INDIAN INSTITUTE OF TECHNOLOGY MADRAS
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The Senior Manager (Project Purchase) Date: 25.01.2024

Open Tender Reference No: ME/VARU/096/2024/GASPIPEMIX

GEM NAR ID: GEM/GARPTS/19012024/QJZZU2DJ6COK Due Date/Time: 14.02.2024 @ 3:00 PM

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, digitally signed online bids are invited in two bid system from Class-I local suppliers and Class II local suppliers, for the supply of: "**Supply Fabrication Testing and Installation of "Laboratory Gas Pipelines for Safe Supply of Multiple Flammable Gasses and Mixing"** Conforming to the specifications given in **Annexure -A.**

Tender Documents may be downloaded from Central Public Procurement Portal https://etenders.gov.in/eprocure/app. Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website https://etenders.gov.in/eprocure/app. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at **"Help for Vendors".** [Special Instructions to the Vendors / Bidders for the e-submission of the bids online through this eProcurement Portal"]

Bidders can access tender documents on the website (For searching in the NIC site, kindly go to Tender Search option and type 'IIT'. Thereafter, click on "GO" button to view all IIT Madras tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website https://etenders.gov.in/eprocure/app as per the schedule attached.

1)	**Pre-bid Meeting Details**	**:**	If required will be intimated
2)	**ICSR Vendor Registration**	**:**	**Vendor registration:** Vendor registration with IC&SR (IITM) is mandatory for bidders to participate in tenders. ** **For Vendor Registration & Guidelines, Please follow the website :** https://icandsr.iitm.ac.in/vendorportal; Helpdesk: vendorhelpdesk@icsrpis.iitm.ac.in

No manual bids will be accepted. All tender documents including Technical and Financial bids should be submitted in the E-procurement portal.

Last date for receipt of tender	**:**	**14.02.2024 @ 3:00 PM**
Date & time of opening of tender	**:**	**15.02.2024 @ 3:00 PM**

3. Instructions to the Bidder:

A)	**Searching for tender documents**	**:**	• There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal. • Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective **"My Tender"** folder. This would enable the CPP Portal to intimate the bidders through SMS / email in case there is any corrigendum issued to the tender document. • The bidder should make a note of the **unique Tender ID** assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.
B)	**Assistance to bidders**	**:**	• Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender. • Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is [0120-4200462, 0120-4001002, 0120-4001005]
C)	**Enrollment Process to Bidders**	**:**	**REGISTRATION** • Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal URL:https://etenders.gov.in/eprocure/app by clicking on "Online Bidder Enrollment". Enrollment on the CPP Portal is free of charge. • As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts. • Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal. • Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.) • Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.

			• Bidder then may log in to the site through the secured log-in by entering their user ID / password and the password of the DSC / eToken. • Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through https://etenders.gov.in/eprocure/app • Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site https://etenders.gov.in/eprocure/app under the "Information about DSC".
D)	**Preparation of bids**	**:**	• Bidder should take into account any corrigendum published on the tender document before submitting their bids. • Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid. • Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender document / schedule and generally shall be in PDF / XLS formats as the case may be. Bid documents may be scanned with 100 dpi with black and white option. • To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, GSTIN Details, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use **"My Documents"** area available to them to upload such documents. These documents may be directly submitted from the **"My Documents"** area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.
E)	**Submission of bids**	**:**	• Bidder should log into the site well in advance for bid submission so that he/she can upload the bid in time i.e. on or before the bid submission date and time. Bidder will be responsible for any delay due to other issues. • The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document. • Bidder has to select the bid security declaration. Otherwise, the tender will be summarily rejected. • A standard BOQ format has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BOQ file, open it and complete the detail with their respective financial quotes and other details (such as name of the bidder). If the BOQ file is found to be modified by the

			bidder, the bid will be rejected. • The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission. • The Tender Inviting Authority (TIA) will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues. • The uploaded tender documents become readable only after the tender opening by the authorized bid openers. • Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details. • Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet. • More information useful for submitting online bids on the CPP Portal may be obtained at: https://etenders.gov.in/eprocure/app. • All tender documents including pre-qualification bid, Technical Bid &Financial Bid should be submitted separately in online CPP portal as per the specified format only. Right is reserved to ignore any tender which fails to comply with the above instructions. **No manual bid submission will be entertained.**
F)	**Marking on Technical Bid**		• The bidder eligibility criteria, technical specification and supply of item for this tender is given in Annexure A. • The Bidders shall go through the specification and submit the technical bid. • The Technical bid should be submitted in the proforma as per Annexure-B in pdf format only through online (e-tender). No manual submission of bid will be entertained. • The technical bid should have a page-wise heading as "Technical Bid" and page no. in all pages with seal and signature of authorized signatory. The total no. of pages should be mentioned at the last page of the documents. • The technical bid should consist of bidder eligibility criteria details and all technical details along with catalogue/ pamphlet which will give a detailed description of product with technical data sheet so that technical compliance can be verified.
G)	**Marking on Price Bid**		• Financial bid (BoQ) should be submitted in the prescribed proforma format as per Annexure-C in xls format through e-tender only. No manual or other form of submission of Financial Bid will be entertained

4)	**Preparation of Tender**: The bidders should submit the bids in two bid system as detailed below. **Bid I _Technical Bid** The technical bid should consist of bidder eligibility criteria and technical specification compliance sheet as per Annexure-B. **Bid II _Price Bid** The price bid should be submitted in excel format (BoQ) as per the proforma (Annexure C) uploaded in the e-Tender web site. The Quoted price should be for supply and installation of the item and inclusive of all cost and statutory levies at IIT Madras.
5)	**Price:** a) The price should be quoted only in INR net per unit (after breakup) and must include all packing, transit insurance and delivery charges to **Thermodynamics and Combustion Engineering Laboratory, NAC-2, IIT Madras** b) The rate quoted shall be all inclusive of all taxes and no extra payment will be made other than statutory revisions as per the terms and conditions stipulated in this contract document. c) The percentage of tax & duties should be clearly indicated separately. IIT Madras is eligible for custom duty (5.5%). Relevant certificates will be issued wherever necessary. d) The offer/bids should be submitted through online only in two bid system i.e. Technical Bid and Financial Bid separately.
6)	**Tenderer shall submit along with this tender:** **(**i) Proof of having ISO or other equivalent certification given by appropriate authorities. (ii) Name and full address of the Banker and their swift code and PAN No. and GSTIN number. (iii) GST registration proof showing registration number, area of registration etc. (iv) All of your future correspondences including Invoices should bear the GST No. and Area Code.
7)	**Terms of Delivery:** Supplier will be fully responsible for the safe carriage, Installation/Commissioning of goods up to **Thermodynamics and Combustion Engineering Laboratory, NAC-2, IIT Madras**, or named place as per PO, Insurance coverage will be in the scope of the supplier. The tenderer should indicate clearly the time required for delivery of the item (subject to the approval of the Executive Committee-IIT-Madras). In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied. In the event of delay or non-supply of materials/execution of Contract beyond the date of delivery/completion of job. The penalty will be levied @1% per week of delay subject to a max of 10% of the value of purchase order and if the delay is more than accepted time frame by IIT M, the PO would be partially or fully cancelled and liquidated damages will be enforced accordingly.
8)	**Period for which the offer will remain open:** The Tender shall remain open for acceptance/validity till: 120 days from the date of opening of the tender. However, the day up to which the offer is to remain open being declared closed holiday for the Indian Institute of Technology Madras, the offer shall remain open for acceptance till the next working day.
9)	**EMD:** The EMD of **Rs.46,000** to be transferred to the account details mentioned in Annexure I and proof should be enclosed in the Technical Bid. Any offer not accompanied with the EMD shall be rejected summarily as non-responsive.

	The EMD of the unsuccessful bidders shall be returned within 30 days of the end of the bid validity period. The same shall be forfeited, if the tenderers withdraw their offer after the opening during the bid validity period. The Institute shall not be liable for payment of any interest on EMD. EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) and Startups as recognized by Department of Industrial Policy & Promotion (DIPP). (MSE/MSME/DIPP PROOF should be enclosed in the cover containing technical bid)
10)	**Performance Security: -** The successful bidder should submit Performance Security for an amount of **5%** of the basic invoice value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt in the name of "The Registrar, IIT Madras" from any scheduled commercial bank or Bank Guarantee from any scheduled commercial bank in India. The performance security should be furnished within 14 days from the date of the purchase order. Performance Security in the form of Bank Guarantee: - In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed directly to IIT Madras from the Bank. The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.
11)	For the same tender, either the OEM or the authorized dealer/service provider can only quote. But both of them cannot quote separately for the same tender.
12)	The offers/bids should be sent only for a item/Equipments of latest version that is available in the market and supplied to a number of customers. A list of customers in India with details must accompany the quotations. Quotations for a prototype machine will not be accepted
13)	Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid.
14)	Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal/OEM.
15)	**Risk Purchase Clause** In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
16)	**Payment:** (i) No Advance payment will be made. However, 90% Payment after supply and 10% after installation are agreed to wherever the installation is involved. (ii) Advance Payment: No advance payment is generally admissible. In case a specific percentage of advance payment is required, the Vendor has to submit a Bank Guarantee from a scheduled commercial bank in India equivalent to the amount of advance payment.
17)	**On-site Installation:** The equipment/item or Machinery has to be installed or commissioned by the successful bidder within the number of days (as prescribed by PI) from the date of receipt of the item at the site of IIT Madras.

18)	**Warranty/Guarantee:** The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately (For more details please refer our Technical Specifications). **** Note: PO which involves installation, warranty/guarantee shall be applicable from date of installation.**
19)	**Acceptance and Rejection:** Failure to comply with any of the instructions stated in this document or offering unsatisfactory explanations for non-compliance will likely to lead to rejection of offers. I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.
20)	**Debarment from Bidding:** In case of breach of Terms & Conditions, Bidder may be suspended from being eligible for bidding in any contract with the IIT Madras up to 2 Years [as per Rule 151(iii) of GFR] from the date of Tender.
21)	**Disputes and Jurisdiction:** **Settlement of Disputes:** Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate on arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceeding shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai. a. **The Applicable Law:** The Purchase Order shall be construed, interpreted and governed by the Laws of India. Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause. b. Any legal disputes arising out of any breach of contact pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.
22)	**Force Majeure:** The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure. For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes. If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
23)	**Eligibility Criteria:** ➢ **As per the Government of India Order, only "Class - I Local Suppliers" and "Class - II**

	Local Suppliers" <u>can participate in this tender.</u> ➢ **<u>Bidder should confirm their acceptance that they comply with the provisions with report to "Guidelines for eligibility of a bidder from a country which shares a land border with India as detailed at Annexure-E. The bidder should submit Certificate for "Bidder from/ Not from Country sharing Land border with India & Registration of Bidder with Competent Authority" as per Order of DoE F.No.6/18/2019-PPD dated 23.07.2020 and No.F.7/10/2021-PPD(1) dated 23.02.2023.</u>**
24)	**Preference to "class I Local Suppliers"**: preference will be given to "**class 1 local suppliers**" (subject to class -I local supplier's quoted price falling within the margin of purchase preference) as per public procurement (preference to make in India) order 2017 .O.M No P- 45021/2/2017 – pp(BE - 11) dt 04/06/2020 subject to the conditions that the "class 1 Local Supplier" should agree to supply goods / provide service at L1 rate and furnish a certificate with the technical bid document that the goods/service provided by them consists local content equal to or more than 50%.(certificate from Chartered Accountant in case value of contract exceeds Rs 10 crore). ➢ **'Class - I local supplier'** means a supplier or service provider whose goods, services or works offered for procurement consists of local content equal to or more than 50% as defined under the above said order. **Declaration to be provided as per Annexure-D per item/service/work.** ➢ **'Class - II local supplier'** means a supplier or service provider whose goods, services or works offered for procurement consists of local content equal to 20% but less than 50% as defined under the above said order. **Declaration to be provided as per Annexure-D per item/service/work.** ➢ **'Margin of purchase preference'**: - The margin of purchase preference shall be 20%. The Definition of the margin of purchase preference is defined in the Govt. of India Order No: **P-45021/12/2017-PP (BE-II) Dt.4th June, 2020) Order 2017. As per the Government of India Order – "Margin of Purchase Preference" means the maximum extent to which the price quoted by a "Class-I local supplier" may be above the L1 for the purpose of purchase preference.** ****Note: Local content percentage to be calculated in accordance with the definition provided at clause 2 of revised public procurement preference to Make in India Policy vide GoI Order no. P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 & P-45021/102/2019-BE-II-Part(1) (E-50310) Dt.4th March 2021**
25)	**Evaluation of Bids** Bid evaluation will take place in two stages. **Stage I Technical Bid evaluation** All bidders who have fully complied with bidder eligibility criteria I, II and technical evaluation (Annexure A) will only be considered for opening of price bid. **Stage II: Price Bid Evaluation** The price bid evaluation will be based on price quoted by the bidder. The rate quoted for **SUPPLY FABRICATION TESTING AND INSTALLATION OF "LABORATORY GAS PIPELINES FOR SAFE SUPPLY OF MULTIPLE FLAMMABLE GASSES AND MIXING"** unit will alone be taken up for arrival of Lowest Bid (L1) value.
26)	In accordance to the Rule 173 of GFR,2017 and relevant provisions thereof in Procurement Manuals, 2022, IC&SR, IITM reserves the right to carry out the negotiation process through its purchase/technical committee with L1/H1 (as applicable) vendor to ensure price reasonability before final recommendation to the Competent Authority. The negotiation details, if any, on case to case basis shall be recorded in minutes of meetings suitably for records.
27)	**Selection of successful bidder and Award of Order** The order will be directly awarded to the technically qualified bidder as per the condition in para 3A of DIPP, MoCI Order No. 45021/2/2017-PP (BE II) dated 16th September 2020.

28)	All information including selection and rejection of technical or financial bids of the prospective bidders will be communicated through e-Tender portal. In terms of Rule 173(iv) of General Financial Rule 2017, the bidder shall be at liberty to question the bidding conditions, bidding process and/or rejection of bids.
29)	The tenderer shall certify that the tender document submitted by him / her are of the same replica of the tender document as published by IIT Madras and no corrections, additions and alterations made to the same. If any deviation found in the same at any stage and date, the bid / contract will be rejected / terminated and actions will be initiated as per the terms and conditions of the contract.
30)	Clarification to the queries and doubts raised by the bidders will be issued as a corrigendum/addendum in the e-tenders portal.
31)	In the e-tender process, participation of bidders after the due date is not possible. The eligible bidders can login to the e-Procurement portal to ascertain the tender status.

ACKNOWLEDGEMENT

It is hereby acknowledged that I/We have gone through all the points listed under "Specification, Guidelines, Terms and Conditions" of tender document. I/We totally understand the terms and conditions and agree to abide by the same.

SIGNATURE OF TENDERER ALONG WITH SEAL OF THE COMPANY WITH DATE

ANNEXURE – A

Bidder Eligibility Criteria and Technical Specification for SUPPLY FABRICATION TESTING AND INSTALLATION OF "LABORATORY GAS PIPELINES FOR SAFE SUPPLY OF MULTIPLE FLAMMABLE GASSES AND MIXING"

Tender No. ME/VARU/096/2024/GASPIPEMIX

Bidder Eligibility Criteria – I (Public Procurement – Preference to Make in India)

Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE-II) dated 16th September 2020 and other subsequent orders issued therein (**ANNEXURE – D**)

Bidder Eligibility Criteria – II

1. Vendor Registration ID/Proof.
2. Land Border Certificate (**ANNEXURE – E**).
3. **OEM Certificate Form**-The Participating Bidder's firm shall be the Original Equipment Manufacturer (OEM) or OEM Certified authorized firm (**ANNEXURE – F**).
4. Non- Debarment Declaration **(ANNEXURE – H**).
5. Mandate Form **(ANNEXURE – J)**
6. EMD as per Tender, to be remitted in the account number as given in the **(Annexure – I)** or EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) and Startups as recognized by Department of Industrial Policy & Promotion (DIPP). (MSE/MSME/DIPP PROOF should be enclosed in the cover containing technical bid).
7. **a) OEM CLAUSE**: Prospective bidder must be an original equipment manufacturer and fabricator of high-pressure gas lines and manifolds. Documentary proof on the same should be submitted along with the offer.

   b) EXPERIENCE CLAUSE: Prospective bidder must have adopted Indian standards or relevant ANSI standards for designing and customizing high-pressuregas lines and manifolds as per user requirements. They must have experience in testing gas manifolds similar to those described in the technical specifications. Documentary proof on the same should be submitted along with the offer.

   c) COMPATIBILITY OF ASSEMBLY PARTS CLAUSE: Prospective bidder should be the manufacturer of high-pressure valves, proportional relief valves, mechanical fittings, threaded fittings and pressure regulators for customizing the gas manifold as per user requirements. Documentary proof in this regard should be submitted along with the offer.

   d) DESIGN AND DRAFTING CLAUSE: Prospective bidder should submit a tentative P&ID drawing in line with the drawing attached along with the tender document to confirm that they have understood the scope of work for the design, fabrication and testing of gas lines and manifolds.

8. **EVALUATION OF TECHNO-COMMERCIAL OFFERS:**

Techno-commercial offers will be evaluated based on evaluation criteria as per Sections 2.0 and 4.0 of the tender documents. The following documents should be mandatorily submitted along with the techno commercial offer

a) All relevant documents as per Section 2.0 of the tender document.

b) A detailed description of each part of the gas lines and panels described in theattached P&ID and fulfilling all the criteria described in the tender document(Refer to Section 4.0).

c) Details of all fittings, clamps, and mounting brackets of panel

d) Confirmation that the bidder has understood the scope of work involving fabrication and testing (Refer to Section 5.0).

e) Prospective bidder should confirm 2-year warranty on gas lines and manifoldand replacement of damaged parts during the entire period

9. **SUBMISSION OF DRAWINGS**

a) Prospective bidder must confirm in their offer that they have understood the scope of fabrication work described in this tender. After order placement, they must also confirm that they will prepare all relevant drawings.

b) After the placement of the order, the supplier will prepare their own P&ID and2D drawings and submit details of each part and their respective position/location in the mounting panel. Front and isometric view drawings may also be prepared at their end for more clarity

c) The laboratory has a dimensional restriction; therefore, the bidder must note that overall dimensions must be within the tolerances provided in the tender document

III. Technical Specification for Supply Fabrication Testing and Installation of "Laboratory Gas Pipelines for Safe Supply of Multiple Flammable Gasses and Mixing"

INTRODUCTION

The entire setup to be supplied by the vendor must consists of the following 3 subsystems -

1. Source gas panel for 4 gasses and with provision for extension to more gasses.
2. Pipeline from source to outlet for 4 gasses and with provision for extension to more gasses.
3. Final mixing panel outlet for 4 gasses and with provision for extension to more gasses.

Detailed technical specifications for the 3 subsystems listed above to be met by bidding vendors are given in the Table below. The vendors must indicate compliance in the appropriate column and must also give reference to a specific page(s) of the product catalog or an OEM webpage containing the detailed product information in section 4.0. (Failure to meet the specifications outlined in section 4.0 with the product catalog or OEM webpage will result in disqualification of the bidder from participating).

3.0 P&ID OF GAS PANELS FOR H2, CH4, C3H8 AND N2.

Note: Prospective bidder should go through the P&ID and prepare the techno-commercial offer accordingly. It may be noted that the supply of gas cylinders, FBA (Flashback Arrestor), MFC (Mass flow controller) and air compressor are not in the scope of the tender. All diagrams features tubing and tube accessories with a size of ¼". After the MFC outlet in Fig

3, the size transitions to ½", as specified below. (All the pictures shown below are for reference only)

Fig 1: I - Source gas panel for 4 gasses with provision for extension to more gasses (wall-mounted panel inside the gas cabinet)

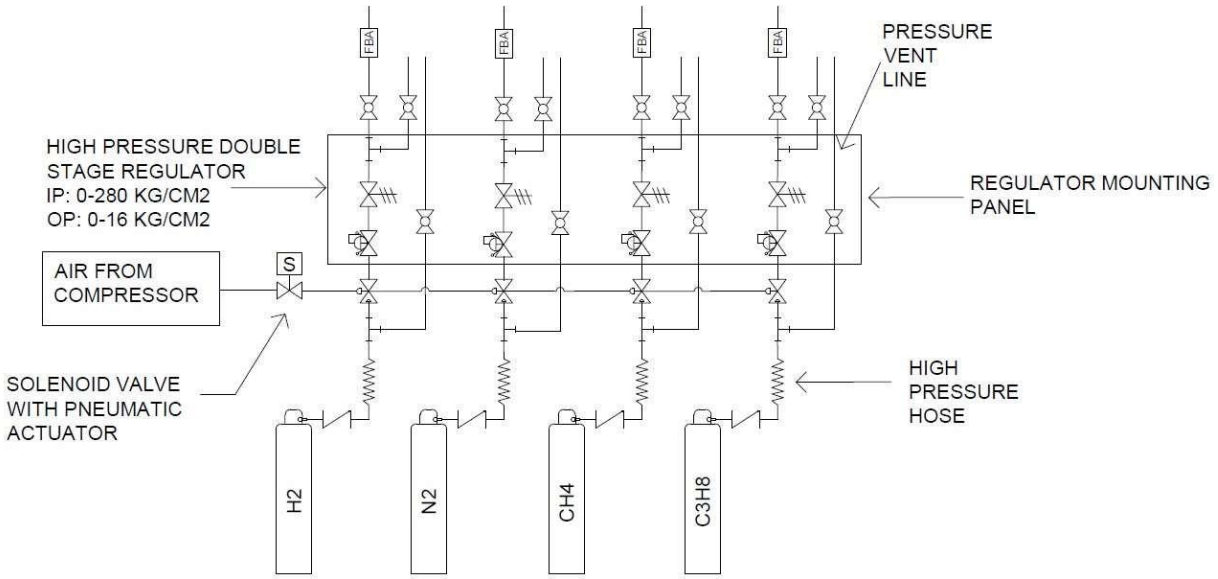


Fig 2: II - Pipeline from source to outlet (wall-mounted panel)

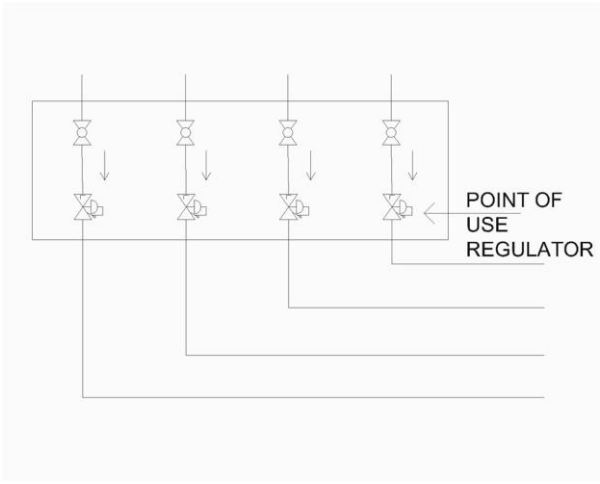


Fig 3: III - Final mixing panel outlet (should be movable)

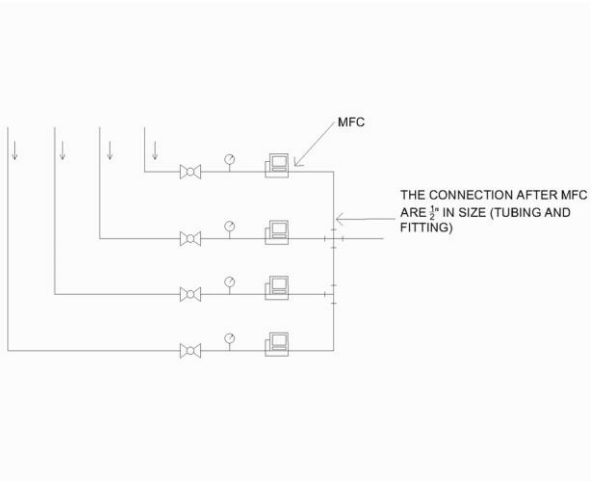
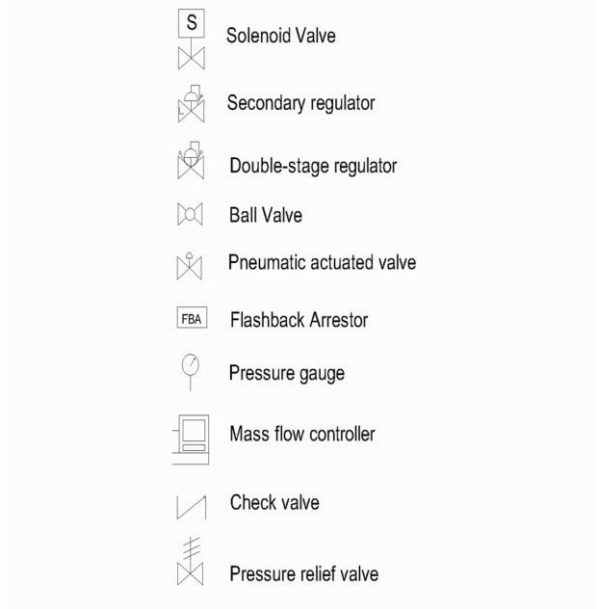


Fig 4: Legends



4.0 TECHNICAL SPECIFICATIONS OF COMPONENTS IN SOURCE GAS PANEL, PIPELINEFROM SOURCE TO OUTLET AND FINAL MIXING PANEL OUTLET

TECHNICAL SPECIFICATIONS OF DOUBLE-STAGE PRESSURE REGULATOR		
S. No	**Description**	**Specifications**
1	Type	Note: a). Pressure regulators, if directly connected to gas cylinders must mandatorily have pressure gauges for analog display of inlet and outlet pressure. Design rating for the regulator should be 300 bar (±10 %). b). Pressure regulators connected to the two gas lines may have only one dial gauge for analog display of outlet pressure. Design rating for the regulator should be 300 bar (±10 %). c). Pressure regulators should have suitable end- connection (BSPP/NPT/ferrule fitting/any other) for connecting them to the pigtail or main gas line. These fittings are described separately. d). Any other option of pressure regulator shall be clearly indicated in the offer.
2	Body	Dual grade material (SS316/SS316L)
3	Accuracy of pressure gauges	±1%
4	Operating temperature	-40 to 60^{o}C
5	Effect of supply pressure/inlet pressure	<0.02% for double stage regulator
6	Leak integrity	≤1x10-5std. cc/sec of helium
7	Pressure adjusting spring	Spring steel
8	Pressure adjusting knob	Acrylnitrile Butadiene Styrene

9	Outlet connection	a) For regulator connected to hose, end- connection should be suitable for connecting the hose. End-connections should be such that both hose and pressureregulator can be replaced if damaged. b). For regulators connected in-line, NPT/BSP or any other fittings should be provided that should withstand the leak rate and design test pressure as specified.
10	Inlet connection	a) For regulator connected to cylinder, end-connection should be 5/8" BSP (M) RH for argon gas service. Inlet and outlet ports should be compatible with IS: 3224- 1971 for standard Hydrogen, Nitrogen, Methane & Propane cylinders. b) For regulators connected in-line, NPT/BSP or any other fittings should be provided that should withstand the leak rateand design test pressure as specified.
11	Diaphragm	Convoluted diaphragm made from ASTM A240/240M, (Grade: SS316/SS316L), contamination free
12	Design inlet pressure (maximum)	300 bar ±10 %
13	Design outlet pressure (minimum)	17 bar ±10 %
14	Other features	a). Dial of pressure gauge should have clear indication of pressure in kg/cm^2 or inanother pressure unit (bar, psig etc.) b). Regulator should be tested as per designpressure of ≥250 bar (±10 %). Applicable standards such as ANSI B31.3should be used for finding out design pressure rating of the regulator. Accordingly, the details should be indicatedin the techno-commercial offer. c). Fluid media temperature will not be more than 35 ^oC but the regulator should bedesigned for at least 75-100^oC d). Make of both cylinder regulator andgas-line regulator should preferably be same or else it should be mentioned separately in the offer. All associated fittings should be compatible with highpressure rating of gas manifold.
TECHNICAL SPECIFICATION OF POINT OF USE PRESSURE REGULATOR		

1	Type	Note: a).Pressure regulators must mandatorily have pressure gauges for analog display ofinlet and outlet pressure. Design rating forthe regulator should be 20 bar (±10 %). b). Pressure regulators connected to the twogas lines may have only one dial gauge for analog display of outlet pressure. Design rating for the regulator should be 20 bar (±10 %). c). Pressure regulators should have suitable end- connections (BSPP/NPT/ferrule fitting/any other) for connecting them to thepigtail or main gas line. These fittings are described separately. d). Any other option of pressure regulator shall be clearly indicated in the offer.
2	Body	Dual grade material (SS316/SS316L)
3	Accuracy of pressure gauges	±1%
4	Operating temperature	-40 to 60^{o}C
5	Effect of supply pressure/inlet pressure	<0.02% for double stage regulator
6	Leak integrity	$\leq 1x10^{-5}$std. cc/sec of helium
7	Pressure adjusting spring	Spring steel
8	Pressure adjusting knob	Acrylnitrile Butadiene Styrene
9	Outlet connection	The 1/4" hose is to be connected to the outletof the regulator
10	Inlet connection	Compatible to 1/4” tube with OD connection, and necessary ferrule fittings as per the P&ID.
11	Diaphragm	Convoluted diaphragm made fromASTM A 240/240M, (Grade: SS316/SS316L), contamination free
12	Design inlet pressure (maximum)	20 bar ±10 %
13	Design outlet pressure	5 bar ±20 %

	(minimum)	
14	Other features	a) Dial of pressure gauge should have clear indication of pressure in kg/cm^2 orin another pressure unit (bar, psig etc.) b) Regulator should be tested as per designpressure of ≥100 bar (±10 %). Applicable standards such as ANSI B31.3 should be used for finding out design pressure rating of the regulator. Accordingly, the details should be indicatedin the techno-commercial offer. c). Fluid media temperature will not be more than 35 ^oC but the regulator should bedesigned for at least 75-100^oC d). Make of both cylinder regulator andgas-line regulator should preferably be same or else it should be mentioned separately in the offer. All associated fittings should be compatible with high pressure rating of gas manifold
TECHNICAL SPECIFICATIONS OF BALL VALVES		
1	Body material	SS316L/SS316
2	Valve size	Compatible to 1/4" tube with OD connection, Thread connections not acceptable for 2-way ball valve
3	Working pressure	≥200 bar (±10 %).
4	Fluid temperature	50 ^oC max.
5	Connection	Double ferrule fittings or should be designed for qualifying the entire assembly at 200 bar (±10 %). Should becompatible to 1/4"tube main gas line.
6	Actuation	Manual by hand. Directional handleshould show position of orifice.
7	Essential features	PTFE capsule seat packing, one-piece ball stem. Handle should be of nylon with stainless steel insert. Set screw, packing bolt, springs, gland, ball stem, side ringsand discs should confirm.
8	Material	SS304L/ SS316/ SS316L/ 300 series SS. Panel nut should conform to 300 seriesstainless steel.
TECHNICAL SPECIFICATION OF PROPORTIONAL PRESSSURE RELIEF VALVE		

1	Inlet working pressure	20 bar (±10 %)
2	Outlet working pressure	Upto 20 bar (±10 %)
3	Set pressure	Upto 10 bar (±10 %)
4	Fluid type	Inert gases such as argon and nitrogen
5	Fluid temperature	Ambient to 50 ^{o}C (maximum)
6	Body	SS316
7	Insert, seat and seat retainer	SS316
8	Spring an dsleeve	300 series stainless steel
9	Spring support	300 series stainless steel
10	Bonnet	SS316
11	Stem	SS316
12	O-ring	Fluorocarbon based elastomer
13	End-connections	Any standard connections that will be compatible to 1/4" tube main gas line andcan be subjected to design test pressure. Can be double ferrule/ NPT fitting.
14	Plug, cap and lock nut	300 series stainless steel
TECHNICAL SPECIFICATIONS OF PNEUMATIC ACTUATOR WITH SOLENOID VALVE		
1	Material of construction	Body - Anodized cast aluminum alloy withblack exterior finish, Piston - Cast aluminum alloy.
2	Actuation/ solenoid operation	Air pressure actuation to open and close the ball valve, 90 degree actuation with 2 way flow paths, spring return, normally closed/ energized to open.

3	Actuation pressure	1 to 10 bar
4	Actuator Type	Solenoid valve to be mounted with ISO5211-compliant pneumatic actuator
5	Lubricant	Silicone and PTFE based lubricant
6	Connection	Compatible with 1/4" valves, preferably forall four gas lines (H2, CH4, N2, and C3H8).
7	Power Requirement	120/240 V AC FOR energizing
8	Electrica ldetails	240 AC
9	Temperatur eRange	0 - 40 deg Celcius
10	Certification	General purpose and water tight protectionwith NEMA 4 approval
TECHNICAL SPECIFICATION OF FIREPROOF GAS CABINET		
1	Type	G90 (90 minutes resistant) type fire resistant cabinets, Number of doors - 2, Should have below mentioned requirements Space for mounting connecting pipes and gas fittings (gas panels with integrated fittings), Integrated air ducts for ventilation, cylinder retainers, Rolling ramp and matching tension belt.
2	Storage capacity	Should accommodate up to 4 x 50-litre gascylinders or 8 x 10-litre gas cylinders.
3	Dimensions	The below-mentioned dimensions can varyaround 10% in all aspects External dimensions:Width - 1400 mm Depth - 620 mm Height - 2000 mm Internal dimensions: Width - 1250 mm Depth - 400 mm Height - 1900 mm
4	Weight	Weight without equipment < 700 kgMaximum load - 600kg

5	Ventilation	Integrated air ducts with proper ventilation are to be provided and the ducts should be ready for connection with the exhaust.
6	Testing and certification	Testing and warranty certificate with all safety aspects to be provided with proper standards.
TECHNICAL SPECIFICATIONS OF IN-LINE FILTER		
1	Type	Air-line filter for trapping particulate matter
2	Material (Bonnet, bonnetnut, gasket, body etc.)	SS304/SS316/SS304L/SS316L
3	Size and end-connections	Compatible to 1/4" tube with suitableend- connections and compatible to design pressure rating of gas manifold. To be double ferrule fittings be specifically mentioned.
4	Maximum working pressure	≥200 bar
5	Filter elementand pore size	Sintered filter element for trapping particulate matter. Pore size can vary from 50 to 100 microns but it should not lead to any significant pressure drop. Sintered filter element/Mesh filtered element shouldbe replaceable.
6	Operating temperature	Ambient to 50 ^{o}C
7	Testing	Should be tested at 60 bar (minimum) andthere should not be any detectable leak.
TECHNICAL SPECIFICATION OF DOUBLE FERRULE MECHANICAL COMPRESSED GRIP TYPE TUBE FITTINGS		
1	Material specification	Tube fitting shall consist of 4 pieces, i.e. body, front ferrule, back ferrule and nut. SS316/ SS316L material is preferred. The fittings shall be capable of holding the maximum working pressure of the tubing. All the fittings end connections shall be compatible to tube of hardness less than or equal to RB 80. It should contain a minimum17% Cr, 2.5%Mo and 13% Ni. StainlessSteel Tube Fittings made from bar stock (straight configurations) should meet ASTM A276 / ASME SA479 standards and those made from forgings (including elbows,crosses and tees) should meet ASTM A182 /ASME SA182 standards. Should satisfy the requirements of ASTM F1387 Standards based

		on test reports and procedures. Tube fitting manufacturers should have ISO 9001certification.
TECHNICAL SPECIFICATIONS OF SS316/SS316L 1/4” & 1/2" SEAMLESS TUBE		
1	Material specifications	SS316 / SS316L, 1/4” seamless tube, wall thickness of 0.035” or higher to qualify the manifold at the rated pressure. Should comply with ASTM A213/A269 standards. It should contain a minimum 17% Cr, 2.5%Mo and 13% Ni. Rockwell B-HRB hardness of tube should be better than 80 for proper fitting (swaging) of double ferrule fittings. Tube should be seamless and should be manufactured with ISO 9001certification approved by any third-party inspection. The tube should be used onlyafter verification of the raw material test certificate by the purchaser. It should comprise of heat code, lot code, chemical composition, and mechanical test reports (tensile, flattening etc.). The outer surface should be bright annealed andnot pickled. The surface finish should be better than 1 micron.
TECHNICAL SPECIFICATIONS FOR HOSES		
1	Material specifications for Hoses used in Hydrogen	316L stainless steel annular convolutedDouble or Single braid layer of 321 stainless steel & ensures hose pressure containments by OEM certificate. End connections welded in accordance withASME Boiler and Pressure Vessel Code Section IX. Pressure Rated as per ASME Code for Pressure Piping, B31.1 Power Piping, andASME Boiler and Pressure Vessel Code.
2	Hose Testing for Hydrogen Hoses	Hose to be tested for inboard helium leak tested to a maximum leak rate of 1 × 10–5 std cm3/s.
3	Cleaning for Hydrogen Hoses	Hoses to be cleaned as per ASTM G93 LevelE

4	Material specifications for Hoses used other than Hydrogen application and low pressures	Fiber braid bonded to the core with a patent-pending process supports core to resist kinking. 304 stainless steel braid protects the core from abrasion and enhances hose pressure rating. PTFE material complies with FDA regulation 21CFR Part 177.1550 and USP <88> Class VI, and is free of TSE, BSE, and ADI as defined in EMEA/410/01. Hose assembly is pressure tested with water at room temperature for 30 seconds to a requirement of no detectable leakage.

TECHNICAL SPECIFICATIONS FOR MOUNTING PANEL

Description and specifications

1	a) A 3 mm thick SS304/SS304L plate should be used for mounting the entire assembly (as per P&ID attached) with suitable fixtures andclamps.
	b) Inlet side and outlet side of the Hose should be appropriately placed on the mounting panel to avoid any practical inconvenience either during the replacement of any part or while replacing the cylinders from the manifold. All parts should be evenlyspaced and fixed so that there is no swaying of gas line, bending dueto self-load etc.
	c) The outlet ends should be projected only 50-100 mm out of the panel. Both outlets should have sufficient vertical spacing for easy operation
	d) All four ends of the panel should be provided with suitable mounting brackets for wall mounting of the gas manifold in the laboratory
	e) Dimensions of the panel should not be more than 1.4 m (length) x 1 m (height), with a variation of 10% in both dimensions
	f) There should not be any sharp edges, burrs, cracks and crevices onthe front or rear end of the panel and all corner ends should be appropriately rounded. Based on the overall weight of the manifold, corner brackets, bottom platform, side brackets should be provided for safe mounting. Therefore, the entire assembly must be load-tested prior to testing.

CLAMPING, FITTING AND ASSEMBLY OF COMPONENTS

1	a). 1/4" tube, which is the main gas line, should be clamped at equal spacing to avoid hindrances while replacing any part. End- connection of pigtails should be such that they can be easily removed and replaced. Connectors for joining the double-stage regulator and pigtail should be removable type in case there is a need to replace either of them. Carbon steel or mild steel clamps or fittings should beused in the assembly.

	b). All end-connections for horizontal and vertical connections of 1/4" tube should be rated for high-pressure operation and the bidder should accordingly provide these details in the offer.
	c). All parts should be connected and mounted in such a way that in case of malfunction, each of the parts can be replaced without disturbing the main gas lines. d). There should be enough vertical space between the two outletstreams (Refer to P&ID) for connection to any other at a later stage. e). All types of fittings used shall conform to SS316/SS316L (withcarbon content
	e). All types of fittings used shall conform to SS316/SS316L (with carbon content less than 0.03%) as per ASTM A276/SA479 or A182/SA182 standards. They should be rated at least 1.5 timeshigher than the working pressure rating of 1/4" seamlesstube. All inter-compatibilities between seamless tube, tube fittings and threaded end fittings should be explored and only then should the final selection be made. All these points should be described in detail in the offer.
	f). **REPLACEMENT OF FITTINGS AND PARTS**: The prospective bidder should design the system in such a way that all fittings and parts are replaceable in case of damage or malfunctioning.Therefore, welded joints should be avoided to the best extent possible.
PRESSURE TESTING AND LEAK TESTING OF GAS MANIFOLD	
1	a). After fabrication of the entire assembly, it should be subjectedto hydrostatic or pneumatic pressure testing at 200 bar (±10 %) and helium leak testing with an acceptable leak rate of less than 10^{-4} std cc/sec of helium. Both test reports should be duly certified and submitted for prior approval by the purchaser before shipment of theassembly.
	b). All isolation ball valves should be tested at the design test pressure to confirm the pressure isolation of the two outlet streams.
	c). All positive pressure gauges should be tested at their respective design-rated pressure.
	d). The proportional pressure relief valve should be tested at a cut-offpressure of 10 bar. Finally, it should be pre-calibrated at the cut-off pressure of 10 bar. Variations in set pressure can be around ±10%.
SUBMISSION OF TEST REPORTS, CALIBRATION CERTIFICATES, DATASHEETS	
1	a). All pressure testing and helium leak testing reports, calibration reports of valves, regulators, pressure gauges and flowmeters, raw material test report for the SS304L mounting panel should be submitted to the purchaser for verification before the final shipment.

	b). Installation of the assembly will be considered completed only after checking all leaks using leak detection system to be carried outat the purchaser's premises. The leak rate report should be submittedto the purchaser for technical acceptance.
END-CONNECTIONS OF OUTLET STREAMS	
1	a). The main feed line to the glove box should be fixed with ½" BSP straight union and closed by plastic cap for preventing particulate matter from going into the main gas line.
	b). The gas purging line should be fixed with ½" x ¼" reducer with double ferrule fittings and nut and closed by the plastic cap for preventing particulate matter going into the main gas line.
WARRANTY CLAUSE	
1	a). Since the gas manifold is very critical with respect to overall functionality of the system, the entire assembly should be supplied with a 2-year warranty against any manufacturing defect and malfunctioning of any part of the manifold.
	b) During the commissioning of the panel at IITM and during the warranty period, the supplier must carry out leak detection tests usingan ultrasonic leak detection probe.

5.0 BILL OF MATERIALS

The list of components and spares required in quantities are mentioned below. The components and accessories for each gas panel are indicated in the P&ID diagram, and the technical specifications are in sections 3.0 and 4.0, respectively.

The compliance below will be accepted only when all the components in section 4.0 meet the technical specifications mentioned in the catalog or OEM webpage.

S. No	Description	Schedule of quantity
1	Supply of I-Source gas panel for 4 gasses with provision for extension to more gasses as per detailed specifications and annexure. (Refer section 3.0, Fig 1)	1 set
2	Supply of II-Pipe line from source to outlet gas panel as per detailed specifications and annexure. (Refer section 3.0, Fig 2)	1 set
3	Supply of III-Final mixing panel outlet as per detailed specifications and annexure. (Refer section 3.0, Fig 3)	1 set

4	Supply of high-pressure gas tubing (1/4”) of length 150 meters as per detailed specifications and annexure.	1 set
	Supply of high-pressure gas tubing (1/2”) of length 12 meters as per detailed specifications and annexure.	
5	Fireproof gas cabinets as per technical specification.	1 No
6	Solenoid valve with pneumatic actuators as per technical specification.	4 Nos
7	Spare ball valve as per technical specification.	2 Nos
8	Spare double-stage pressure regulator as per technical specification.	1 No
9	Spare secondary pressure regulator as per technical specification..	1 No
10	Spare proportional relief valve as per technical specification.	2 Nos
11	Spare In-line gas filters as per technical specification.	4 Nos

1	**The scope of work involves the following**
	a). Preparation of P&ID drawing for the gas panels and high-pressure lines in linewith the drawing provided along with the tender document.
	b). Submission of detailed specifications of each part of the assembly for approval by purchaser.
	c). Fabrication, testing, inspection, and supply of assembly, along with all test reportsand Certificates.

6.0 CONFIRMATION SHEET

Prospective bidder must fill in the details and submit the same along with the techno-commercialoffer.

S. No.	Description
1	Prospective bidder has understood the scope of Work as described in tender document.

2	Prospective bidder has understood that all parts subjected to maximum design pressure have to be connected by high-pressure tube fittings. Selection of fittings is in the scope of the bidder.
3	Prospective bidder understood the pressure and leak testing requirements of the gas lines and manifolds?
4	Prospective bidder has provided all details of end- connections between each part and components? Do they confirm that they are all compatible with high-pressure ratings as specified in the tender document?
5	Prospective bidder has complied all points in the tender document and provided details in the techno-commercial offer on each part, complete assembly, pressure rating of each component, pressure testing of assembly, submission of reports, etc.

7.0 TRANSPORT AND DELIVERY

S. No	Description
1	Entire assembly should be safely packed to avoid any physical and structural damage to any part during transit. All spares should be separately packed and labelled accordingly.

8.0 WARRANTY

S. No	Description
1	The final fabricated assembly should be under a warranty period of 2 years.

9.0 INSTALLATION

S. No	Description
1	Installation of gas lines and panels at the purchaser's site will bein the scope of the bidder

2	Complete functionality and operation of the gas manifold should be demonstrated by the supplier. 3 personnel from the purchaser's end should be trained by the supplier's personnel on thecomplete functionality of the gas manifold. All copies of test certificates/reports of all parts, pressure testing and helium leak testing reports of final assembly should be provided by the supplier at the time of PDI and installation at the purchaser's site

ANNEXURE - B

TECHNICAL BID PROFORMA

Tender No. ME/VARU/096/2024/GASPIPEMIX

Item Name: SUPPLY FABRICATION TESTING AND INSTALLATION OF "LABORATORY GAS PIPELINES FOR SAFE SUPPLY OF MULTIPLE FLAMMABLE GASSES AND MIXING"

1.0 Bidder Eligibility Criteria:

I	**Bidder Eligibility Criteria-I (Public Procurement – Preference to Make in India)**	**Class I / Class II**	**Local Content Percentage**	**Ref. Page No.**
I	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16th September 2020 and other subsequent orders issued therein **(ANNEXURE – D)**			

2.0 Bidder Eligibility Criteria:

II	**Bidder Eligibility Criteria-II**	**Complied/Not Complied**	**Ref Page No.**
1	Vendor Registration ID/Proof		
2	Land Border Certificate (**ANNEXURE – E**)		
3	**OEM Certificate Form**-The Participating Bidder's firm shall be the Original Equipment Manufacturer (OEM) or OEM Certified authorized firm (**ANNEXURE – F**)		
4	Non- Debarment Declaration **(ANNEXURE – H**).		
5	Mandate Form **(ANNEXURE – J)**		
6	EMD as per Tender, to be remitted in the account number as given in the **(Annexure – I)** or EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) and Startups as recognized by Department of Industrial Policy & Promotion (DIPP). (MSE/MSME/DIPP PROOF should be enclosed in the cover containing technical bid).		
7	**a) OEM CLAUSE**: Prospective bidder must be an original		

	equipment manufacturerand fabricator of high-pressure gas lines and manifolds. Documentary proof on the same should be submitted along with the offer. **b) EXPERIENCE CLAUSE**: Prospective bidder must have adopted Indian standards or relevant ANSI standards for designing and customizing high-pressure gas lines and manifolds as per user requirements. They must have experience in testing gas manifolds similar to those described in the technical specifications. Documentary proof on the same should be submitted along with the offer. **c) COMPATIBILITY OF ASSEMBLY PARTS CLAUSE**: Prospective bidder should be the manufacturer of high-pressure valves, proportional relief valves, mechanical fittings, threaded fittings and pressure regulators for customizing the gas manifold as per user requirements. Documentary proof in this regard should be submitted along with the offer. **d) DESIGN AND DRAFTING CLAUSE:** Prospective bidder should submit a tentative P&ID drawing in line with the drawing attached along with the tender document to confirm that they have understood the scope of work for the design, fabrication and testing of gas lines and manifolds.		
8	**EVALUATION OF TECHNO-COMMERCIAL OFFERS:** Techno-commercial offers will be evaluated based on evaluation criteria as per Sections 2.0 and 4.0 of the tender documents. The following documents should be mandatorily submitted along with the techno commercial offer a) All relevant documents as per Section 2.0 of the tender document. b) A detailed description of each part of the gas lines and panels described in the attached P&ID and fulfilling all the criteria described in the tender document(Refer to Section 4.0). c) Details of all fittings, clamps, and mounting brackets of panel d) Confirmation that the bidder has understood the scope of work involving fabrication and testing (Refer to Section 5.0). e) Prospective bidder should confirm 2-year warranty on gas lines and manifold and replacement of damaged parts during the entire period		
9	**SUBMISSION OF DRAWINGS** a) Prospective bidder must confirm in their offer that they have understood the scope of fabrication work described in this tender. After order placement, they must also confirm that they will prepare all relevant drawings.		

	b) After the placement of the order, the supplier will prepare their own P&ID and 2D drawings and submit details of each part and their respective position/location in the mounting panel. Front and isometric view drawings may also be prepared at their end for more clarity c) The laboratory has a dimensional restriction; therefore, the bidder must note that overall dimensions must be within the tolerances provided in the tender document		

Technical Specification for Supply Fabrication Testing and Installation of "Laboratory Gas Pipelines For Safe Supply of Multiple Flammable Gasses and Mixing"

INTRODUCTION

The entire setup to be supplied by the vendor must consists of the following 3 subsystems -

1. Source gas panel for 4 gasses and with provision for extension to more gasses.
2. Pipeline from source to outlet for 4 gasses and with provision for extension to more gasses.
3. Final mixing panel outlet for 4 gasses and with provision for extension to more gasses.

Detailed technical specifications for the 3 subsystems listed above to be met by bidding vendors are given in the Table below. The vendors must indicate compliance in the appropriate column and must also give reference to a specific page(s) of the product catalog or an OEM webpage containing the detailed product information in section 4.0. (Failure to meet the specifications outlined in section 4.0 with the product catalog or OEM webpage will result in disqualification of the bidder from participating).

3.0 P&ID OF GAS PANELS FOR H2, CH4, C3H8 AND N2.

Note: Prospective bidder should go through the P&ID and prepare the techno-commercial offer accordingly. It may be noted that the supply of gas cylinders, FBA (Flashback Arrestor), MFC (Mass flow controller) and air compressor are not in the scope of the tender. All diagrams features tubing and tube accessories with a size of ¼". After the MFC outlet in Fig 3, the size transitions to ½", as specified below. (All the pictures shown below are for reference only)

Fig 1: I - Source gas panel for 4 gasses with provision for extension to more gasses (wall-mounted panel inside the gas cabinet)

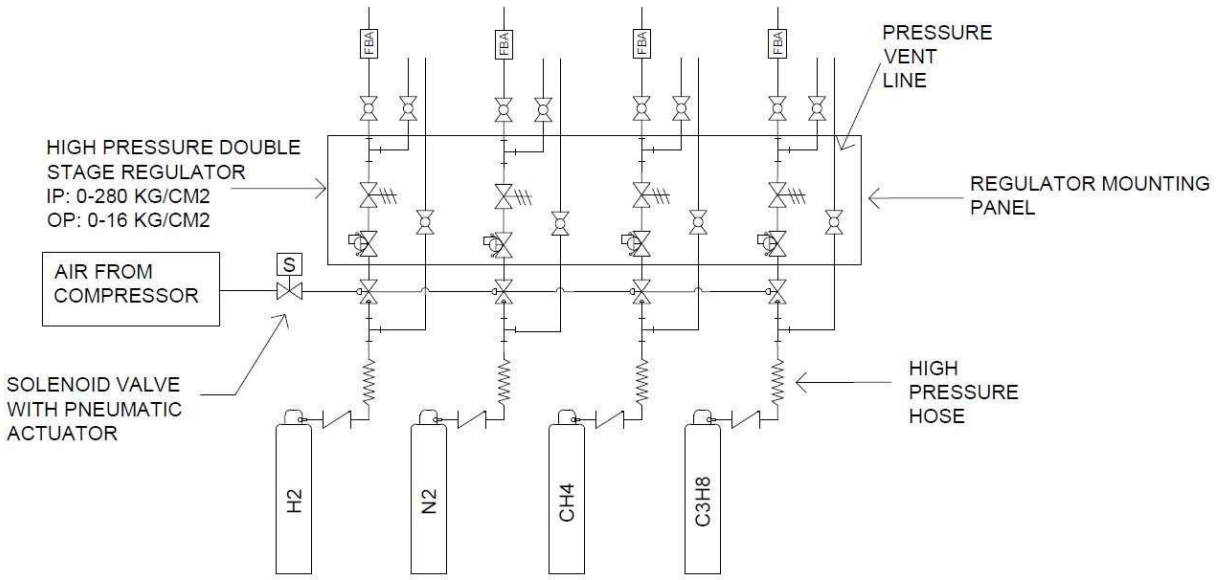


Fig 2: II - Pipeline from source to outlet (wall-mounted panel)

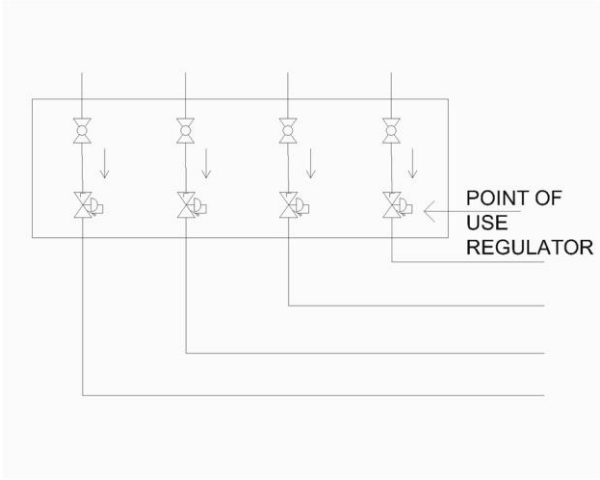


Fig 3: III - Final mixing panel outlet (should be movable)

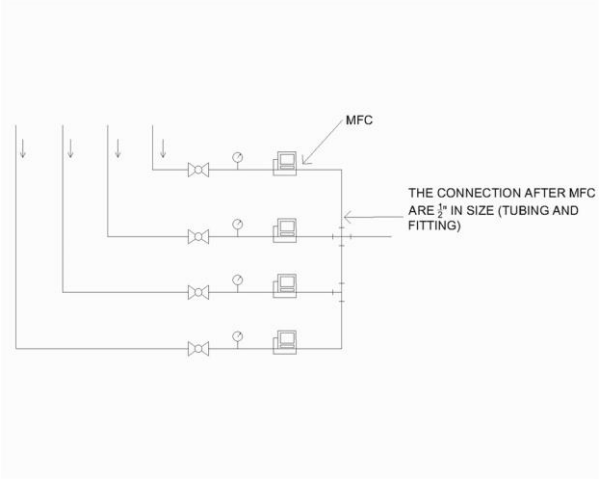
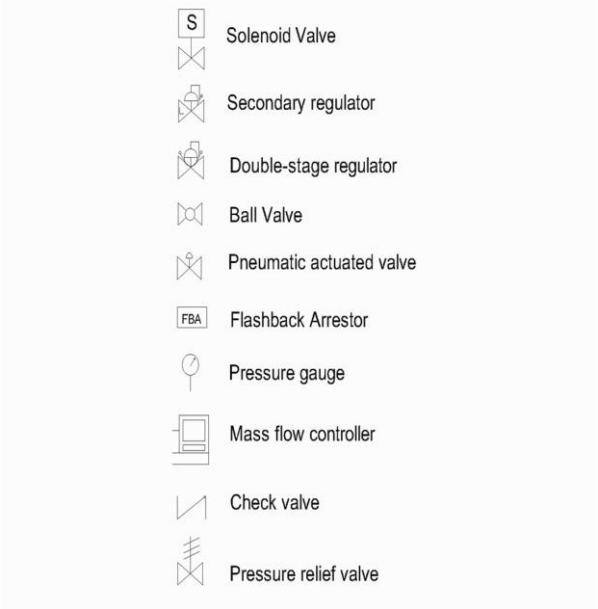


Fig 4: Legends



4.0 TECHNICAL SPECIFICATIONS OF COMPONENTS IN SOURCE GAS PANEL, PIPELINEFROM SOURCE TO OUTLET AND FINAL MIXING PANEL OUTLET

TECHNICAL SPECIFICATIONS OF DOUBLE-STAGE PRESSURE REGULATOR				
S. No	**Description**	**Specifications**	**Complied /Not Complied**	**Ref. Page No.**
1	Type	Note: a) Pressure regulators, if directly connected to gas cylinders must mandatorily have pressure gauges for analog display of inlet and outlet pressure. Design rating for the regulator should be 300 bar (±10 %). b) Pressure regulators connected to the two gas lines may have only one dial gauge for analog display of outlet pressure. Design rating for the regulator should be 300 bar (±10 %). c) Pressure regulators should have suitable end-connection (BSPP/NPT/ferrule fitting/any other) for connecting them to the pigtail or main gas line. These fittings are described separately. d). Any other option of pressure regulator shall be clearly indicated in the offer.		
2	Body	Dual grade material (SS316/SS316L)		
3	Accuracy of pressure gauges	±1%		
4	Operating temperature	-40 to 60^{o}C		
5	Effect of supply pressure/inlet pressure	<0.02% for double stage regulator		
6	Leak integrity	≤1x10-5std. cc/sec of helium		
7	Pressure adjusting spring	Spring steel		
8	Pressure adjusting knob	Acrylnitrile Butadiene Styrene		

9	Outlet connection	a) For regulator connected to hose, end-connection should be suitable for connecting the hose. End-connections should be such that both hose and pressureregulator can be replaced if damaged. b) For regulators connected in-line, NPT/BSP or any other fittings should beprovided that should withstand the leak rate and design test pressure as specified.		
10	Inlet connection	a)For regulator connected to cylinder, end-connection should be 5/8" BSP (M) RH for argon gas service. Inlet and outlet ports should be compatible with IS: 3224- 1971 for standard Hydrogen, Nitrogen, Methane & Propane cylinders. b) For regulators connected in-line, NPT/BSP or any other fittings should be provided that should withstand the leak rateand design test pressure as specified.		
11	Diaphragm	Convoluted diaphragm made from ASTM A 240/240M, (Grade: SS316/SS316L), contamination free		
12	Design inlet pressure (maximum)	300 bar ±10 %		
13	Design outlet pressure (minimum)	17 bar ±10 %		
14	Other features	a) Dial of pressure gauge should have clear indication of pressure in kg/cm^2 or inanother pressure unit (bar, psig etc.) b) Regulator should be tested as per designpressure of ≥250 bar (±10 %). Applicable standards such as ANSI B31.3should be used for finding out design pressure rating of the regulator. Accordingly, the details should be indicatedin the techno-commercial offer. c) Fluid media temperature will not be more than 35 ^{o}C but the regulator should bedesigned for at least 75-100^{o}C d) Make of both cylinder regulator andgas-line regulator should preferably be same or else it should be mentioned separately in the offer. All		

		associated fittings should be compatible with highpressure rating of gas manifold.		
TECHNICAL SPECIFICATION OF POINT OF USE PRESSURE REGULATOR				
1	Type	Note: a).Pressure regulators must mandatorily have pressure gauges for analog display ofinlet and outlet pressure. Design rating forthe regulator should be 20 bar (±10 %). b) Pressure regulators connected to the twogas lines may have only one dial gauge for analog display of outlet pressure. Design rating for the regulator should be 20 bar (±10 %). c) Pressure regulators should have suitable end-connections (BSPP/NPT/ferrule fitting/any other) for connecting them to thepigtail or main gas line. These fittings are described separately. d). Any other option of pressure regulator shall be clearly indicated in the offer.		
2	Body	Dual grade material (SS316/SS316L)		
3	Accuracy of pressure gauges	±1%		
4	Operating temperatue	-40 to 60^{o}C		
5	Effect of supply pressure/inlet pressure	<0.02% for double stage regulator		
6	Leak integrity	$\leq 1x10^{-5}$std. cc/sec of helium		
7	Pressure adjusting spring	Spring steel		
8	Pressure adjusting knob	Acrylnitrile Butadiene Styrene		
9	Outlet connection	The 1/4" hose is to be connected to the outletof the regulator		
10	Inlet connection	Compatible to 1/4” tube with OD connection, and necessary ferrule fittings asper the P&ID.		

11	Diaphragm	Convoluted diaphragm made fromASTM A 240/240M, (Grade: SS316/SS316L), contamination free		
12	Design inlet pressure (maximum)	20 bar ±10 %		
13	Design outlet pressure (minimum)	5 bar ±20 %		
14	Other features	a)Dial of pressure gauge should have clear indication of pressure in kg/cm^2 orin another pressure unit (bar, psig etc.) b) Regulator should be tested as per designpressure of ≥100 bar (±10 %). Applicable standards such as ANSI B31.3 should be used for finding out design pressure rating of the regulator. Accordingly, the details should be indicatedin the techno-commercial offer. c) Fluid media temperature will not be more than 35 ^{o}C but the regulator should bedesigned for at least 75-100^{o}C d) Make of both cylinder regulator andgas-line regulator should preferably be same or else it should be mentioned separately in the offer. All associated fittings should be compatible with high pressure rating of gas manifold		
TECHNICAL SPECIFICATIONS OF BALL VALVES				
1	Body material	SS316L/SS316		
2	Valve size	Compatible to 1/4" tube with OD connection, Thread connections not acceptable for 2-way ball valve		
3	Working pressure	≥200 bar (±10 %).		
4	Fluid temperature	50 ^{o}C max.		
5	Connection	Double ferrule fittings or should be designed for qualifying the entire assembly at 200 bar (±10		

		%). Should becompatible to 1/4”tube main gas line.		
6	Actuation	Manual by hand. Directional handleshould show position of orifice.		
7	Essential features	PTFE capsule seat packing, one-piece ball stem. Handle should be of nylon with stainless steel insert. Set screw, packing bolt, springs, gland, ball stem, side ringsand discs should confirm.		
8	Material	SS304L/ SS316/ SS316L/ 300 series SS. Panel nut should conform to 300 seriesstainless steel.		
TECHNICAL SPECIFICATION OF PROPORTIONAL PRESSSURE RELIEF VALVE				
1	Inlet working pressure	20 bar (±10 %)		
2	Outlet working pressure	Upto 20 bar (±10 %)		
3	Set pressure	Upto 10 bar (±10 %)		
4	Fluid type	Inert gases such as argon and nitrogen		
5	Fluid temperature	Ambient to 50 ^{o}C (maximum)		
6	Body	SS316		
7	Insert, seat and seat retainer	SS316		
8	Spring and sleeve	300 series stainless steel		
9	Spring support	300 series stainless steel		
10	Bonnet	SS316		
11	Stem	SS316		
12	O-ring	Fluorocarbon based elastomer		
13	End-connections	Any standard connections that will be compatible to 1/4” tube main gas line andcan be subjected to		

		design test pressure. Can be double ferrule/ NPT fitting.		
14	Plug, cap and lock nut	300 series stainless steel		
TECHNICAL SPECIFICATIONS OF PNEUMATIC ACTUATOR WITH SOLENOID VALVE				
1	Material of construction	Body - Anodized cast aluminum alloy withblack exterior finish, Piston - Cast aluminum alloy.		
2	Actuation/ solenoid operation	Air pressure actuation to open and close the ball valve, 90 degree actuation with 2 way flow paths, spring return, normally closed/ energized to open.		
3	Actuation pressure	1 to 10 bar		
4	Actuator Type	Solenoid valve to be mounted with ISO5211-compliant pneumatic actuator		
5	Lubricant	Silicone and PTFE based lubricant		
6	Connection	Compatible with 1/4" valves, preferably forall four gas lines (H2, CH4, N2, and C3H8).		
7	Power Requirement	120/240 V AC FOR energizing		
8	Electrica ldetails	240 AC		
9	Temperatur eRange	0 - 40 deg Celcius		
10	Certification	General purpose and water tight protectionwith NEMA 4 approval		
TECHNICAL SPECIFICATION OF FIREPROOF GAS CABINET				
1	Type	G90 (90 minutes resistant) type fire resistant cabinets, Number of doors - 2, Should have below mentioned requirements Space for mounting connecting pipes and gas fittings (gas panels with integrated fittings), Integrated air ducts for ventilation, cylinder retainers, Rolling ramp and matching tension belt.		
2	Storage capacity	Should accommodate up to 4 x 50-litre gascylinders or 8 x 10-litre gas cylinders.		

3	Dimensions	The below-mentioned dimensions can varyaround 10% in all aspects External dimensions:Width - 1400 mm Depth - 620 mm Height - 2000 mm Internal dimensions: Width - 1250 mm Depth - 400 mm Height - 1900 mm		
4	Weight	Weight without equipment < 700 kg Maximum load - 600kg		
5	Ventilation	Integrated air ducts with proper ventilation are to be provided and the ducts should be ready for connection with the exhaust.		
6	Testing and certification	Testing and warranty certificate with all safety aspects to be provided with proper standards.		
TECHNICAL SPECIFICATIONS OF IN-LINE FILTER				
1	Type	Air-line filter for trapping particulate matter		
2	Material (Bonnet, bonnetnut, gasket, body etc.)	SS304/SS316/SS304L/SS316L		
3	Size and end-connections	Compatible to 1/4" tube with suitableend-connections and compatible to design pressure rating of gas manifold. To be double ferrule fittings be specifically mentioned.		
4	Maximum working pressure	≥200 bar		
5	Filter elementand pore size	Sintered filter element for trapping particulate matter. Pore size can vary from 50 to 100 microns but it should not lead to any significant pressure drop. Sintered filter element/Mesh filtered element shouldbe replaceable.		
6	Operating temperature	Ambient to 50 ^{o}C		
7	Testing	Should be tested at 60 bar (minimum) andthere should not be any detectable leak.		

TECHNICAL SPECIFICATION OF DOUBLE FERRULE MECHANICAL COMPRESSEDGRIP TYPE TUBE FITTINGS				
1	Material specification	Tube fitting shall consist of 4 pieces, i.e. body, front ferrule, back ferrule and nut. SS316/ SS316L material is preferred. The fittings shall be capable of holding the maximum working pressure of the tubing. All the fittings end connections shall be compatible to tube of hardness less than or equal to RB 80. It should contain a minimum 17% Cr, 2.5%Mo and 13% Ni. Stainless Steel Tube Fittings made from bar stock(straight configurations) should meet ASTM A276 / ASME SA479 standards and those made from forgings (including elbows, crosses and tees) should meet ASTM A182 / ASME SA182 standards. Should satisfy therequirements of ASTM F1387 Standards based on test reports and procedures. Tube fitting manufacturers should have ISO 9001certification.		
TECHNICAL SPECIFICATIONS OF SS316/SS316L 1/4” & 1/2" SEAMLESS TUBE				
1	Material specifications	SS316 / SS316L, 1/4” seamless tube, wall thickness of 0.035” or higher to qualify the manifold at the rated pressure. Should comply with ASTM A213/A269 standards. It should contain a minimum 17% Cr, 2.5%Mo and 13% Ni. Rockwell B-HRB hardness of tube should be better than 80 for proper fitting (swaging) of double ferrule fittings. Tube should be seamless and should be manufactured with ISO 9001certification approved by any third-party inspection. The tube should be used only after verification of the raw material test certificate by the purchaser. It should comprise of heat code, lot code, chemical composition, and mechanical test reports (tensile, flattening etc.). The outer surface should be bright annealed andnot pickled. The surface finish should be better than 1 micron.		
TECHNICAL SPECIFICATIONS FOR HOSES				

1	Material specifications for Hoses used in Hydrogen	316L stainless steel annular convolutedDouble or Single braid layer of 321 stainless steel & ensures hose pressure containments by OEM certificate. End connections welded in accordance withASME Boiler and Pressure Vessel Code Section IX. Pressure Rated as per ASME Code for Pressure Piping, B31.1 Power Piping, andASME Boiler and Pressure Vessel Code.		
2	Hose Testing for Hydrogen Hoses	Hose to be tested for inboard helium leak tested to a maximum leak rate of 1 × 10–5 std cm3/s.		
3	Cleaning for Hydrogen Hoses	Hoses to be cleaned as per ASTM G93 LevelE		
4	Material specifications for Hoses usedother than Hydrogen application andlow pressures	Fiber braid bonded to the core with a patent-pending process supports core toresist kinking. 304 stainless steel braid protects the core from abrasion and enhances hose pressure rating. PTFE material complies with FDA regulation 21CFR Part 177.1550 and USP <88> Class VI, and is free of TSE, BSE,and ADI as defined in EMEA/410/01. Hose assembly is pressure tested with waterat room temperature for 30 seconds to a requirement of no detectable leakage.		
TECHNICAL SPECIFICATIONS FOR MOUNTING PANEL				
Description and specifications				
1	a) A 3 mm thick SS304/SS304L plate should be used for mounting the entire assembly (as per P&ID attached) with suitable fixtures and clamps.			
	b) Inlet side and outlet side of the Hose should be appropriately placed on the mounting panel to avoid any practical inconvenience either during the replacement of any part or while replacing the cylinders from the manifold. All parts should be evenly spaced and fixed so that there is no swaying of gas line, bending due to self-load etc			

	c) The outlet ends should be projected only 50-100 mm out of the panel. Both outlets should have sufficient vertical spacing for easy operation		
	d) All four ends of the panel should be provided with suitable mounting brackets for wall mounting of the gas manifold in the laboratory		
	e) Dimensions of the panel should not be more than 1.4 m (length) x 1 m (height), with a variation of 10% in both dimensions		
	f) There should not be any sharp edges, burrs, cracks and crevices on the front or rear end of the panel and all corner ends should be appropriately rounded. Based on the overall weight of the manifold, corner brackets, bottom platform, side brackets should be provided for safe mounting. Therefore, the entire assembly must be load-tested prior to testing.		
CLAMPING, FITTING AND ASSEMBLY OF COMPONENTS			
1	a). 1/4" tube, which is the main gas line, should be clamped at equal spacing to avoid hindrances while replacing any part. End-connection of pigtails should be such that they can be easily removed and replaced. Connectors for joining the double-stage regulator and pigtail should be removable type in case there is a need to replace either of them. Carbon steel or mild steel clamps or fittings should be used in the assembly.		
	b). All end-connections for horizontal and vertical connections of 1/4" tube should be rated for high-pressure operation and the bidder should accordingly provide these details in the offer.		
	c). All parts should be connected and mounted in such a way that in case of malfunction, each of the parts can be replaced without disturbing the main gas lines.		
	d). There should be enough vertical space between the two outlet streams (Refer to P&ID) for connection to any other at a later stage. e). All types of fittings used shall conform to SS316/SS316L (with carbon content		
	e). All types of fittings used shall conform to SS316/SS316L (with carbon content less than 0.03%) as per ASTM A276/SA479 or A182/SA182 standards. They should be rated at least 1.5 times higher than the working pressure rating of 1/4" seamless tube. All inter- compatibilities between seamless tube, tube fittings and threaded end fittings should be explored and only then should the final selection be made. All these points should be described in detail in the offer.		

	f). **REPLACEMENT OF FITTINGS AND PARTS**: The prospective bidder should design the system in such a way that all fittings and parts are replaceable in case of damage or malfunctioning.Therefore, welded joints should be avoided to the best extent possible.		
PRESSURE TESTING AND LEAK TESTING OF GAS MANIFOLD			
1.	a). After fabrication of the entire assembly, it should be subjectedto hydrostatic or pneumatic pressure testing at 200 bar (±10 %) and helium leak testing with an acceptable leak rate of less than 10^{-4} std cc/sec of helium. Both test reports should be duly certified and submitted for prior approval by the purchaser before shipment of the assembly.		
	b). All isolation ball valves should be tested at the design test pressure to confirm the pressure isolation of the two outlet streams.		
	c). All positive pressure gauges should be tested at their respective design-rated pressure.		
	d). The proportional pressure relief valve should be tested at a cut-offpressure of 10 bar. Finally, it should be pre-calibrated at the cut-off pressure of 10 bar. Variations in set pressure can be around ±10%.		
SUBMISSION OF TEST REPORTS, CALIBRATION CERTIFICATES, DATASHEETS			
1.	a). All pressure testing and helium leak testing reports, calibration reports of valves, regulators, pressure gauges and flowmeters, raw material test report for the SS304L mounting panel should be submitted to the purchaser for verification before the final shipment.		
	b). Installation of the assembly will be considered completed only after checking all leaks using leak detection system to be carried outat the purchaser's premises. The leak rate report should be submittedto the purchaser for technical acceptance.		
END-CONNECTIONS OF OUTLET STREAMS			
1.	a).The main feed line to the glove box should be fixed with ½" BSP straight union and closed by plastic cap for preventing particulate matter from going into the main gas line.		
	b). The gas purging line should be fixed with ½" x ¼" reducer with double ferrule fittings and nut and closed by the plastic cap for preventing particulate matter going into the main gas line.		

WARRANTY CLAUSE			
1.	a). Since the gas manifold is very critical with respect to overall functionality of the system, the entire assembly should be supplied with a 2-year warranty against any manufacturing defect and malfunctioning of any part of the manifold.		
	b) During the commissioning of the panel at IITM and during the warranty period, the supplier must carry out leak detection tests using an ultrasonic leak detection probe.		

5.0 BILL OF MATERIALS

The list of components and spares required in quantities are mentioned below. The components and accessories for each gas panel are indicated in the P&ID diagram, and the technical specifications are in sections 3.0 and 4.0, respectively.

The compliance below will be accepted only when all the components in section 4.0 meet the technical specifications mentioned in the catalog or OEM webpage.

S. No	Description	Schedule of quantity	Complied/Not Complied	Ref. Page No.
1	Supply of I-Source gas panel for 4 gasses with provision for extension to more gasses as per detailed specifications and annexure. (Refer section 3.0, Fig 1)	1 set		
2	Supply of II-Pipe line from source to outlet gas panel as per detailed specifications and annexure. (Refer section 3.0, Fig 2)	1 set		
3	Supply of III-Final mixing panel outlet as per detailed specifications and annexure. (Refer section 3.0, Fig 3)	1 set		
4	Supply of high-pressure gas tubing (1/4”) of length 150 meters as per detailed specifications and annexure.	1 set		
	Supply of high-pressure gas tubing (1/2”) of length 12 meters as per detailed specifications and annexure.			
5	Fireproof gas cabinets as per technical specification.	1 No		

6	Solenoid valve with pneumatic actuators as per technical specification.	4 Nos		
7	Spare ball valve as per technical specification.	2 Nos		
8	Spare double-stage pressure regulator as per technical specification.	1 No		
9	Spare secondary pressure regulator as per technical specification..	1 No		
10	Spare proportional relief valve as per technical specification.	2 Nos		
11	Spare In-line gas filters as per technical specification.	4 Nos		

1	**The scope of work involves the following**		
	a). Preparation of P&ID drawing for the gas panels and high-pressure lines in linewith the drawing provided along with the tender document.		
	d). Submission of detailed specifications of each part of the assembly for approval bypurchaser.		
	e). Fabrication, testing, inspection, and supply of assembly, along with all test reportsand Certificates.		

6.0 CONFIRMATION SHEET

Prospective bidder must fill in the details and submit the same along with the techno-commercialoffer.

S. No.	Description	Complied/ Not Complied	Remarks/ Confirmation by Bidder
1	Prospective bidder has understood the scope of Work as described in tender document.		
2	Prospective bidder has understood that all parts subjected to maximum design pressure have to be connected by high-pressure tube fittings. Selection of fittings is in the scope of the bidder.		

3	Prospective bidder understood the pressure and leak testing requirements of the gas lines and manifolds?		
4	Prospective bidder has provided all details of end- connections between each part and components? Do they confirm that they are all compatible with high-pressure ratings as specified in the tender document?		
5	Prospective bidder has complied all points in the tender document and provided details in the techno-commercial offer on each part, complete assembly, pressure rating of each component, pressure testing of assembly, submission of reports, etc.		

7.0 TRANSPORT AND DELIVERY

S. No	Description	Complied/ Not Complied	Remarks/ Confirmation by Bidder
1	Entire assembly should be safely packed to avoid any physical and structural damage to any part during transit. All spares should be separately packed and labelled accordingly.		

8.0 WARRANTY

S. No	Description	Complied/ Not Complied	Remarks/ Confirmation by Bidder
1	The final fabricated assembly should be under a warranty period of 2 years.		

9.0 INSTALLATION

S. No	Description	Complied/ Not Complied	Ref. Page No.
1	Installation of gas lines and panels at the purchaser's site will bein the scope of the bidder		
2	Complete functionality and operation of the gas manifold should be demonstrated by the supplier. 3 personnel from the purchaser's end should be trained by the supplier's personnel on thecomplete		

	functionality of the gas manifold. All copies of test certificates/reports of all parts, pressure testing and helium leak testing reports of final assembly should be provided by the supplier at the time of PDI and installation at the purchaser's site		

(Note: It is mandatory for the bidders to provide the compliance statement (comply/not comply) for the above points with document proof as required). If the compliance statement (comply/Not comply) is not furnished for the evaluation. Bidders will be disqualified.

SIGNATURE OF BIDDER ALONG WITH SEAL OF THE COMPANY WITH DATE

ANNEXURE - C

FINANCIAL BID (PROFORMA) - BILL OF QUANTITIES (BOQ)

Item Name: SUPPLY FABRICATION TESTING AND INSTALLATION OF "LABORATORY GAS PIPELINES FOR SAFE SUPPLY OF MULTIPLE FLAMMABLE GASSES AND MIXING"
Tender No. ME/VARU/096/2024/GASPIPEMIX

It. No	Description of work	Quantity	Units	Basic Rate in INR	GST in Percentage	Total Amount with taxes in INR
1	Supply Fabrication Testing And Installation Of "Laboratory Gas Pipelines For Safe Supply Of Multiple Flammable Gasses And Mixing" with two years warranty	1	Nos.			
	Grand Total					

Total Amount Rupees in words _____

Note:

1. Price bid as per this format to be uploaded only at the financial document column in CPP Portal. Price disclosure at the technical bid will result in disqualification

2. Technical Bid Should NOT Contain Price Bid/Financial Bid details (or) Indication. If the price Details are indicated, mentioned inside the Technical bid, then bid will be disqualified and neither the Technical Bid nor the Price Bid/Financial Bid will be considered.

I/We the bidder accept all the terms and conditions as per tender including all technical & commercial conditions.

Date:
Place:

Authorized Signatory
(_____)
Seal and signature

ANNEXURE – D

FORMAT FOR AFFIDAVIT OF SELF-CERTIFICATION UNDER PREFERENCE TO MAKE IN INDIA – PER ITEM

Tender Reference Number:

Name of the item / Service:

Date: _____
I/We_____S/o, D/o, W/o, _____
Resident of
_____

Hereby solemnly affirm and declare as under:

That I will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Policy vide GoI Order no. P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 & P- 45021/102/2019-BE-II-Part (1) (E-50310) Dt.4th March 2021 and any subsequent modifications/Amendments, if any and

That the local content for all inputs which constitute the said item/service/work has been verified by me and I am responsible for the correctness of the claims made therein.

Tick (✓) and Fill the Appropriate Category	
☐	I/We_____[name of the supplier] hereby confirm in respect of quoted items thatLocal Content is equal to or more than 50% and come under **"Class-I Local Supplier"** category.
☐	I/We_____[name of the supplier] hereby confirm in respect of quoted items that Local Content is equal to 20% but less than 50% and come under **"Class-II Local Supplier"** category.

- The details of the location (s) at which the local value addition is made and the proportionate value of local content in percentage

Address _____ _____ __ Percentage of Local content: _____%
_____

For and on behalf of ..... (Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Directors)
<Insert Name, Designation and Contact No.>

[Note: In case of procurement for a value in excess of Rs. 10 Crores, the bidders shall provide this certificate from statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.]

This letter should be on the letterhead of the quoting firm and should be signed by a competent authority. Non-submission of this will lead to Disqualification of bids.

ANNEXURE – E

(To be given on the letter head of the bidder)

No._____ Dated: _____

CERTIFICATE

(Bidders from India)

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and hereby certify that I am not from such a country.

OR

(whichever is applicable)

(Bidders from Country which shares a land border with India)

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and hereby certify that I from _____ (Name of Country) and has been registered with the Competent Authority. I also certify that I fulfil all the requirements in this regard and is eligible to be considered. *(Copy/ evidence of valid registration by the Competent Authority is to be attached)*

Place:
Date:

Signature of the Tenderer
Name & Address of the
Tenderer with Office Stamp

ANNEXURE - F

OEM CERTIFICATION FORM
(In Original Letter Head of OEM)

Tender No: ..... Dated: .....

We are Original Equipment Manufacturers (OEM) of..... (Name of the company) Ms..... (Name of the vendor) is one of our Distributors/Dealers/Resellers/Partners (tick one) for the ……. and is participating in the above-mentioned tender by offering our product model.....(Name of the product with model number).

…….. is authorized to bid, sell and provide service support warranty for our product as mentioned above.

Name and Signature of the authorized signatory of OEM along with
seal of the company with Date

TENDER CHECKLIST – Mandatory to be filled and sent (inside the Main Bid Cover) along with Bidding Document.

(1) I have registered as a Vendor with IC&SR. (Proof to be enclosed) To submit document proof pertaining to point.no: 6 of tender ISO certificate, Active GSTIN certificate, valid PAN details. ☐

(2) Technical bid cover and Financial Bid cover to be submitted separated ☐

(3) Completed and **Signed Form of Tender**. The Form of Tender document shall be signed by a person legally authorized. ☐

(4) Completed Technical Compliance Statement ☐

(5) Certification of Class I / Class II (**As a part of technical bid) per item / service / work as per (Annexure – D)** ☐

(6) EMD (**Annexure – I**) ☐

(7) Land Border **(Annexure – E)** ☐

(8) Authorized agent certificate from OEM is mandatory if Indian agent/Indian office of OEM is participating in this tender on behalf of OEM.(**Annexure F)** ☐

The bid will be valid only if all the above documents are provided. Bidders are asked to supply and tick off the required information. Failure to provide any of the stated documents may result in the bid being considered as non-compliant and rejected.

Signature of the Bidder

ANNEXURE - H

FORM - A
NON- DEBARMENT DECLARATION

Date: XXXX

To,
The Indian Institute of Technology Madras,
Sardar Patel road,
Guindy, Chennai - 600036

Subject: Non-debarment declaration in connection with tender RFF No: XXXXXX for procurement of "XXXXXXXXXXXXXXXXXXXXXXXXXXX"

Dear Sir,

This is to notify you that our Firm/Company/Organization <*provide Name of the Firm/Company/Organization*> intends to submit a proposal in response to the invitation for procurement of "XXXXXXXXXXXXXXXXXXXXXXXXXXX" In accordance with the above we declare that:

a. We are not involved in any major litigation that may have an impact of affecting or compromising the delivery of services as required under this assignment.

b. We are not debarred by any Central/ State Government/ agency of Central/ State Government of India or any other country in the world/ Public Sector Undertaking/ any Regulatory Authorities in India or any other country in the world for any kind of fraudulent activities in last XX years.

Sincerely,

[BIDDERS NAME]
Name
Title Signature

ANNEXURE - I

CENTRE FOR INDUSTRIAL CONSULTANCY & SPONSORED RESEARCH (IC&SR)
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
CHENNAI 600 036

ELECTRONIC CLEARING SERVICE (Credit Clearing)/ REAL TIME GROSS SETTLEMENT (RTGS) FACILITY FOR RECEIVING PAYMENTS

A. Details of Account Holder

Name of the Institution	Indian Institute of Technology - Madras
Complete Contact Address	Industrial Consultancy and Sponsored Research Indian Institute of Technology-Madras, IIT- Madras Campus Post Office, Sardar Patel Road, Guindy, CHENNAI - 600 036
Permanent Account Number (PAN)*	AAAAI3615G
GST REGISTERATION NO.	33AAAAI3615G1Z6
Telephone No./ Fax No.	Tel - 044-2257 8356
E- mail ID of the FO/AO/REG/DIR	dricsr@iitm.ac.in

B. Bank Account Details:

Institution Account Name (As per Bank Record)	The Registrar, Indian Institute of Technology - Madras
Account No.	2722101003872
IFSC CODE	CNRB0002722
SWIFT CODE	CNRBINBBIIT
Bank Name (in full)	Canara Bank
Branch Name	IIT-Madras Branch
Complete Branch Address	Canara Bank, IIT-Madras Branch, IIT- Madras Campus Post Office, Sardar Patel Road, Guindy, CHENNAI - 600 036
MICR No.	600015085
Account Type	Savings Account

Certified that the Institute's account is in an RTGS enabled branch.
I hereby declare that the particulars given above are correct and complete.

Date: 27/01/2023

Signature of the Competent Authority
of the Institution with seal.

उप कुलसचिव (आई.सी. एवं एस.आर.)
DEPUTY REGISTRAR (IC & SR)
आई.आइ.टी. मद्रास, चेन्नै
I.I.T. MADRAS, CHENNAI - 600 036.

27/01

Phone : +91 (0) 44 2257 8062 / 8061 / 8060 Fax : +91 (0) 44 2257 0545 / 2257 8366 email : deanicsr@iitm.ac.in website : http://www.iitm.ac.in

ANNEXURE – J

MANDATE FORM

ELECTRONICS CLEARING SERVICE (CREDIT CLEARING)/REAL TIME GROSS SETTLEMENT (RTGS) FACILITY FOR RECEIVING PAYMENTS.

*****

A. DETAILS OF ACCOUNT HOLDER:-

NAME OF ACCOUNT HOLDER	
COMPLETE CONTACT ADDRESS	
TELEPHONE NUMBER/FAX/E MAIL	

B. BANK ACCOUNT DETAILS:-

BANK NAME	
BRANCH NAME WITH COMPLETE ADDRESS, TELEPHONE NUMBER AND EMAIL	
WHETHER THE BRANCH IS COMPUTERISED?	
WHETHER THE NRANCH IS RTGS ENABLED? IF YES, THEN WHAT IS THE BRANCH **IFSC CODE**	
IS THE BRANCH ALSO NEFT ENABLED?	
TYPE OF BANK ACCOUNT(SB/CURRENT/CASH CREDIT)	
COMPLETE BANK ACCOUNT NUMBER(LATEST)	
MICR CODE OF BANK	

DATE OF EFFECT:

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information I would not hold the user institution responsible. I have read the option invitation letter and agree to discharge responsibility expected of me as a participant under the Scheme.

(…….)
Signature of Customer

Date:
Certified that the particulars furnished above are correct as per our records.
(Bank's Stamp)

(…….)
Signature of Customer

Date :

1. **Please attach a photocopy of cheque along with the verification obtained from the bank.**
2. **In case your Bank Branch is presently not "RTGS enabled", then upon its up gradation to "RTGS Enabled" branch, please submit the information again in the above proforma to the Department at earliest.**