

	INDIAN INSTITUTE OF TECHNOLOGY BOMBAY MATERIALS MANAGEMENT DIVISION Powai, Mumbai 400076.
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PR No. 100020393

Rfx. No. 610000887

Technical Specifications
Bench top Ultracentrifuge

1. Max Revolutions/minute = 1,50,000 or higher (2500 revolution / second).
2. Max Relative Centrifugal Force (RCF) = 1,019,000 x g or higher
3. Drive Type; variable frequency Induction drive.
4. Refrigeration System; Solid state, thermo electric temperature Control system and No coolant.
5. Vacuum system; Moisture purging.
6. Heat output not to exceed 2,400 BTU/hr (0.7 kW/hr)
7. Should be able to handle volume starting from 175ul to 194 ml
8. Temperature of rotors should variable be from 0 degree to 40 degree with 1-degree increment.
9. Should have Fixed angle, swinging bucket and Near vertical rotor to carry out analysis in different volumes within same rotor. The rotor should be able to run small volumes sample within the same rotor having same RCF force of the rotor specified without any speed compensation.
10. Should be able to meet biosafety compliance for future.
11. System should come with color screen & touch keypad operation for RMP/RCF/ Temp. /Vacuum display.
12. System should be able to accept Fixed Angle/Vertical Tube/Near Vertical &Swinging Bucket Rotors.
13. Rotor catalogue and Rotor tracking at fingertip should be present
14. Auto restart after power failure
15. Must have an air-cooled direct drive system that requires no brushes, gears or high-speed bushings.
16. Should be future ready to offer remote control monitoring (via Ethernet connection) to run the system from outside the lab or standard biosafety hood.
17. System should be able to perform application: Rapid differential sedimentation (pelleting) of small particles such as subcellular organelles and viruses, Rapid contamination-free isopycnic isolation of plasmid DNA, RNA pelleting in 2-3 hours; subcellular fractionation in sucrose gradients, protein separations in sucrose gradients, Pelleting of subcellular fractions in 5-30 minutes; plasmid DNA separation in 3 hours.

System should come with following Rotors.

1. 10 x 2ml, Fixed angle Titanium rotor with the total volume of 20ml ml having RPM: 130,000 or better Max. G-force: 1 019 000 or better. The rotor should come with 2ml tubes and rotor should be able to handle small volumes of 1 ml and 1.5ml for future requirement.
2. 4 x 5.0 ml, Swinging Bucket rotor Total volume: 20 ml having RPM: 50 000 or better, Max. G-force: 268 000 or better. The rotor should come with 5ml thin wall polypropylene tubes and rotor should be able to handle small volumes from 2 ml to 5 ml at 50 000 rpm and 268 000 x g. for future requirement
3. 20 x 0.2 ml, Fixed angle Titanium rotor Total rotor capacity of 4 ml having RPM: 100,000 or better, Max. G-force: 436 000 or better. The rotor should come with 0.2ml thick wall polypropylene tubes.
4. Safety Requirements:
 - a. The door shall be of high-strength structural steel chamber with a solenoid interlock to prevent operator contact with a spinning rotor
 - b. Shall lock automatically when the door is closed, and a run begins
 - c. An imbalance detector shall monitor the rotor during the run, causing automatic shutdown if rotor loads are severely out of balance
 - d. The centrifuge should have inbuilt optical disk and safety features which can sense and calculate the rotor inertia energy and stop the system to prevent rotor failures if rotor runs above its safety limits.

Purchase, Warranty and Service Terms

1. The System offered must be available on Website of Manufacturer or on a Brochure
2. 3-year warranty is required.
3. Supplier must have an active support in Mumbai. Supplier should clearly mention how instrument service and repair time will be minimized.
4. A qualified factory-trained engineer shall conduct on-site installation, commissioning and training.
5. Suppliers should not quote components which are being phased out by the manufacturer.