

भारत सरकार  
अंतरिक्ष विभाग (अं.वि.)  
सतीश धवन अंतरिक्ष केंद्र शार  
श्रीहरिकोटा - 524124  
क्रय एवं भंडार



GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE (DOS)  
SATISH DHAWAN SPACE CENTRE SHAR  
SRIHARIKOTA - 524124  
PURCHASE & STORES

फोन नं Ph No. 08623-225-023,127,174 / Fax. 91-8623-225170 / ईमेल e-mail: hps@shar.gov.in

सतीश धवन अंतरिक्ष केंद्र शार **SATISH DHAWAN SPACE CENTER SHAR**  
श्रीहरिकोटा **SRIHARIKOTA** :: तिरुपति जिला (आ.प्र.) **TIRUPATI DISTRICT (A.P)- 524 124**  
निविदा सूचना सं. **TENDER NOTICE NO. SDSC SHAR/Sr.HPS/PT/SMP&ETF/32/2026-2027**

भारत के राष्ट्रपति की ओर से वरि. प्रधान क्रय एवं भंडार, सतीश धवन अंतरिक्ष केंद्र श्रीहरिकोटा निम्नलिखित वस्तुओं के लिए ऑनलाइन निविदाएं आमंत्रित करते हैं:- On behalf of President of India, Sr. Head Purchase and Stores, SDSC SHAR, SRIHARIKOTA invites on line quotations for the following.

क्र.सं. SI No	संदर्भ सं. Ref. No.	विवरण Description	मात्रा Qty.
01.	SDSC SHAR/SMP&ETF PURCHASE/SMP&ETF/2026000590 [जन निविदा Public Tender – एक भाग Single Part]	Fabrication Works of SS, MS & Cu-Ni	12 Line items

निविदा दस्तावेजों को डाउनलोड करने की अंतिम तिथि Last Date for downloading of tender documents : 10.06.2026 at 16:00 hrs.  
ऑनलाइन निविदा जमा करने की अंतिम तिथि Due Date for submission of bids online : 11.06.2026 at 16:00 hrs.  
निविदाएं खोलने की नियत तिथि Due Date for opening of tenders : 11.06.2026 at 16:00 hrs.

**निविदाकार के लिए निर्देश Instructions to Tenderers:**

*निविदाएं ईजीपीएस के माध्यम से ही भेजी जाएं तथा कोई निविदा शुल्क लागू नहीं होगा।  
Bids shall be submitted on line through EGPS only and No tender fee shall be applicable.*

- कार्य के सम्पूर्ण विवरण/जानकारी तथा नियम व शर्तों इत्यादि के लिए संलग्न अनुलग्नक को देखें। / For full details/scope of work and terms and conditions etc., please see the enclosed annexures.
- इच्छुक निविदाकार इसरो की ई-खरीद वेबसाइट इसरो न्यू ई-प्रोकुरमेंट ([www.eproc.vssc.gov.in](http://www.eproc.vssc.gov.in)) से ई-निविदा डाउनलोड और अपनी निविदा ई-खरीद पोर्टल पर ऑनलाइन जमा कर सकते हैं। डाक / वाहक / स्वयं द्वारा प्राप्त निविदाओं पर विचार नहीं किया जाएगा। / Interested tenderers can download the e-tender from ISRO e-procurement website ISRO NEW E-PROCUREMENT ([www.eproc.isro.gov.in](http://www.eproc.isro.gov.in)) and submit the offer on line in the e-procurement portal. Offers sent physically by post/courier/in person will not be considered.
- निविदा दस्तावेज इसरो की वेबसाइट [www.isro.gov.in](http://www.isro.gov.in), इसरो न्यू ई-प्रोकुरमेंट वेबसाइट ([www.eproc.vssc.gov.in](http://www.eproc.vssc.gov.in)) तथा सतीश धवन अंतरिक्ष केंद्र शार की वेबसाइट [www.shar.gov.in](http://www.shar.gov.in) पर भी उपलब्ध हैं। इन्हें केवल ई-खरीद पोर्टल से डाउनलोड और निविदा ऑनलाइन जमा कर सकते हैं। / Tender documents are also available on ISRO website [www.isro.gov.in](http://www.isro.gov.in) ISRO New e-procurement website ([www.eproc.vssc.gov.in](http://www.eproc.vssc.gov.in)) and SDSC SHAR, Sriharikota website [www.shar.gov.in](http://www.shar.gov.in). The same can be down loaded and offer submitted on line in the new e-procurement portal only.
- निर्धारित तिथि/समय के पश्चात प्राप्त बोलियों पर विचार नहीं किया जाएगा। / Quotations received after the due date/time will not be considered.
- इच्छुक विक्रेता विवरण जानने के लिए निविदा खोले जाने वाले सत्र में शामिल हो सकते हैं। निविदा के मूल्यांकन पर विचार करने के लिए उनकी उपस्थिति अनिवार्य नहीं है। / Interested vendors can attend the Bid opening sessions to know the details. Presence not mandatory to consider the quote for evaluation.
- वरि. प्रधान क्रय एवं भंडार, सतीश धवन अंतरिक्ष केंद्र श्रीहरिकोटा के पास किसी भी या सभी निविदाओं को स्वीकार / अस्वीकार करने का अधिकार है। / Sr. Head, Purchase and Stores, SDSC-SHAR, Sriharikota reserves the right to accept or reject any/or all the quotations.
- GeM ARPTS Report ID: **GEM/GARPTS/17042026/K7O9V53L565F**

दिनांक DT: 12.05.2026

वरि. प्रधान क्रय एवं भंडार  
Sr. HEAD PURCHASE AND STORES

**GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE  
SATISH DHAWAN SPACE CENTRE SHAR SRIHARIKOTA (SDSC SHAR)  
NELLORE**

**Tender for Fabrication works of SS, MS & Cu-Ni**

**Bids to be submitted online**

**Tender No.: SDSC SHAR/SMP&ETF PURCHASE/SH202600059001 dated 13-05-2026**

## **A. Tender Details**

Tender No : **SDSC SHAR/SMP&ETF PURCHASE/SH202600059001**

Tender Date : **13-05-2026**

Tender Classification: **WORKS**

Purchase Entity : **SMP&ETF PURCHASE**

Centre : **SATISH DHAWAN SPACE CENTRE SHAR SRIHARIKOTA  
(SDSC SHAR)**

### **Fabrication works of SS, MS & Cu-Ni**

Fabrication works of SS, MS & Cu-Ni (GEM/GARPTS/17042026/K7O9VS3L565F dated 17.04.2026)

#### **A.1 Tender Schedule**

Bid Submission Start Date : **13-05-2026 10:00**

Bid Clarification Due Date : **03-06-2026 16:00**

Bid Submission Due Date : **10-06-2026 16:00**

Bid Opening Date : **11-06-2026 16:00**

## **B. Tender Attachments**

### **Technical Write-up/Drawings**

**Document : [Annexure-3](#)**

**Document : [Annexure-2](#)**

**Document : [Annexure-1](#)**

### **Instructions To Vendors**

## C. Bid Templates

### C.1 Technical Bid - Fabrication works of SS, MS & Cu-Ni

#### 1. FABRICATION Fabrication works for cold flow tests with weld as per Specifications in Annexure-1

Item specifications for FABRICATION Fabrication works for cold flow tests with weld as per Specifications in Annexure-1

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Refer Annexure-1		-		

#### 2. FABRICATION Fabrication of MS pipe line, DP test and Radiography (10%) with weld consumables, Size: 200NB as per Specifications in Annexure-3

Item specifications for FABRICATION Fabrication of MS pipe line, DP test and Radiography (10%) with weld consumables, Size: 200NB as per Specifications in Annexure-3

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-3		-		

#### 3. FABRICATION Fabrication of MS pipe line, DP test and Radiography (10%) with weld consumables, Size: 100NB as per Specifications in Annexure-3

Item specifications for FABRICATION Fabrication of MS pipe line, DP test and Radiography (10%) with weld consumables, Size: 100NB as per Specifications in Annexure-3

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-3		-		

#### 4. FABRICATION Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 100NB 160Sch as per Specifications in Annexure-2

Item specifications for FABRICATION Fabrication of SS pipe line, DP test and Radiography

**(100%) with weld consumables, Size: 100NB 160Sch as per Specifications in Annexure-2**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-2		-		

**5. FABRICATION Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 100NB XXS as per Specifications in Annexure-2**

**Item specifications for FABRICATION Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 100NB XXS as per Specifications in Annexure-2**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-2		-		

**6. FABRICATION Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 40NB XXS as per Specifications in Annexure-2**

**Item specifications for FABRICATION Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 40NB XXS as per Specifications in Annexure-2**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-2		-		

**7. FABRICATION Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 32NB XXS as per Specifications in Annexure-2**

**Item specifications for FABRICATION Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 32NB XXS as per Specifications in Annexure-2**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-2		-		

**8. FABRICATION Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 15NB 160Sch as per Specifications in Annexure-2**

**Item specifications for FABRICATION Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 15NB 160Sch as per Specifications in Annexure-2**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-2		-		

**9. FABRICATION Fabrication of Cu(90)-Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 4 inches 160Sch as per Specifications in Annexure-2**

**Item specifications for FABRICATION Fabrication of Cu(90)-Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 4 inches 160Sch as per Specifications in Annexure-2**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-2		-		

**10. FABRICATION Fabrication of Cu(90)-Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 2 inches 160Sch as per Specifications in Annexure-2**

**Item specifications for FABRICATION Fabrication of Cu(90)-Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 2 inches 160Sch as per Specifications in Annexure-2**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-2		-		

**11. FABRICATION Fabrication of Cu(90)-Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 1 inch 160Sch as per Specifications in Annexure-2**

**Item specifications for FABRICATION Fabrication of Cu(90)-Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 1 inch 160Sch as per Specifications in Annexure-2**

SI No	Specification	Value	Compliance	Offered Specification	Remark

1	As per Annexure-2		-		
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**12. FABRICATION Fabrication of Cu(90)-Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 1/2 inches 160Sch as per Specifications in Annexure-2**

**Item specifications for FABRICATION Fabrication of Cu(90)-Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 1/2 inches 160Sch as per Specifications in Annexure-2**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	As per Annexure-2		-		

**Common Specifications (Applicable for all items)**

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Refer Annexure-1, 2 & 3		-		

**Supporting Documents required from Vendor**

**1. Technical CST**

**2. Documents**

5 additional documents can be uploaded by the vendor

## C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Refer Annexure-1, 2 & 3	Yes / No / Explain	
2	Delivery Term: SDSC SHAR, Sriharikota	Yes / No / Explain	
3	<p>Taxes: GST/IGST if any, please mention only in percentage. (SAC code shall be indicated for each item and accordingly mention the GST Rate applicable as per prevailing guidelines.)</p> <p>Note: Suppliers are requested to explicitly state whether Quoted Basic/Unit Cost is EXTRA OR INCLUSIVE OF GST If Not i.e, if you quote vaguely as "YES/Accepted /Noted/ As per tender specifications, etc" it will be treated as "GST is included in the quoted Basic/Unit cost". Your offer will be evaluated accordingly and no GST will be paid extra.</p>	Yes / No / Explain	
4	<p><b>CONTRACT PERIOD:</b> Period of contract is for 24months. However, it can be extended to another 6 months based on the facility availability for execution of works.</p>	Yes / No / Explain	
5	<p><b>FORCE MAJEURE:</b> If at any time during the continuance of the order the performance in whole or part by either party of any obligation under this order shall be prevented or delayed by reasons of any war, hostility, acts of public enemy, civil commotion, sabotage, fire, floods, lightening, epidemic, quarantine restrictions, strikes, go-slow, lockout or acts of God, notice of which is given either party to the other within 21 days from the date of occurrence thereof, neither party shall be reasons of such eventually be entitled to terminate this order nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance.</p>	Yes / No / Explain	

6	VALIDITY OF OFFER: - The validity of offers/tenders should be 120 days from the date of opening of the tenders. Tenders shorter than offer validity mentioned above will not be considered for evaluation.	Yes / No / Explain	
7	Payment term: Payment will be made on monthly on pro-rata basis towards successful completion of assigned work duly certified by Engr-in-charge and approved by competent authority.	Yes / No / Explain	
8	Police Verification : The Contractor would be required to provide verification report from the local police authorities within one month from the date of receipt of the order, duly certifying the verification of the Character & Antecedents for each of the work force engaged by the contractor for executing the work.	Yes / No / Explain	
9	The Contractor should have license to engage laborers under the provisions of Contract Labour (Regulation & Abolition) Act, 1970.	Yes / No / Explain	
10	Please provide an undertaking for the compliance of all Labour Laws as applicable from time to time including Minimum Wages Act, Payment of ESI/ EPF/ GST etc.	Yes / No / Explain	
11	Penalty Clause: If the work is not attended within 3 days from the date of intimation from the department, Penalty at the rate of 0.5% per day for the delayed period shall be recovered from you subject to a maximum of 5% of delayed scope of work for that particular period.	Yes / No / Explain	

12	<p>Force Majeure: If at any time during the continuance of the order the performance in whole or part by either party of any obligation under this order shall be prevented or delayed by reasons of any war, hostility, acts of public enemy, civil commotion, sabotage, fire, floods, lightening, epidemic, quarantine restrictions, strikes, go-slow, lockout or acts of God, notice of which is given either party to the other within 21 days from the date of occurrence thereof, neither party shall be reasons of such eventually be entitled to terminate this order nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance.</p>	Yes / No / Explain	
13	<p>Security Deposit: A Bank Guarantee for 3% of the Contract value of the order shall be deposited with SDSC immediately after release of contract towards Security Deposit in the form of Bank Guarantee towards performance of the Contract valid till completion of the contract period plus sixty days towards claim period. (This will be returned by SDSC immediately on execution of the Contract satisfactorily as per terms and conditions. If not, the amount will be forfeited).</p>	Yes / No / Explain	

14	<p>ARBITRATION:- The Contract shall be interpreted, construed and governed by the Laws in India. In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Work Package Order(s), such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Office of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre - Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be English only.</p>		
15	<p>INCOME TAX: Income Tax at the prevailing rate as applicable from time to time shall be deducted from the successful Bidders bill as per the Income Tax Act, 1961 and the rules there-under or any re-enactment or Modifications thereof.</p>	Yes / No / Explain	
16	<p>The Contractor should comply all Labour Laws, Minimum Wages Act, Payment of Employees Provident Fund and ESI/Insurance under workmen Compensation Act and other laws applicable from time to time.</p>	Yes / No / Explain	
17	<p>Mention the ESI Registration No. &amp; enclose a copy of ESI registration..</p>	Yes / No / Explain	
18	<p>Mention the EPF Registration No. &amp; enclose a copy of EPF registration.</p>	Yes / No / Explain	
19	<p>Mention the GSTN &amp; enclose a copy of GST Registration</p>	Yes / No / Explain	

20	Note: Overall L1 shall be considered during evaluation	Yes / No / Explain	
21	Please mention the address upon which the order to be placed. Please provide your mail-id and contact details for clarifications, if any	Yes / No / Explain	

### C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	FABRICATIO N Fabrication works for cold flow tests with weld as per Specifications in Annexure-1	18.00 Tonnes		-		
2	FABRICATIO N Fabrication of MS pipe line, DP test and Radiography (10%) with weld consumables, Size: 200NB as per Specifications in Annexure-3	50.00 Joint		-		
3	FABRICATIO N Fabrication of MS pipe line, DP test and Radiography (10%) with weld consumables, Size: 100NB as per Specifications in Annexure-3	40.00 Joint		-		

4	FABRICATIO N Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 100NB 160Sch as per Specifications in Annexure- 2	120.00 Joint				
5	FABRICATIO N Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 100NB XXS as per Specifications in Annexure- 2	90.00 Joint				
6	FABRICATIO N Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 40NB XXS as per Specifications in Annexure- 2	130.00 Joint				
7	FABRICATIO N Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 32NB XXS as per Specifications in Annexure- 2	75.00 Joint				

8	FABRICATIO N Fabrication of SS pipe line, DP test and Radiography (100%) with weld consumables, Size: 15NB 160Sch as per Specifications in Annexure- 2	12.00 Joint				
9	FABRICATIO N Fabrication of Cu(90)- Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 4 inches 160Sch as per Specifications in Annexure- 2	5.00 Joint				
10	FABRICATIO N Fabrication of Cu(90)- Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 2 inches 160Sch as per Specifications in Annexure- 2	20.00 Joint				

11	FABRICATIO N Fabrication of Cu(90)- Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 1 inch 160Sch as per Specifications in Annexure- 2	50.00 Joint		-		
12	FABRICATIO N Fabrication of Cu(90)- Ni(10) pipe line, DP test and Radiography (100%) with weld consumables, Size: 1/2 inches 160Sch as per Specifications in Annexure- 2	50.00 Joint		-		

## **Annexure-1 Specifications and Terms & Conditions for STRUCTURAL FABRICATION (Mild Steel)**

### **1. Scope of Work**

Work contract for Structural fabrication works (for Mild Steel) at Test Facility, SMP&ETF. These works are required to be carried out at the upcoming Supersonic Flow Test Facilities site of SMP & ETF

### **2. Details of Work to Be Carried**

2.1 Structural fabrication works is related to providing fabrication at site at different testing locations as per the requirement of the Department.

2.2 For all the structural fabrication, **materials required like angles, channels & plates will be supplied by the department as a free issue material**

### **List of Structural Fabrication Works**

1. Fabrication of test stand and erection
2. Fabrication of sub scale JDDs, MLS and AcoSS with necessary drilling for anchoring provisions
3. Fabrication of M.S. structural supports for the pipelines shall be carried out based on requirement for each pipeline
4. Fabrication and erection of scale model test set-up supports & other Test accessories at Supersonic Flow Test Facility.

**Note:** For all structural items listed above, the welding shall be carried out by manual metal arc welding with electrodes conforming to AWS classification E6010/E6011/E5013. The electrodes and welding consumables are in the scope of the party as detailed in Section-3

### **3. Scope of the Party**

Scope of the work is briefed in Section –2 of this document. All the Machinery, Consumables & Manpower required to execute this work is under party scope.

#### **3.1 Manpower and Machinery**

Based on the work schedule, the party has to engage the Manpower & Machineries as listed below. The party has to make his own arrangement for transportation of Manpower and Machineries to the work spot.

<b>Sl. No.</b>	<b>Type of Man Power</b>	<b>Type of Machinery</b>
1	Qualified welder	Arc welding machine with accessories
2	Fitter/Fabricator	Grinding machine
3	Grinder	Gas Cutting set
4	Helpers	Hand drilling machine etc.

### **3.2 Consumables**

The consumables such as electrodes, grinding wheels, industrial gases (oxygen/Acetylene), Gas cutting set, Face Shields, Gloves, SS wire brush and Emery cloth etc., are in the scope of the party

#### **a) Electrodes:**

Size - 2.5/3.15

Make - Philips/ESAB/ Equivalent

Certificate - Manufacturers materials test certificates shall be produced.

#### **b) Oxy-Acetylene Cylinders**

Cylinder capacity - 50 Ltrs.

Pressure - 140 to 150 bar(g)

#### **c) Dye-Penetrant Test Kit**

Containing Cleaner/Penetrant/Developer

**Make-** Magnaflux/Check Mate/Equivalent

### **3.3 Deployment of Supervisors**

It is the responsibility of the party to depute one experienced supervisor for Coordination of site activities, discussion and finalization of fabrication works with department engineers and for ensuring safety precautions.

### **3.4 Insurance**

- All persons shall be insured against accidents during work.
- The party shall take all the safety precautions and ensure the safety of his workmen. Department will not be liable to pay any compensation for any injury or death caused to any workman engaged by the party, while working at site.

### **3.5 Accommodation & Transportation:**

The party has to make his own arrangements for accommodation of his persons and their transportation to site. The department will not provide any accommodation.

### **3.6 License for Contract Workers:**

The party shall wherever applicable, obtain license under the contract Labour Act according to the number of workers engaged by him on contract basis, depositing the prescribed fees and complying with the formalities.

## **4. Scope of the Department**

4.1 All M.S. structural sections, required for the execution of work will be supplied by the department.

4.2 Electricity will be supplied by department for free of charge at the specified tapping points from where fabricator has to extend to his machines/equipments. Material handling equipment support will be provided by the department at free of cost.

## 5. General Conditions

- a) It is the responsibility of the party to produce good weld joints. If any, defective welds are noticed, it is to be rectified by the party. Where ever required, dye penetrate test has to be carried out by the party to verify the quality of weld.
- b) **Period of Contract:** Period of contract is for 24months. However, it can be extended to another 6 months based on the facility availability for execution of works without exceeding the PO quantity & cost.
- c) Overall L1 will be recommended as all the works has interdependency.
- d) It should be ensured that the party comply with all Labour laws, Minimum wages Act, payment of Employees Provident fund, and ESI, if applicable, and also to ensure that minimum wages at prescribed rate (As fixed by the Central Labour Department / Ministry of Labour & Employment) are payable to the labors engaged per day. It is also the responsibility of the party to see that all the applicable statutory provisions like PF etc. are followed.
- e) The party needs to work between 9:00AM to 5:30PM on all days including holidays and even after office hour as and when demanded by department.
- f) **Payment:** Payment will be made on Pro-rata monthly basis for the completed work and duly certified by the department engineer.
- g) Man power for execution of work shall be allotted within 3 days from the intimation from the department.
- h) **PENALTY CLAUSE:** If the work is not attended within 3 days from the date of intimation from the department, Penalty at the rate of 0.5% per day for the delayed period shall be recovered from you subject to a maximum of 5% of delayed scope of work for that particular period.
- i) **FORCE MAJEURE:** If at any time during the continuance of the order the performance in whole or part by either party of any obligation under this order shall be prevented or delayed by reasons of any war, hostility, acts of public enemy, civil commotion, sabotage, fire, floods, lightening, epidemic, quarantine restrictions, strikes, go-slow, lockout or acts of God, notice of which is given either party to the other within 21 days from the date of occurrence thereof, neither party shall be reasons of such eventually be entitled to terminate this order nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance.
- j) **ARBITRATION CLAUSE:** In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Order, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to

both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre - Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be "English" only. Work under the Order shall be continued by you during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.

## **Annexure-2 Specification and Terms & Conditions for SS & Cu (90)-Ni (10) Alloy Fabrication**

### **1. SCOPE OF WORK**

Work contract for welding of SS & Cu (90)-Ni (10) pipes, pipe-fittings and flanges. These works are required to be carried out at Supersonic Flow Test Facilities (SFTF) of SMP&ETF.

### **2. DETAILS OF WORK TO BE CARRIED OUT**

- 2.1 The work involves welding of SS & Cu (90)-Ni (10) pipes, pipe-fittings and adaptors. The pipe diameter varies from 15NB to 100NB for Pressure regulation units, Feedlines and manifolds, Cold flow/Hot flow simulation feedlines for ACOSS and JDD cooling feedlines
- 2.2 All the Pipes, Pipe-fittings, flanges and the adaptors will be supplied by the department as a free issue material.

### **3. SS & Cu (90)-Ni (10) Piping Fabrication**

- 3.1 The scope shall include fabrication, welding of pipe, adapters and manifold joints
- 3.2 The above work includes marking, cutting, profiling, aligning, fit-up, tack welding, cleaning, chipping, root and final TIG welding (both Butt & Socket weld type) which includes cleaning of all weld with SS wire brush for all weld surfaces on materials.
- 3.3 Only qualified welder as per ASME Sec.IX will be permitted for carrying out of the welding work. Qualification of welder needs to be carried out in the presence of Department representative, suiting to the pipe size/schedule requirements. Fitters/Fabricators/Grinders should be well experienced.
- 3.4 SS & Cu (90)-Ni (10) welding shall be done by TIG welding with Argon of 99.9% purity as inert gas. The filler material shall be as per **AISI 308L for SS and Copper Nickel AWS A5.7 ER CuNi for Cu (90)-Ni (10)**
- 3.5 **Dye-Penetrant test:** All welding joints shall be tested with Dye-penetrant after root and final pass of Welding.
- 3.6 Pneumatic test shall be carried out on all the welded joints and testing shall be done with dry Nitrogen gas, which will be arranged by the Department. The necessary preparations for carrying out testing of the weld joints shall be arranged by the contractor.
- 3.7 Radiography has to be carried out for all the butt joints.

#### 4. Specifications for Radiography

- 4.1 All butt-welds shall be subjected to radiographic examinations as per ASME sec. V for a sensitivity of 2-2T. In-situ joints for which X-ray is not possible due to its position focal point accessibility, Gamma-ray is permitted (Subject to prior clearance by department).
- 4.2 Interpretation of weld joints radiographs shall be done by the vendor and followed by department as per relevant codes.
- 4.3 Exclusive radiography machine / gamma ray source has to be arranged by the contractor when sufficient numbers of joints are available for examination.
- 4.4 D2 films shall be used for gamma rays and D5 films shall be used for X-rays. Elliptical shots (double wall double image) may be employed.
- 4.5 The penetrometer used shall conform to ASTM E 1025/ASTM E747 (or) relevant DIN standards.
- 4.6 Re-take due to rejection of radiograph owing to bad image quality or repair joints shall be at the cost of contractor.
- 4.7 Radiography shall be carried out by qualified technicians (i.e.) minimum level-I of ISNT/ ASNT and qualification certificates shall be produced with latest renewal to the department before proceeding with the work.
- 4.8 Radiography film shall be evaluated and report shall be submitted by Level II ISNT/ ASNT (or) equivalent qualified person.

#### 5. SCOPE OF THE CONTRACTOR

Scope of the work is briefed in Section –1 to 4 of this document. All the Machinery, Consumables & Manpower required to execute this work is under party scope.

##### 5.1 Manpower and Machinery

Based on the work schedule the contractor has to engage the Manpower & Machineries as listed below. The contractor has to make his own arrangement for transportation of Manpower and Machineries to the work spot.

Sl. No.	Type of Man Power
1	Qualified pipe welder
2	Fitter/Fabricator
3	Grinder
4	Helpers
5	Radiography technician and reviewing team

Sl. No.	Type of Machinery
1	TIG welding machine with accessories
2	Grinding machine
3	Gas Cutting set
4	Hand drilling machine etc.
5	Radiography equipment

## **5.2 Consumables**

The consumables such as SS & Cu(90)-Ni(10) filler wires, electrodes, grinding wheels, industrial gases (oxygen/Acetylene), Gas cutting set, Argon gas, Dye-Penetrant Test Kit, Argon Regulator, Flow meters, Face Shields, Gloves, SS wire brush and Emery cloth etc., are in the scope of the contractor

### **a) SS & Cu(90)-Ni(10) Filler Wires:**

Size – 1.6mm/2.0mm/2.5mm

Make -Philips/ESAB/Equivalent

Certificate - Manufacturers materials test certificates shall be produced.

### **b) Electrodes:**

Size - 2.5/3.15

Make - Philips/ESAB/ Equivalent

Certificate - Manufacturers materials test certificates shall be produced.

### **c) Argon Gas Cylinder**

Grade - Commercial, 99.99% pure

Cylinder capacity – 50 Ltrs.

Pressure – 40 to 150bar(g)

Make - Praxair/ Bhoruka / Inox /BOC

### **d) Oxy-Acetylene Cylinders**

Cylinder capacity - 50 Liters at 140 to 150bar

### **e) Dye-Penetrant Test Kit**

Containing Cleaner/Penetrant/Developer

Make- Magnaflux/Check Mate/Equivalent

## **5.3 Deployment of Supervisors**

It is the responsibility of the contractor to depute one experienced supervisor for Coordination of site activities, discussion and finalization of fabrication works with department engineers and for ensuring safety precautions.

## **5.4 Insurance**

- All persons shall be insured against accidents during work.
- The contractor shall take all the safety precautions and ensure the safety of his workmen. Department will not be liable to pay any compensation for any injury or death caused to any workman engaged by the contractor, while working at site.

## **5.5 Accommodation & Transportation:**

The contractor has to make his own arrangements for accommodation of his persons and their transportation to site. The department will provide not any accommodation.

## 5.6 License for Contract Workers:

The contractor shall wherever applicable, obtain license under the contract Labour Act according to the number of workers engaged by him on contract basis, depositing the prescribed fees and complying with the formalities.

## 6. Scope of the Department

6.1 All SS & Cu(90)-Ni(10) pipes/tubes, pipe-fittings, adaptors & structural sections, required for the execution of work will be supplied by the department as a free issue materials.

6.2 Electricity will be supplied by department for free of charge at the specified tapping points from where fabricator has to extend to his machines/equipment.

6.3 Material handling equipment support will be provided by the department free of cost.

## 7. General Conditions

- a) It is the responsibility of the contractor to produce good weld joints. If any, defective welds are noticed, it is to be rectified by the contractor. Where ever required, dye penetrate test has to be carried out by the party to verify the quality of weld.
- b) **Period of Contract:** Period of contract is for 24months. However, it can be extended to another 6 months based on the facility availability for execution of works.
- c) Overall L1 will be recommended as all the works has interdependency.
- d) It should be ensured that the contractor comply with all Labour laws, Minimum wages Act, payment of Employees Provident fund, and ESI, if applicable, and also to ensure that minimum wages at prescribed rate (As fixed by the Central Labour Department / Ministry of Labour & Employment) are payable to the labors engaged per day. It is also the responsibility of the contractor to see that all the applicable statutory provisions like PF etc. are followed.
- e) The contractor need to work between 9:00AM to 5:30PM on all days including holidays and even after office hour as when demanded by department.
- f) **Payment:** Payment will be made on Pro-rata monthly basis for the completed work and duly certified by the department engineer.

- g) Man power for execution of work shall be allotted within 3 days from the intimation from the department.
- h) **PENALTY CLAUSE:** If the work is not attended within 3 days from the date of intimation from the department, Penalty at the rate of 0.5% per day for the delayed period shall be recovered from you subject to a maximum of 5% of delayed scope of work for that particular period.
- i) **FORCE MAJEURE:** If at any time during the continuance of the order the performance in whole or part by either party of any obligation under this order shall be prevented or delayed by reasons of any war, hostility, acts of public enemy, civil commotion, sabotage, fire, floods, lightening, epidemic, quarantine restrictions, strikes, go-slow, lockout or acts of God, notice of which is given either party to the other within 21 days from the date of occurrence thereof, neither party shall be reasons of such eventually be entitled to terminate this order nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance.
- j) **ARBITRATION CLAUSE:** In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Order, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre - Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be "English" only. Work under the Order shall be continued by you during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.

## **Annexure-3 Specification and Terms & Conditions for MS Fabrication**

### **1. SCOPE OF WORK**

Work contract for welding of MS pipes, pipe-fittings and flanges. These works are required to be carried out at Supersonic Flow Test Facilities (SFTF) of SMP&ETF.

### **2. DETAILS OF WORK TO BE CARRIED OUT**

- 2.1 The work involves welding of MS pipes, pipe-fittings and adaptors. The pipe diameter varies from 100NB to 200NB for water injection lines during Cold flow simulation at SFTF
- 2.2 All the Pipes, Pipe-fittings, flanges and the adaptors will be supplied by the department free of cost.

### **3. MS Piping Fabrication**

- 3.1 The scope shall include fabrication, welding of pipe, adapters and manifold joints
- 3.2 The above work includes marking, cutting, profiling, aligning, fit-up, tack welding, cleaning, chipping, placement of wind shields and / or weather protection, DP testing of Root & Final Pass (Both Butt and Socket weld types), gamma Ray radiography (for 10% Butt weld joints) which includes cleaning of all weld with SS wire brush for all weld surfaces on materials.
- 3.3 For Carbon steel pipes welding shall be by TIG for root pass. The filler material used shall conform to F-6 of ASME Section IX (ER70S2/6) and subsequent passes by manual metal arc welding (SMAW) with electrodes confirming to AWS classification ER 7018.
- 3.4 Only qualified welders to a level of 6G as per ASME Sec. IX with proven track record shall be deployed to carryout of the welding works. Qualification of welder need to be carried out in the presence of Department engineer suiting to the pipe size / schedule requirements.
- 3.5 Welder qualification test shall be the party scope. Weld joint test report shall be submitted to Department for clearance.
- 3.6 Well experienced Fitters / Fabricators / Grinders shall be deployed for the work
- 3.7 Cutting and edge preparation of pipelines and fittings shall be attempted only with exclusive grinders meant for Carbon steel material.
- 3.8 The pipeline has to be routed as per site requirement
- 3.9 **Dye-Penetrant test:** The scope includes carrying out 100% DP test on root & final pass of butt welds and final pass of socket and branch welds as per ASME Sec. - V, DP Test consumables like Cleaner, dye penetrant & developer spray canisters are under contractor scope.

3.10 Hydro test shall be carried out on all the welded joints and testing shall be done with water, which will be arranged by the Department. The necessary preparations for carrying out testing of the weld joints shall be arranged by the contractor.

#### **4. Specifications for Radiography**

- 4.1 All butt-welds shall be subjected to 10% Radiography
- 4.2 Radiographic Examinations as per ASME sec. V for sensitivity of 2-2T.
- 4.3 Interpretation of weld joints radiographs shall be done by Department representative as per relevant codes such ANSI B 31.3 and ASME-Sec.V
- 4.4 Exclusive radiography machine / Gamma ray source has to be arranged by the contractor.
- 4.5 D2 films shall be used for Gamma Rays and D5 films for X-rays.
- 4.6 Elliptical shots (double wall double image) may be done up to 2" size.
- 4.7 The penetrometer used shall conform to ASTM E 1025/ASTM E747 (or) relevant DIN standards.
- 4.8 Retake due to rejection of Radiograph owing to bad image quality shall at the cost of contractor.
- 4.9 Radiography shall be carried out by qualified technicians (i.e.) minimum level- I of ISNT/ ASNT and qualification certificates shall be produced with latest renewal to the Department before proceeding with the work.
- 4.10 Radiography film shall be evaluated and report shall be submitted by Level II ISNT/ ASNT (or) equivalent qualified person. However, department Engineer will carry out the final Evaluation.

#### **5. SCOPE OF THE CONTRACTOR**

Scope of the work is briefed in Section –1 to 4 of this document. All the Machinery, Consumables & Manpower required to execute this work is under party scope.

##### **5.1 Manpower and Machinery**

Based on the work schedule the contractor has to engage the Manpower & Machineries as listed below. The contractor has to make his own arrangement for transportation of Manpower and Machineries to the work spot.

<b>Sl. No.</b>	<b>Type of Man Power</b>
1	Qualified pipe welder
2	Fitter/Fabricator
3	Grinder
4	Helpers
5	Radiography technician and reviewing team

Sl. No.	Type of Machinery
1	TIG welding machine with accessories
2	Grinding machine
3	Gas Cutting set
4	Hand drilling machine etc.
5	Radiography equipment

## 5.2 Consumables

a) The consumables such as Filler wires (ER 70S2), electrodes (ER 7018 / ER 6013), Grinding Wheels, Industrial Gases (Oxygen / Acetylene), Gas cutting set, Argon gas, Dye-Penetrant Test Kit, Argon regulator, Flow Meters, Face shields, Gloves, Wire Brush, Emery cloth, etc., required for the work shall be in the scope of contractor.

b) Details of the consumables are as follows:

- Filler Wires: Size 1.6 mm/2.0 mm/2.5 mm, Make (Philips / ESAB / Advani). Manufacturers material test certificates shall be produced for approval.
- Electrodes: Size 2.5 mm / 3.15 mm Make (Philips / ESAB / Advani). Manufacturers material test certificates shall be produced for approval.
- Argon Gas cylinder & Oxy / Acetylene cylinders: Grade Commercial, Purity 99.99%, Cylinder Capacity 50 Liter, Make (Praxair / Bhoruka / Inox / BOC)
- Grinding wheels: Make Universal carborandum/ Norton
- Oxy- Acetylene cylinders: Capacity: 50 Lit, Pressure 140-150 bar (g)

## 5.3 Deployment of Supervisors

It is the responsibility of the contractor to depute one experienced supervisor for Coordination of site activities, discussion and finalization of fabrication works with department engineers and for ensuring safety precautions.

## 5.4 Insurance

- All persons shall be insured against accidents during work.
- The contractor shall take all the safety precautions and ensure the safety of his workmen. Department will not be liable to pay any compensation for any injury or death caused to any workman engaged by the contractor, while working at site.

## 5.5 Accommodation & Transportation:

The contractor has to make his own arrangements for accommodation of his persons and their transportation to site. The department will provide not any accommodation.

## 5.6 License for Contract Workers:

The contractor shall wherever applicable, obtain license under the contract Labour Act according to the number of workers engaged by him on contract basis, depositing the prescribed fees and complying with the formalities.

## 6. Scope of the Department

6.1 All MS pipes/tubes, pipe-fittings, adaptors & structural sections, required for the execution of work will be supplied by the department free of cost.

6.2 Electricity will be supplied by department for free of charge at the specified tapping points from where fabricator has to extend to his machines/equipment.

6.3 Material handling equipment support will be provided by the department free of cost.

## 7. General Conditions

- a) It is the responsibility of the contractor to produce good weld joints. If any, defective welds are noticed, it is to be rectified by the contractor. Where ever required, dye penetrate test has to be carried out by the party to verify the quality of weld.
- b) **Period of Contract:** Period of contract is for 24months. However, it can be extended to another 6 months based on the facility availability for execution of works.
- c) Overall L1 will be recommended as all the works has interdependency.
- d) It should be ensured that the contractor comply with all Labour laws, Minimum wages Act, payment of Employees Provident fund, and ESI, if applicable, and also to ensure that minimum wages at prescribed rate (As fixed by the Central Labour Department / Ministry of Labour & Employment) are payable to the labors engaged per day. It is also the responsibility of the contractor to see that all the applicable statutory provisions like PF etc. are followed.
- e) The contractor need to work between 9:00AM to 5:30PM on all days including holidays and even after office hour as when demanded by department.
- f) **Payment:** Payment will be made on Pro-rata monthly basis for the completed work and duly certified by the department engineer.
- g) Man power for execution of work shall be allotted within 3 days from the intimation from the department.

- h) **PENALTY CLAUSE:** If the work is not attended within 3 days from the date of intimation from the department, Penalty at the rate of 0.5% per day for the delayed period shall be recovered from you subject to a maximum of 5% of delayed scope of work for that particular period.
- i) **FORCE MAJEURE:** If at any time during the continuance of the order the performance in whole or part by either party of any obligation under this order shall be prevented or delayed by reasons of any war, hostility, acts of public enemy, civil commotion, sabotage, fire, floods, lightening, epidemic, quarantine restrictions, strikes, go-slow, lockout or acts of God, notice of which is given either party to the other within 21 days from the date of occurrence thereof, neither party shall be reasons of such eventually be entitled to terminate this order nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance.
- j) **ARBITRATION CLAUSE:** In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Order, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre - Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be "English" only. Work under the Order shall be continued by you during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.