



TENDER NOTIFICATION

Adichunchanagiri University is inviting Closed tenders for the supply of major equipment for the Adichunchanagiri University R&D Centre from the competitive firms.

1	Name of the work	Supply of major equipment for Adichunchanagiri University R&D Centre.
2	Tender documents available for download	10-02-2020 to 26-02-2020 up to 5:00 PM

Sl. No	Requirements for Adichunchanagiri University R&D Centre	Quantity (in No's)
Major Equipment		
1.	Co – Rotating Compounding Twin Screw Lab Extruder with pellatizer and waterbath	1
2.	Micro injection molding machine with standard testing molds	1
3.	Hydraulic compression molding machine with standard testing molds	1
4.	Polymer 3D BioPrinter (Two extruder)	1
5.	Tensile testing machine with accessories	1
6.	Impact testing unit	1

Note:

The sealed quotation for each equipment must be submitted in two individually sealed parts, one each for the technical documentation and financial quote in separate envelopes, duly sealed and superscribed with Tender Notice Number, Due Date and Time as per the details provided in this document.

All quotes must be submitted latest by February 24th 2020 to The Registrar, Adichunchanagiri University, B G Nagara, Nagamangala Taluk, Mandya District, Karnataka-571448



MAJOR EQUIPMENT'S

1. EQUIPMENT NAME : CO – ROTATING COMPOUNDING TWIN SCREW LAB EXTRUDER WITH PELLATIZER AND WATERBATH

Item Description	:	
Screw	:	twin screw
Material	:	EN 41 nitriding steel
Mounting	:	Key way
Type of Rotation	:	Co – Rotating
No. of screw	:	2 nos.
NO OF START	:	2
L/D Ratio	:	13.5;1
Size	:	20MM.
Chanel Depth	:	3.5MM.
Screw Speed	:	MAX. 60 RPM
Barrel Type	:	Single Piece
Material	:	Nitriding Steel
Length	:	15D
Heating	:	TOTAL 2.5 KW
No. of Zones	:	3NOS.
Cooling Force	:	Blower Cooling
Gear Box Output RPM	:	60 RPM
Mounting	:	Foot Mounting
Output Torque – Nm	:	2 x 30
Material Feeding System	:	Horizontal Auger Screw System
Motor	:	0.37KW
Screw Speed	:	5 TO 50 RPM
Main Motor Rated Power	:	2.2KW
MAX. RPM of Motor	:	0-900RPM
Cleaning		There should be a cleaning system to clear the blockages in the barrels
Speed Control	:	A C Drive
Electric Control Panel	:	Consists of PID Temperature Controller, Ammeter, Screw Speed Indicator, Main Isolator – On / Off, A C Drive For Main Drive Types Of Die Strand Die Type – Multi Orifice with Two Holes on PCD
Material	:	Alloy Steel With Hard Chrom Plated
No. of Holes	:	2



Tube Die Type	:	Spider Type Single Solid Hole
Material	:	Alloy Steel Hard Chrom Plated
Tube Insert	:	4.00MM
Setting of Die	:	Manually With Screw
Film Die Type Blown Film	:	Torpedo Breaker Type Center Feeding Tubular
Size of Die	:	20MM
Volumetric feeder	:	Display of On / Off and feeder rate
Water Colling Tank	:	2m long
Pulling roll and guide	:	1
Includes	:	Computer
Interface	:	Computer

Note: The quoted price should include charges for packaging and shipping to B G Nagara as well as warranty for 5 years. Basic consumables for the use of the extruder should be included in the quote. Evidence of prior installation of the model quoted (or equivalent models) in other institutions and organizations of repute in India is highly desired and should be furnished along with the quote.

2. EQUIPMENT NAME : MICRO INJECTION MOLDING MACHINE WITH MOULDS

Technical specifications

TECHNICAL SPEC.				
Item Description	Unit	IM – D30		
Screw Diameter	mm	20	25	30
Theo.Shot Volume	cm ³	31	49	70
Shot Weight (PS)	Gm	26	44	63
Injection Pressure	Kg/cm ²	2260	1446	1100
Screw Stroke	mm	100		
Nozzle Stroke	mm	125		
Screw Revolution	RPM	260		
Temperature	Zone	4		
CLAMPING UNIT				
Mould Clamp Force	Ton	30		
Mould Ope. Stroke	mm	200		
Min./Max. Mould Ht.	mm	100/250		
Max. Daylight	mm	450		



Tie-bar Dist. H x V	mm	210x210
Platen Size H x V	mm	320x320
Ejector Stroke	mm	40
ELECTRICAL DEVICES		
Pump Motor	Kw	3.8
Heater	Kw	2.5
GENERAL		
Hydraulic Oil Tank	Ltr	150

Standard Testing Moulds

Item Description	unit
ASTM D638 Type 1 Tensile Bar (1/8 x 1/2 x 6 1/2)	1
ASTM D638 Type 4 Tensile Bar (1/8 x 1/4 x 4 1/2)	1
35 mm Diameter Disk	1
ASTM D790 Flex Bar (1/8 x 1/2 x 5)	1

Note: The quoted price should include charges for packaging and shipping to B G Nagara as well as warranty for 5 years. Basic consumables for the use of the machine should be included in the quote. Evidence of prior installation of the model quoted (or equivalent models) in other institutions and organizations of repute in India is highly desired and should be furnished along with the quote.

3. EQUIPMENT NAME : COMPRESSION MOULDING PRESS (HYDRAULIC PRESS) – LAB MODEL SEMI AUTOMATIC UP TO 20 TON

Technical Specification :

- ⇒ Machine design and controlling with hydraulic system.
- ⇒ Machine with semi automatic microprocessor based controlling device.
- ⇒ Heating cycle and cooling cycle should adjustable and automatic.
- ⇒ Heating controlling on PID based with auto-tune facility.
- ⇒ Heating capacity up to 300°C. Both plates should have individual heating element as well as controlling.
- ⇒ Temperature accuracy : 1°C.
- ⇒ Applied pressure also controlling via digital controlling unit with pressure transducer.
- ⇒ Hydraulic power pack with hydraulic jack with complete accessories fitting.
- ⇒ Power supply: 415volt AC+ three phase + Neutral + Earth, 15amps, 50Hz.
- ⇒ Floor mounting model.



- ⇒ Water cooling system
- ⇒ Cyclic cooling system
- ⇒ One set of mold as per customer requirement with supporting plates should supply with the machine.
- ⇒ Platen sizes are 15 x 15 inch.
- ⇒ Heating elements : air cartridge heaters.
- ⇒ Insulated plates to avoid power loss and minimize air consumption.
- ⇒ Maximum pressure range up to 300 Kg/cm².
- ⇒ Digital timer arrangement

Note: The quoted price should include charges for packaging and shipping to B G Nagara as well as warranty for 5 years. Evidence of prior installation of the model quoted (or equivalent models) in other institutions and organizations of repute in India is highly desired and should be furnished along with the quote.

4. EQUIPMENT NAME : 3D BIOPRINTER

Adichunchanagiri University (ACU), B.G Nagara, Karnakata, seeks the supply and installation of a state-of-the-art 3D printer for its research activities especially for biomedical applications. However, it is highly desirable that the printer be highly versatile to cater to the needs of the wide institute research community and can be used for a variety of materials research not limited to biomaterials alone. It is desired that the printer will offer the following functionality and performance:

Should be a computer-aided scaffold construction system with full control of printing process through a user-friendly software interface.

- Should allow printing of a variety of thermoplastic polymers as well as soft materials including different kinds of hydrogels and cell-laden polymer suspensions; Should allow processing of thermoplastic polymers from powders or granules as well as photopolymerizable polymers
- Should allow printing onto standard petri dishes or other substrates commonly used for cell culture.
- Should allow for printing of materials over a wide range of temperature (between 0°C and 200°C or higher); Allow the control of the temperature of the printing platform over a wide range (between 0°C and 80°C or higher).
- Should have the provision for parking at least 5 different dispensing printer heads.
- Should allow printing of an object with different materials from different heads interchangeably.
- Printer heads should be amenable for sterilization for printing of cells.
- Printing platform must be fixed to minimize vibrations to printed parts
- Should be an upgradable system for use with additional printing head types as needed in the future.
- Should exhibit movement accuracy of +/-5 micrometers or better



- Large printed volume of the object is highly desirable (at least 140 mm x 140 mm x 140 mm)
- Ability to print ceramic powder slurry is desired
- Desirable to have feature sizes down to 100 micrometers.
- Desirable to have provision for real-time monitoring of object fabrication.

Technical specification

- ⇒ Two extruders
- ⇒ Temperature control from RT to 70°C and 200°C
- ⇒ UV or blue light LED photocuring
- ⇒ 5 micron precision in X,Y,Z
- ⇒ Printing technology: FDM/FFF
- ⇒ Build volume: 140 mm x 140 mm x 140 mm (W x L x H)
- ⇒ Print resolution: 100 µm
- ⇒ Interface : laptop computer

Note: The quoted price should include charges for packaging and shipping to B G Nagara as well as warranty for 5 years. Basic consumables for the use of the printer should be included in the quote. Evidence of prior installation of the model quoted (or equivalent models) in other institutions and organizations of repute in India is highly desired and should be furnished along with the quote. A technical compliance certificate should be included. The above specifications are highly desired. However, in the eventuality of budget constraint, the institute reserves the right to compromise on some of the desired specifications of the printer, as listed above.

5.EQUIPMENT NAME : UNIVERSAL TESTING MACHINE

Technical specification

- ⇒ Universal tester – Tensile, compression and flexural
- ⇒ Single Screw Mechanical Structure supported with tie bar and linear motion bearing.
- ⇒ Machine maximum capacity up to 1000 Kgf.
- ⇒ Load accuracy 0.5.
- ⇒ Motor & Gear Box Motor Coupled with Gear box.
- ⇒ AC Variable Drive.
- ⇒ Speed range from 1 – 500 mm/min. Speed is selectable from the computer as well as from drive. Speed accuracy is ± 0.1 %.



- ⇒ PCB based digital display for load and extension.
- ⇒ Test Method: Tensile, COF (Slip Test) Compression Flexural, Peeling Tear Shear Banding Modulus of Elasticity Elongation, deformation, tearing, heat sealing, adhesive, puncture force of plastic
- ⇒ films, plastic flexible tube multilayer materials, soft package materials, adhesive tape, aluminum
- ⇒ foil, non-woven fabrics, rubber, paper, etc
- ⇒ Capacity: 500N, 1kN, 10kN
- ⇒ Cross head travel: up to 800 mm Percentage Elongation.
- ⇒ Tensile, Compression and flexural Crosshead Speed Range 10 to 500 mm/min (0.001 to 1000 mm/min)
- ⇒ Resolution 0.01
- ⇒ Extension display 0.01mm with 0.5% accuracy of travel.
- ⇒ Live interfacing on to computer during the test.
- ⇒ All unit conversion facility in load and extension. (i.e N-→kg-→lbf and in extension mm-→cm-→inch). Stress-→Strain graph also available after completion of the test.
- ⇒ PC communication via Converter for fast data collecting and every moment data collection to analyze product at each and every point.
- ⇒ Window based software with computer.
- ⇒ Digital calliper
- ⇒ Over load and over elongation safety features
- ⇒ Auto graph scales on X axis as well as Y axis.
- ⇒ Software should present test results in tabular and graphical formats.
- ⇒ Configure the test using a standard test setup template which is pre-formatted for each type of test.

The quoted price should include charges for packaging and shipping to B G Nagara as well as warranty for 3 years. Basic consumables for the use of the printer should be included in the quote. Evidence of prior installation of the model quoted (or equivalent models) in other institutions and organizations of repute in India is highly desired and should be furnished along with the quote.

6.EQUIPMENT NAME: DIGITAL TENSILE IMPACT (IZOD – CHARPY) TESTER WITH NOTCH CUTTER

Technical Specifications

✓ Energy Range	:	7.5 to 20 Joule
✓ Standard	:	ASTM D 1822, ISO 8256.
✓ Hammer	:	Hammer weigh for Izod, charpy and Tension



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|---------------------|---|---|
| ✓ Hammer Release | : | Solenoid Operated Hammer Release with integral safety device. |
| ✓ Result: | : | Results should be in Metric. Imperial Units to be upgraded on request. |
| ✓ Technology | : | Microprocessor Control Technology. |
| ✓ Data Entry | : | All data entry by key pad. |
| ✓ LCD Display | : | Provides auto prompts for test procedures. On request calibration and test results. |
| ✓ Microprocessor | : | should display min 10 Test Results. |
| ✓ Safety Guard | : | Safety Guard should inhibit operation if not closed. |
| ✓ Software | : | Microprocessor Windows based software with cable connection to standard computer. |
| ✓ Electrical Specs. | : | 220 / 240 V, 50 Hz, 110 / 120 V 60 Hz. |
| ✓ Notch cutter | : | V-Notch/60°/adjustable speed |

Note: The quoted price should include charges for packaging and shipping to B G Nagara as well as warranty for 3 years. Evidence of prior installation of the model quoted (or equivalent models) in other institutions and organizations of repute in India is highly desired and should be furnished along with the quote.

Registrar

Adichunchanagiri University

B. G. Nagara

Copy to:

1. PS to the Chancellor
2. OSD to the Vice Chancellor
3. PS to the Pro Vice Chancellor
4. PS to the Finance Officer
5. Office copy