



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076.

Ref. PR No: 1000054057

RFx. No. 6100002792

Technical Specifications for Ultra Centrifuge Machine (Qty-1)

Sr. No	Item Description and Detailed Technical Specification	Technical Compliance (Yes / No)	Additional Information (if any)
1	The preparative refrigerated ultracentrifuge should be capable of going to speeds of 1,00,000 RPM or more; equivalent to ~ 800,000x g or more.		
2	Air cooled, vacuum encased drive with a minimum of 10 years of warranty.		
3	Speed control accuracy of +/- 2 RPM and temperature control of +/- 0.5°C.		
4	Maintain set rotor temperature of 0°C to 40°C in 1 increments and ambient operating range between 10 to 35°C.		
5	Ability to restart automatically: restarts after a power failure even from Zero rpm.		
6	Delay start from Zero rpm.		
7	On-board simulation software for run time calculation, gradient protocol optimization and more.		
8	On-board references should include: Rotor Catalogue, Rotor Tube Catalogue, & Chemical Resistance Chart		
9	Moisture removing vacuum system to eliminate moisture and numerical vacuum level display.		
10	Ultracentrifuge shall have options of using Fixed Angled, Swinging Bucket and Near-Vertical Rotors		
11	Large touch-screen display with adjustable positions for easy readout from distance.		
12	Constant display of actual and set parameters on touch screen interface.		
13	The Ultracentrifuge should have an inbuilt safety mechanism to calculate rotor energy/inertia and stop the centrifuge to prevent rotor failures and accidents.		
14	Multi sequential step automatic operation & five-step sequential user-defined program operation & three levels of security (Administrator, Supervisor & Operator)		
15	Moisture removing vacuum system to eliminate moisture		
16	One swinging bucket rotor capable of running up to 32,000 RPM (about 175,000 x g), with filled volume per tube range from 8.5 mL to 38.5 mL. Rotor capacity atleast 230mL.		
17	The rotor should be configurable with additional buckets to		

	increase sample throughput and should support high-speed centrifugation with smaller sample containers as needed. Rotor must have provision to fit extra bucket set for running sample volume of minimum 6 x 17 ml in the rotor with at least 32000 rpm		
18	<p>Safety Requirements:</p> <p>a. The door and vessel shall be of high-strength structural steel chamber with a solenoid interlock to prevent operator contact with a spinning rotor</p> <p>b. Shall lock automatically when the door is closed and a run begins.</p> <p>c. An imbalance detector shall monitor the rotor during the run, causing automatic shutdown if rotor loads are severely out of balance.</p> <p>d. Shall have over speed system to ensure that the rotor does not exceed its maximum allowable speed.</p> <p>e. Shall have an inbuilt safety mechanism to calculate rotor energy/inertia and stop the centrifuge to prevent rotor failures</p> <p>f. Shall have optional HEPA filter of 0.24 µm or less.</p> <p>g. Sound level should be <51 dBa</p>		
19	The company should also provide one braded (like Servo) 10KVa Stablizer.		
20	<p>Documents for regulatory compliance:</p> <p>Quality System Electrical & Laboratory equipment compliance. CE/ISO or substantially equivalent certification</p>		
21	<p>After sales support/service/application support:</p> <p>Support will be provided. Local Engineer will be available</p>		
22	<p>Training:</p> <p>Free of cost from our trained & certified engineers at site.</p>		
23	<p>Service:</p> <p>A certified engineer should be easily accessible and available on demand within 48 hours of any problem in the instrument. Two Compulsory visit per year for maintenance must be included apart from installation till warranty.</p> <p>Spares:</p> <p>The supplier of the instrument must confirm in writing that the spares for the entire instrument will be available for a period of at least ten years after the installation of the instrument.</p> <p>Manual:</p> <p>One set of operating manual and service manual (in English) should be provided with the instrument.</p>		
24	<p>Warranty:</p> <p>3 years.</p>		