



**NATIONAL INNOVATION FOUNDATION - INDIA**  
(Autonomous Body of Department of Science & Technology,  
Govt. of India)

**TENDER DOCUMENT**

**FOR**

**SUPPLYING OF MACHINES, EQUIPMENTS AND SOFTWARES  
FOR FAB LAB / WORKSHOP**

**(Tender No. NIF/2021/ADM/002)**

Date of Tender Issue	: 05/03/2021 at 17:00 hrs
Last date of Tender submission	: 22/03/2021 at 10:00 hrs
Opening of Technical Bids	: 22/03/2021 at 10:30 hrs
Opening of Financial Bids	: 24/03/2021 at 14:00 hrs

National Innovation Foundation-India is an Autonomous Body of the Department of Science and Technology, Govt. of India providing institutional support to grassroots innovators and outstanding traditional knowledge holders.

NIF invites sealed tender for supplying of machines and equipment's for workshop. The sealed bidding documents should be delivered in the Administration Section of NIF on or before the stipulated date and time. The technical bid and the financial bid must be sealed in separate envelopes super-scribing "**Technical Bid**" and "**Financial Bid**" and both these two envelopes must be placed in a third envelope super-scribing "**Tender for Supplying of Machines and Equipment's for Workshop**". This third envelope should be **sealed (glued along with tapped). Stapled or open tender will not be considered.** The tender documents should be delivered to: "The Director / Chief Innovation Officer, National Innovation Foundation - India, Grambharti, Amrapur, Gandhinagar - Mahudi Road, Gandhinagar - 382650." Latest by 10:00 AM on 22<sup>nd</sup> March 2021. The documents may be sent by registered /speed post.

The technical bids will be opened on 22<sup>nd</sup> March 2021 at 10:30 AM, at address given above. The financial bids of successful bidders with qualifying technical bids will be opened on 24<sup>th</sup> March 2021 at 2:00 PM at NIF Grambharti office. The term and conditions are as follows:

Any queries related to this tender may be addressed only through email to [pc@nifindia.org](mailto:pc@nifindia.org).

#### **Terms & Conditions:**

1. The tenderer/bidder may be a proprietary firm, Partnership firm, Limited Company, Corporate body legally constituted engaged in manufacturing /marketing of production machines /equipment's (copy of registration of firm to be attached).
2. The Bidder must have a minimum financial annual turnover of Rs. 25 lakh in each of past 3 financial years and no loss in P&L account shall be there in those years. Audited Financial documents of Balance Sheets & P&L account certified by CA shall have to be provided by bidder.
3. Applicant should not have been blacklisted by the Depts./Ministries of the Govt. of India/State Govt. /PSUs (**A declaration to this effect has to be submitted by the bidder on company's letterhead**).
4. The bidder shall furnish, as part of the bid, an interest free EARNEST MONEY DEPOSIT (EMD) of amount mentioned in annexure 2 for each machine /equipment separately in the form of Demand draft (valid for 90 days) drawn in favour of 'National Innovation Foundation-India' payable at Ahmedabad from any Nationalized /Scheduled bank.
5. Earnest Money Deposit (EMD) in the form of Demand Draft only shall be placed in a sealed Envelope 1 (Envelope containing Technical bid) super scribed as "Earnest Money" with name of machine (s).

6. The tenderer /bidder should submit duly filled check list of technical bid (annexure 1) along with supporting documents and catalogues of machines quoted in the envelope of technical bid.
7. The technical and financial bids should be quoted separately in different sealed envelopes for each machine. Both envelopes must be kept in an envelope which should be superscripted as "Tender for supply of ..... (Name of machine)".
8. One supplier may quote for more than one machine but he should submit technical and financial bids and the EMD separately for each machine. All the sealed envelopes may be submitted in a single envelope.
9. Sealed Bid may be submitted to the address given above.
10. A copy of the authorization letter/power of attorney/board resolution for the purposes of signing and submitting the present tender documents shall be attached with the tender documents.
11. The Bidder's name stated on the proposal shall be the exact legal name of the firm.
12. Erasures or other changes in the Bid Documents shall be initialled by the person signing the Bid.
13. NIF shall open the bids Technical and Financial bids on the scheduled dates of which the Bidder shall take note and the Bidder, either himself or through an authorized representative shall remain present at such opening. In the event any authorized representative of a Bidder is sent to such opening then such person shall be required to carry an authorization letter for the same.
14. It is hereby clarified that the absence of any Bidder or his authorized representative at such opening shall not affect the legality of such opening and NIF shall be entitled to continue with such opening of bids even in the absence of the Bidders or any of them, and no claim or objection on this ground shall be entertained.
15. Any Tender without EMD will be treated as non-responsive and shall be rejected at the outset itself.
16. The EMD of the unsuccessful bidders will be discharged/returned at the earliest after completion of the tender process. The successful bidder's EMD will be discharged upon the bidder's acceptance of the Letter of Intent/purchase order satisfactorily. The EMD may be forfeited:
  - a. If the bidder withdraws his/her bid during the period of bid validity specified by the bidder in the Bid form;
  - b. In the case of successful bidder, if the bidder fails to sign the contract or fails; or Fails or refuses to honour his/her own quoted price for any of the items or part thereof.
  - c. In both the above cases bidder will not be eligible to participate in the tender for one year from the date of issue of Letter of intent.
17. The financial bids of those bidders will be considered who qualify under technical bid. The financial bids of successful bidders will be opened on 24<sup>th</sup> March 2021 at 2:00 PM, at address given above.
18. The prices quoted must be inclusive of all taxes, cost of software, training /machine demonstration, loading & unloading, transport insurance (wherever applicable) and transportation charges to deliver the

equipment/machine at address given above. The applicable rates of GST and amount should be clearly mentioned in the financial bids.

19. The list of machines and software is given in Annexure 2, and detailed specification of machines is mentioned in annexure 3.
20. Submitted quotations should be valid for at least 60 days
21. The vendor should supply machines within 30 days of placing the purchase order.
22. Vendor has to set up and demonstrate and extend adequate hands on training of the machine/equipment, without doing that, the delivery would not be deemed to be complete.
23. Brand new well functional machines with finest finishing must be supplied, the delivery of machines not fulfilling the same, shall not be accepted. The machine should be made up of non -corrosive material with finest finishing.
24. In case the quotation is being submitted by authorized agent of the principal manufacturing company, the authorised sales agency ship certificate from the principal should be furnished along with the quotation. Quotations without this authorization certificate will be rejected.
25. The cost/bid should include comprehensive warranty for at least 2 years and one-year free service.
26. The cost should include cost of software/programmes needed to make the machine/equipment fully functional. In case third party software has to be used, the licence of software in the name of National Innovation Foundation (NIF) must be provided with validity not less than three years. The software should be the latest version and compatible with the latest version of operating systems. The license of software should be valid perpetually.
27. Special discount/rebate wherever admissible keeping in view that items are being procured for research purpose in respect of Public Institution of national importance may please be indicated.
28. Vendors should attach the relevant brochure/leaflet for the models/options quoted.
29. Vendors should attach users list with their contact details including address, email id and phone number.
30. Necessary certificate should be enclosed by the vendor in case of proprietary nature of the quoted items.
31. Incomplete and conditional submitted tenders would be summarily rejected.
32. Late/delayed tenders received at the venue mentioned above due to any reason, whatsoever, will not be accepted under any circumstances.
33. The Bidder shall bear all costs associated with the preparation and submission of its Bid. NIF shall, in no case, be responsible or liable for these costs, regardless of the conduct or the outcome of the Bidding process.
34. The tenderer should sign (not initials) at each page of the technical and financial bid documents and all its annexures. No page should be removed/detached from the tender document.
35. In case two or more agencies are found to have quoted the same rates for different/same brand and specification of machines, the competent authority, NIF shall decide about the agency to which the offer shall be granted based on the past credentials/ report on the past performance of the firm, and length of

- experience etc. The decision of the competent authority, NIF shall be final and binding, and no communication in this regard will be entertained.
36. The 80 % payment will be released after delivery of machines/ equipment in good condition, successful commissioning, installation, testing of machines or equipment.
  37. The 20% payment will be released after satisfying all the conditions as per the tender terms and condition, satisfactory functioning of the machines/equipment supplied and after furnishing of Guarantee/ Warranty documents and performance security.
  38. The successful bidder needs to submit performance security (5% of the final price /contract value of the machine) in the form of Demand Draft/Direct Transfer (NEFT/RTGS) / Bank Guarantee from a Nationalized/Scheduled bank which should be valid for a period of 90 days beyond the completion of all contractual obligations of the supplier including warranty period.
  39. The Performance security shall be forfeited and credited to the Institute in the event of breach of contractual obligation by the supplier, in terms of relevant contract.
  40. NIF reserve the rights to cancel the tender process, without giving any reasons.
  41. The conflicts or disputes that may arise in relation to the subject, content, interpretation, implementation and enforcement of this agreement will be solved, firstly, by the Monitoring Committee setup jointly for good governance and then, by equity arbitration. In the event, efforts by Monitoring Committee and an equity arbitration attempt fails, then the legal jurisdiction to be approached shall be within the jurisdictions of Ahmedabad/Gandhinagar only.

**Annexure 1**

**Format for technical bid of the tender (NIF/2021/ADM/002)**

**Tender submitted for supply of .....(name of machine /equipment)**

Sl. No.	Description of requirement	Enclosed	Enclosure No.
1.	Whether the firm is registered with proprietary firm, Partnership firm, Limited Company, Corporate body legally constituted engaged in manufacturing / marketing of production machines / equipment	Yes/No	
2.	Declaration by the bidder that he /she has not been blacklisted by the Department /Ministries of the Govt. of India/State Govt./PSUs	Yes/No	
3.	Copies of Balance Sheet and P&L Statement for last 3 years duly certified by CA (2017-18,2018-19,2019-20)	Yes/No	
4.	Copy of Registration Certificate of the firm	Yes/No	
5.	Copy of PAN/TAN/GST issued by Income Tax Dept./ Goods and Services Tax Dept.	Yes/No	
6.	Partnership deed, if applicable	Yes/No	
7.	Details of other organizations where similar machines have been supplied (copy of five recent work orders to be attached)	Yes/No	
8.	Demand draft of Rs...../-as <b>EMD enclosed in separate envelope along with Technical Bid</b>	Yes/No	
9.	Technical specification of the machine	Yes/No	
10.	Financial Bid proforma/quotation completed and <b>sealed in a separate envelope</b>	Yes/No	

Declaration of the Tenderer:-

This is to certify that I/We before signing this tender have read and fully understood all the terms and conditions contained herein and undertake myself/ourselves to abide by them.

(Signature of Tenderer with seal) Name:

Place:

Seal :

Date:

Office Address:

## List of machines /Software

S. No.	Machine name	Number of units	Estimated price, Rs	EMD, Rs
1.	Injection moulding machine	1	20,00,000	40,000
2.	Stud welding machine	1	2,50,000	5,000
3.	Welding table with fixture accessories	1	2,50,000	5,000
4.	Pipe/tube bending machine	1	6,00,000	12,000
5.	High temperature furnace	1	5,00,000	10,000
6.	Desktop vacuum forming machine	1	150,000	3,000
7.	CNC Turning center	1	30,00,000	60,000
8.	Arm type- electric tapping machine	1	1,50,000	3,000
9.	Cutting tools for vertical machining centre (VMC)	As per details	400,000	8,000
10.	E Motiv EEG sensor head gear	1	80,000	1,600
11.	Multi component force plate	1	250,000	5,000
12.	Body Pressure Mapping mattress	1	500,000	10,000
13.	IBM SPSS software	1	150,000	3,000
14.	MATLAB –simulink software	1	10,00,000	20,000

**Details of machines and software along with specifications**

**1) Injection Moulding Machine**

<b>Particulars</b>	<b>Specification</b>
Technology	Horizontal, fully automatic screw type double cylinder injection moulding machine
Target material	Thermosetting resins including Acrylonitrile-Butadiene-Styrene (ABS), Nylon Plastic (PA), Polycarbonate (PC), Polypropylene (PP), Polystyrene GPPS, etc.
Drive	Servo motor driven
Controller	PLC - Mirle (Lubi)/ Streamline
Feeding type	Horizontal
Shot weight	20 - 250 g
Space between tie-bar	Minimum 420 x 420 mm
Screw diameter	Between 40 and 42 mm
L/D Ratio	Minimum 20:1
Heating capacity	More than 8 kW
Mold height	150-450 mm
Ejector stroke	140 mm
Hydraulic pump	Servo motor (Lubi/KEB/Gefran)
No. of ejector	Minimum 7
Ejector force	Maximum 70 ton (Adjustable)
Point toggle	Five
Screw Barrel	Material grade 41B - gas nitriding
Sensors	Oil temperature sensor, Screw RPM sensor
Hand safety	PLC alarm, hydraulic dump valve, electric switch
Motorized mold setting	Automatic
Heater	Ceramic type with covering
Lubrication	Auto with PLC controlled
Accessories	All standard accessories including Hopper dryer, vacuum loader, Core cooling valve, FRP water cooler, suitable size water pump set of standard make, PLC, power supply, etc. required for making machine functional to be included  The machine should have provision of adjustment of injection volume according to job size.



## 2) Stud Welding Machine

<b>Particulars</b>	<b>Specification</b>
Technology	Capacitor Discharge type stud welding machine
Input supply	AC 220±10%V
Phase	Single Phase
Size of stud	3 to 10 mm
Capacitance	110,000 µF
Maximum available short circuit current	50-200 V
Welding time	0.001 – 0.003 sec
Welding speed	8 to 10 studs per minute
Charging time	< 5 sec
Cooling	Air cooled
Gun type	Standard contact gun with high flexible 5 m cable
Ground cable	Highly flexible 5 m cable
Raw material	M3, M4, M5, M6, M7, M8, M9 and M10 – 100 units each
Accessories	All the standard accessories to make the machine fully functional (eg parts required for each size of stud as mentioned below) needs to be supplied by the vendor

### 3) Welding table with fixture accessories

Particulars	Specification
Material	Mild Steel
Capacity	2000 kg
Number Of Legs	6
Automation Grade	Manual
Features	Modularity
Usage/ Application	Fabrication Fixtures
Color	Black
Finishing	Nitrided coating to avoid weld spatter
Shape	Rectangular
Size of table	6 x 3 feet
Height	30 inch
Hole diameter	15-20 mm (as per accessories size) CNC machined holes only
Spacing between two holes	2 inch must required
Thickness of plate	16 - 20 mm
Accessories	<ul style="list-style-type: none"> <li>• 30 fixed ball lock bolts, 10 adjustable ball lock bolts, 12 straight edge stops, 10 Inserta-Clamps, 16 right angle plates, 4 top V-pads, 4 eccentric pads, 8 V-blocks, 4 economy stops, 2 MagSpring clamps, 4 table mount c-clamp, 4 magnetic v-pads, 4 magnetic rest buttons, 4 stops, 4 threaded adapters</li> <li>• All the standard accessory to make this fully functional are to be provided by the supplier</li> </ul>

#### 4) Pipe/Tube bending machine

Particulars	Specification
Hydraulic pipe bending machine	Machine should be able to bend the round/square/rectangular pipe/tube at predefined angle (details below)
Size of dies	a) square (12x12, 15x15, 20x20, 25x25, 32x32, 40x40) thickness upto 3 mm b) round pipe (12, 15, 20, 25, 32, 40) thickness upto 3 mm c) rectangle pipe (20x40 mm) thickness upto 3 mm
Bend Angle	10 to 180° Degrees
Minimum Radius Possible	1.5D (D=Tube Dia)
Bending Direction	Both Clockwise & Anticlockwise
Bend Accuracy	±1°
Tube Indexing	Manual
Tube Positioning	With Suitable Fixture
Length Setting	Manual
Tube Holding Controls	Manual
Power	5 hp (three phase)
Other	<ul style="list-style-type: none"> <li>All standard accessories including electric motor, power transmission system, dies and other accessories to make the machine fully functional, are to be provided by the supplier</li> <li>The machine should be made up of non - corrosive material with finest finishing.</li> </ul>

## 5) High temperature furnace

<b>Particulars</b>	<b>Specification</b>
Type of Furnace	Fix
Features	Temperature Control
Melting Material	Aluminium, Mild Steel, Stainless Steel
Temperature (degree C)	Upto 1500 (with control of varying the temperature)
Power	Electric , 5kw
Power Source	440 V
Usage/Application	Industrial
Frequency	60 Hz
Other	<ul style="list-style-type: none"><li>• All standard accessories to make the furnace fully functional, are to be provided by the supplier</li><li>• The furnace should be made up of non - corrosive material with finest finishing.</li></ul>

## 6) Desktop vacuum forming machine

Particulars	Unit	Specification
Sheet size:		
i. Length	mm	300 -360
ii. Width	mm	200 -300
Sheet thickness	mm	04
Minimum sheet thickness	mm	0.2
Forming area		
i. Length	mm	240 -320
ii. Width	mm	170 -230
Maximum depth draw	mm	200
AC Input		
i. Voltage	V	100 -240
ii. Frequency	Hz	50 -60
iii. Wattage	kW	132
Noise Level	dB	65
Heater Temperature	°C	280
General		<ul style="list-style-type: none"> <li>• All standard accessories to make the machine fully functional, are to be provided by the vendor.</li> <li>• The machine should be made up of non - corrosive material with finest finishing.</li> </ul>

7) CNC Turning Center Medium duty (With automatic tool changer (ATC) having 8 tool post)

Particular		Unit	Specification
Swing Over Bed		mm	740
Standard Turning Dia.		mm	415
Max. Turning Dia		mm	600
Max. Turning Length		mm	700
<b>Slides</b>	X-Axis Travel (Cross)	mm	310
	Z-Axis Travel (Longitudinal)	mm	700
	Rapid Feed (X & Z axis)	m/min	24
<b>Main Spindle</b>	Spindle Motor Power - Fanuc	kW	18.5/15
	Spindle Motor Power - Siemens	kW	18/12
	Spindle Speed Range	rpm	50-2500
	Spindle Bore	mm	80
	Spindle Nose		A2-8
	Max. Bar Capacity	mm	65
<b>Turret</b>	No. of Tool Station		8
	Max. Boring Bar Dia.	mm	40
	Tool Size (Cross Sectional)	mm	25 X 25
<b>Tail Stock</b>	Quill Dia.	mm	100
	Quill Stroke	mm	120
	Thrust (Adjustable)	kgf (Max.)	500
<b>Accuracy</b>	Positioning Uncertainty (P)	mm	0.01
	Repeatability (Ps medium)	mm	0.005
<b>CNC Controller</b>			Siemens or Fanuc
Accessories		All standard accessories, transmission system, power stabilizer, coolant pump, standard tools and other accessories to make the machine fully functional, are to be provided by the vendor. The accessories should be made of reputed manufacturers.	
Finishing		The machine should be made up of non -corrosive material with finest finishing.	

### 8) Arm type - electric tapping machine

Particulars	Specification
Capacity (mm)	M3-M16
Working Radius (mm)	2000 mm
Chuck size (mm)	48
Motor type	Servo
Power (kW)	1.5
Speed (rpm)	0 - 300
Depth adjustment	Automatic
Accessories	Machine should be compiled with Pneumatic tapping hand tool, 90 degree and various degree tapping tool, accessories of tapping tool of all the standard sizes between M6-M16 and all other required accessories to make it fully functional.
Others	Suitable for materials including high grade steels. Structure should be made up of non-corrosive material with finest finishing.

**9) Cutting tools for vertical machining centre (VMC)**  
**(The tools should be having make : Sandvik or Hittco or Suski )**

Sr. no.	Particular	Quantity required
1.	Insertable Endmill Cutter Dia 16 (Standard size)	1
2.	Insert for Dia 16 Cutter	20
3.	Insertable Endmill Cutter Dia 20 (Standard size)	1
4.	Insert for Dia 20 Cutter	20
5.	Insertable Endmill Cutter Dia 20 (Long size)	1
6.	Insert for Dia 20 Cutter	20
7.	Insertable Endmill Cutter Dia 25 (Standard size)	1
8.	Insert for Dia 25 Cutter	20
9.	Insertable Endmill Cutter Dia 25 (Long size)	1
10.	Insert for Dia 25 Cutter	20
11.	Insertable Endmill Cutter Dia 32 (Standard size)	1
12.	Insert for Dia 32 Cutter	20
13.	U-Drill Dia 16 (L/D 3)	1
14.	Insert for U-Drill	20
15.	U-Drill Dia 20 (L/D 3)	1
16.	Insert for U-Drill	20
17.	U-Drill Dia 25 (L/D 3)	1
18.	Insert for U-Drill	20
19.	Dia 25 High Feed Cutter	1
20.	Insert for High Feed Cutter	20
21.	Inserts for Fine Boring Kit	10
22.	M2 size tap	2
23.	Drill for M2 size tap (dia 1.6)	2
24.	M3 size tap	2
25.	Drill for M3 size tap (dia 2.5)	2
26.	M4 size tap	2
27.	Drill for M4 size tap (dia 3.3)	2



28.	M5 size tap	2
29.	Drill for M5 size tap (dia 4.2)	2
30.	M6 size tap	2
31.	Drill for M6 size tap (dia 5.0)	2
32.	M8 size tap	2
33.	Drill for M8 size tap (dia 6.8)	2
34.	M10 size tap	2
35.	Drill for M10 size tap ( dia 8.5)	2
36.	M12 size tap	2
37.	Drill for M12 size tap (dia 10.2)	2
38.	End Mill Cutter of Diameter 2mm	8
39.	End Mill Cutter of Diameter 3mm	8
40.	End Mill Cutter of Diameter 4mm	4
41.	End Mill Cutter of Diameter 5mm	4
42.	End Mill Cutter of Diameter 6mm	2
43.	End Mill Cutter of Diameter 8mm	2
44.	Involute Gear cutter (Cutter Number 1-8)	8
45.	Gear cutter holder (BT 40)	1

<b>SI No</b>	<b>Machine/Item name</b>	<b>Description</b>
10.	E Motiv EEG Sensor Head gear	EMOTIV EPOC X 14 channel EEG with wireless connect and 9 Axis motion sensors All the components should be made of a reputed manufacturer
11.	Multi component Force Plate	Three Dimension Analysis Range ( Fx,Fy,Fz) from -10-20 KN with sensitivity range around 50 <sup>2</sup> mv/N and threshold less than 250 <sup>4</sup> mN and associated connection cables and connectors not including the DAQs The force plate and its components should be made of a reputed manufacturer.
12.	Body Pressure Mapping mattress	For Calibration of force measurement systems Sensing range approx. 2000mm*2000mm Scan frequency about 40 Hz wireless data transmission capacity and Pressure range 14kPa with around 1800 pressure points with connecting cables and connectors The mattress and its components should be made of a reputed manufacturer.

## Softwares

SI No	Software name	Variant
13.	IBM SPSS	Data Analysis V27, Perpetual License with one Year AMC and atleast 5 days training to the NIF team.
14.	MATLAB - Simulink	Release 2020b with Robust Control Toolbox and Computer Vision toolbox, Perpetual License with one Year AMC and atleast 5 days training to the NIF team. Additional training module (if any relevant for beginners) to be quoted separately