		
6	Additional works (if any, assessed by party)		
<b>Total Cost (Sum of Sl. No.1 to Sl. No. 6)</b>			

Party **shall** provide cost for all the items / works (i.e., Sl. No. 1 to 6) given in the above price bid format. Party's submitting price bids which is incomplete or with unfilled cost will be rejected.