

# INVITATION FOR EXPRESSION OF INTEREST (EOI) FROM ELIGIBLE SUPPLIERS OF METAL ADDITIVE MANUFACTURING EQUIPMENT

## 1. Background:

1.1 The Indian Institute of Science (IISc) invites an Expression of Interest (EOI) from suppliers of metal additive manufacturing equipment.

1.2 Indian Institute of Science is a premier research institution of India. IISc is establishing an advanced manufacturing centre and the proposed metal additive manufacturing equipment will be part of this centre.

1.3 IISc wishes to establish the international supplier base for equipment with broad characteristics that are detailed below. A formal tender will be issued at a subsequent date, once IISc completes preliminary interaction with all possible suppliers.

## 2. Eligibility to respond to this EOI

2.1 All Suppliers responding to this EOI should have demonstrated capability to supply equipment of the broad class indicated in section 3 inclusive of reputed academic institutions in India and other countries.

2.2 Item 2.1 requires that suppliers responding to this EOI provide a list of equipment supplied by them that correspond to the requirements of section 3 and to whom these equipment were sold, with relevant contact information of buyers.

## 3. Description of equipment

3.1 IISc seeks to acquire metal additive equipment based on a **laser powder blown process** or **electron beam powder bed process**. IISc has at this time has not specifically decided which type of equipment it will acquire. IISc's decision will be based on the capability of each type of equipment, after interaction with potential suppliers.

3.2 The build volume that IISc is interested in is expected to be in the range **100 mm<sup>3</sup> to 300mm<sup>3</sup>**. Supplies may respond indicating exact maximum build volumes and budgetary costs as related to machines with these build volumes.

3.3 A 3/5 axis work station is expected.

3.4. A process environment of high vacuum/argon is expected.

3.5 Suppliers should indicate laser/electron beam gun power. Materials to be processed range from Aluminium alloys to Titanium alloys to refractory metals and may include conducting ceramics.

3.6 Suppliers should indicate flexibility available in the equipment control of process parameters such as power and beam size control, hatch configuration control, design file configuration (to be sent as an input file to the machine) and all other process control parameters including closed loop process control. The resolution in terms of the design feature of the smallest size to be printed must be mentioned. Also, any parameter to correlate the geometric tolerance, in terms of the design file feature to the identical feature printed should be mentioned.

3.7 Suppliers should explicitly state preheat capability of the equipment together with mode of preheat. High preheat temperature capability is preferred.

3.8 A multi-powder feeder system is required. Supplier should provide configuration details of such feeder systems in the equipment, as well as capacity and flow rates.

3.9 Suppliers should indicate all possible sensors including those that might be used in process control.

3.10 Suppliers should indicate the Industrie 4.0 compatibility of their products, i.e. provisions (e.g. hardware, software, standards or protocols needed/provided) for connecting the machine into a standard, industrial Industrie 4.0 platform.

3.11 Suppliers should indicate equipment data acquisition systems.

3.12 Suppliers should indicate post-process part handling features of the equipment.

3.13 IISc may also consider the acquisition of refurbished equipment, should that prove to be cost-effective. Suppliers may indicate possibility of supplying refurbished equipment.

3.14 Suppliers should indicate mechanisms, procedures and arrangements for long term maintenance of the equipment,

3.15 Suppliers are expected to provide lead times for the supply of the equipment

3.16 As a reputed research organization IISc is also willing to consider collaboration with suppliers on innovative process development, as well as utilization of the equipment by suppliers for demonstration or use of the equipment to and for third parties.

3.17 Suppliers are expected to provide budgetary costs of various equipment options, an estimate of annual maintenance costs and expected terms of payment in their responses to this EOI.

#### **4. Response to EOI**

4.1 IISc seeks a response to this EOI by 24.00 hours, June 20, 2018. Responses after this time and date will not be considered

4.2 Along with the response to the EOI, suppliers are requested to indicate suitable dates and times for interaction with the IISc technical team in the week starting June 25 and extending to July 6, 2018. Suppliers that do not visit IISc for interactions will not be considered further.

4.3 Suppliers should also indicate clearly the requirement for any export clearance processes for supplying such equipment and any end use declarations that may be sought for this purpose. Any ambiguity in export clearances may disqualify a supplier from future tendering action.

4.4 Suppliers are requested to email their response to Mr Venu Allam, Project manager at [venuallam@iisc.ac.in](mailto:venuallam@iisc.ac.in).

## **5. Tender Process**

5.1 Based on this EOI, the responses and interaction, and supplier's interest and capability in supplying equipment of characteristics as indicated in sections 2 and 3, and IISc will short list a set of potential suppliers by a technical team constituted by competent authority of IISc.

5.2 A formal tender with detailed specifications will be issued to such short-listed firms.

5.3 The formal tender shall consist of a two-bid process. A technical bid and price bid shall be supplied in separate covers. IISc will first examine the technical bid and further short-list those firms that meet all technical specifications. The price bid of only the final short-listed firms will be opened, and only the firm with the lowest price bid and meeting all technical specifications shall be invited for contract finalisation.

5.3 IISc will endeavor to complete contract finalization by the last week of August.

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