Invitation for Expression of Interest (EOI) from eligible domestic manufacturers

To

Design, Manufacture and Commission High-pressure gaseous oxygen feed line

At

Advanced Propulsion Research Laboratory
Aerospace Engineering Department,
Indian Institute of Science, IISc Bengaluru

Ref No – IISc/AE/EOI-01/2024-25

Department of Aerospace Engineering,
Indian Institute of Science, Bengaluru-12

Background:

The Indian Institute of Science (IISc) invites an expression of interest from domestic manufacturers to participate in the design, manufacturing and commissioning of gaseous oxygen line at the Advanced Propulsion Research Laboratory, Aerospace Department, IISc. The Department of Aerospace Engineering, at IISc, is looking to enhance the current experimental capabilities, by upgrading the gaseous oxygen feedline for the below requirements at the Advanced Propulsion Research Laboratory.

This will be a single-stage participation where the conceptual designs submitted by the short-listed manufacturers will be evaluated and a single manufacturer will be selected.

I. **Eligibility Criteria:**

a. Registration: The applicant shall be a company/partnership/ LLP firm registered in India under the relevant act as may be applicable (e.g. Indian Companies Act, 1956/2013; the Partnership Act, 1932) and who have their registered office in India.
b. Experience: The manufacturer should have at least 5 years of overall experience and a minimum of 3 years working on similar assignments, with academic institutes, government institutes, public sector units and their allied agencies as of 1st December 2024.
c. Past Assignment: The manufacturer must have at least one completed project work involving installations of high-pressure oxygen feed systems with flow rates more than 300 g/s at a feed pressure of at least 50 bar.
d. Professional Fees: Applicant should have collected Professional Fees of at least Rs.5 Lakhs per annum in the last three financial years.
e. Declaration for Transparency: Applicant/Manufacturer should not be under a declaration of ineligibility for corrupt and fraudulent practices issued by Govt. of India/ State Govt.
(Please submit self-declaration format as per Annexure).

II. **Project Details:**

The Advanced Propulsion Research Laboratory (APRL) is looking for domestic manufacturers to design, manufacture, and commission a gaseous oxygen line. The preliminary requirements for the line are as follows,

a. Mandatory Specifications:

S.N.	Parameter (unit)	Specification
1.	Gas composition	Oxygen
2.	Maximum Flow Rate	500 g/s
3.	Length of Feed Line	As per the enclosed drawings
4.	Maximum Operating Pressure	100 bar at maximum flow rate of 500 g/s
5.	Operating Temperature	Eg: -10ºC to +40ºC
6.	Material for the feed line	Monel / Cupronickel
7.	Environment protection	Non-corrosive coating Electrical insulation and grounding

b. Mandatory Requirements:

i. Design code, certificates and technical calculations should be provided for the entire line including all sub-components, the calculations must be based on international codes and standards for handling gaseous oxygen.
ii. Qualified manufacturer/vendor should showcase previously completed work with installations of high-pressure oxygen feed systems with flow rates more than 300 g/s at a feed pressure of at least 50 bar, on a self-certified letterhead copy.

c. Minimum subcomponents:

i. Manifold/plenum with multiple inlets for provision to connect multiple O_2 cylinders.
ii. A vent line with a pressure relief valve.
iii. A manual shutoff valve (ball valve) rated for oxygen and high-pressure, high-flow rate applications.
iv. A filter rated for oxygen use (up to 5-micron filtration, with a working pressure of 120 bar or greater).
v. An electronic pressure regulator rated for oxygen (with an inlet pressure of 120 bar or greater).
vi. Electro-pneumatic valves rated for oxygen (min qty: 2).
vii. A Coriolis mass flow meter rated for gaseous oxygen.

viii. Pressure relief valves and pressure sensor ports at appropriate locations along the line.

d. Auxiliary components such as metal structures, clamps, adapters, etc, which are necessary for commissioning the line are also part of the scope of the bidder.
e. The manufacturer would be responsible for any issues/problems faced concerning the line at any point in time, including accidents under "standard operations" which should be provided as a document by the manufacturer, given that the liberty of design is left with the manufacturer who is only constrained by the preliminary requirements stated above.

III. **Scope of Work**:

a. To provide design documents as per the requirements and continue to make revisions as per the comments of the review committee set forth by the department/IISc, up until their final approval. Hence providing constant exposure of the work to the committee at regular intervals/meetings.
b. To provide cost estimates and preliminary budgetary to the committee, at significant time stamps, or when required by the committee.
c. To conduct diagnostic tests such as a leak test, NDT at weld points, etc and produce the results to the committee.
d. To install/commission the line at the facility and conduct final tests.
e. To support and uphold responsibility regarding any concerns of the line.

IV. **Document requirement for validating eligibility and criteria for Shortlisting:**

Interested manufacturers will have to submit the below-mentioned documents:

a. Registration – Certified copy of valid company/entity registration with names and addresses, qualifications, and registration number.
b. Office Location – Certified copy of the Registration of Practice or other valid relevant documents.
c. Experience – Certified copy of valid registered partnership deed or certified copy of valid JV agreement, if applicable.
d. Past Assignment – Details of past projects technical details of previous works of design, fabrication and commissioning of oxygen line (include a copy of purchase orders/invoice), documentation related to such previous work, CVs of employees/consultants with a track record of such work, and any other such relevant documentation. The recipients of these projects should be academic institutes, research laboratories, government institutes, public sector units and their allied agencies.

The criteria used for evaluation would be:

S.N.	Criteria	Weightage
1.	**Experience**	**20**
1.1	Number of years in practice	06
1.2	Past Assignments-experience in dealing with similar Projects listed under V(d)	14
2.	**Technical Aspects**	**60**
2.1	Expertise and Experience of Key personnel (Separate list of permanent staff with proof of EPF payments and Temporary staff to be enclosed along with educational details, and CVs)	20
2.2	Quality of past projects relevant to the current project based on the feedback from past customers	40
3.	**Financial Strength**	**20**

EOI soft copy with all enclosures including the annexure (one file pdf summary) should be sent to pratikashp@iisc.ac.in. One set of hard copy should be mailed to Prof. Pratikash Panda, Department of Aerospace Engineering, Indian Institute of Science, Bengaluru 560012, on or before **20th December 2024**. Clearly mention "Pre-bid Expression of Interest" for the design, manufacturing and commissioning of oxygen line. In case of any technical clarification, you may reach out to Prof. Pratikash Panda through the above mail.

IISc reserves the right to reject any or all of the EOI's without assigning any reasons.

Annexure

Self-Declaration Format

Ref. No: Date:

To,

The Registrar,

Indian Institute of Science

With reference to my/our expression of interest to IISc, it is hereby declared that I/ (name of firm) was not declared ineligible for corrupt and fraudulent practices either indefinitely or for a particular period by any Government or other agency.

I/(name of firm) also declare that there are no contractual restrictions or legal disqualifications or other obligations which will prohibit me/us from entering this bid and each and every one of the statement and particulars contained herein are correct.

Signature of the Applicant

Date:

Place:

(seal)