



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

Reference No. (PR No. 1000042023)

RFx No. 6100001845

**TECHNICAL SPECIFICATIONS**

**ULTRACENTRIFUGE**

SR. NO	TECHNICAL SPECIFICATIONS	QTY	COMPLIANCE (YES/ NO)	ADDITIONAL INFORMATION
I	<ol style="list-style-type: none"><li>1. The Ultracentrifuge should run Maximum Speed: 80,000 rpm</li><li>2. The Ultracentrifuge should run Maximum Speed: 615,000 x g or more</li><li>3. The Ultracentrifuge should have a Speed Control Accuracy: <math>\pm 2</math> rpm of set speed</li><li>4. The Ultracentrifuge should have Maximum Capacity: 1.5 litre or more</li><li>5. The Ultracentrifuge should have the temperature set range from 0 °C to 40 °C with 1 °C increments and temperature Accuracy of <math>\pm 0.5</math> °C</li><li>6. The Ultracentrifuge should have a Timer: 1 min to 999 hours 59 min (with 1 min increments) with HOLD function</li><li>7. The Ultracentrifuge should have a Drive System: Imbalance tolerant direct drive, eye balance to within 5 mm.</li><li>8. <b>The Ultracentrifuge should have non-contact imbalance sensor to detect any imbalance in the system to activate the imbalance alarm and stops rotation immediately when detected</b></li><li>9. The Ultracentrifuge should have features like eye-balancing of samples, delayed start/ stop, Colour LCD touch screen, RPM/</li></ol>	1		

	<p>RCF mode, Run Scheduling and USB data communications</p> <p>10. <b>The Ultracentrifuge should be easily accessible LCD Display in the front of the device startup time of the device under 8 seconds</b></p> <p>11. <b>The Ultracentrifuge should have LED Indicator mounted in front to indicate its operating status by selectable light in colors, luminous patterns, and levels of brightness</b></p> <p>12. <b>The Ultracentrifuges should support automatic rotor locking by self-locking rotors system, without any need for a tool or push the button to lock/unlock the rotors.</b></p> <p>13. The Ultracentrifuge should support remote monitoring and centrifugation simulations using dedicated software's</p> <p>14. <b>The Ultracentrifuges should support small volume tubes to be used at the rotor's maximum RCF</b></p> <p>15. <b>The Ultracentrifuge should have unique Rotor Life Management System (RLM) to significantly increases the lifetime of the rotors by automatically tracking the exact run times on the internal rotor memory, making handwritten rotor logs a thing of the past</b></p> <p>16. <b>The Ultracentrifuge should have a RTC (Real time Control) function makes timer setting easier than conventional delay time setting (set date and time when you want to start or finish the centrifugation, as calendar and clock are equipped with the system)</b></p> <p>17. The Ultracentrifuge should have an optional convenient software to manage real-time operating logs of up to 16 devices and support 21 CFR part 11 compliance</p>			
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	<p>18. The Ultracentrifuge should have an option for remote monitoring application through mobile app in Wifi/LAN network</p> <p>19. The Ultracentrifuge should have an option for Simulation software use in PC to simulate the centrifugal condition is appropriate before the centrifugation run.</p> <p>20. The Ultracentrifuge should have a Thermo-module cooling system (CFC/ HCFC/HCF free)</p> <p>21. The Ultracentrifuge should have Vacuum System: Oil-rotary vacuum pump with moisture removal function and oil diffusion pump</p> <p>22. The Ultracentrifuge should have provision to assemble micro filters in the vacuum pump line for Biosafety to prevent any bio-hazardous sample into a room</p> <p>23. The Ultracentrifuge should have Acceleration/ Deceleration Profile: 10/10 or more</p> <p>24. The Ultracentrifuge should have programmability of registering up to 1000 programs with up to 30 steps in each run. Folders can be managed easily with colour parings with the character.</p> <p>25. The Ultracentrifuge should be able to register up to 50 users</p> <p>26. The Ultracentrifuge should be able to record maximum of 5,120 operating logs in the system automatically and can be exported by the user through USB port</p> <p>27. The Ultracentrifuge should be able to accept Fixed Angle, Vertical Tube, Neo angle and Swinging Bucket Rotors.</p> <p>28. The Ultracentrifuge should have option to browse available rotors, their specifications and accessories</p> <p>29. The Ultracentrifuge should have Heat Output: 1 KW or below</p>			
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	<p>30. The Ultracentrifuge should have Power: 210-240 VAC, 50 Hz, 30 A.</p> <p>31. The Ultracentrifuge should have less noise level of 51dB(A) or less</p> <p>32. <b>The Ultracentrifuge should have small dimension of 790 (W) x 690 (D) x 880 (H) to occupy only less lab space / floor area</b></p> <p>33. The Ultracentrifuge should have Safety and Standards Certification: CE</p> <p>34. The Ultracentrifuge should have Product Safety: EN61010-1 and EN 61010-2-020 Electromagnetic Compatibility: EN 61326-1</p>			
II	<p><b>Rotor Requirement:</b></p> <p><b>Swing-out Rotor for highest speed:</b></p> <ol style="list-style-type: none"> <li>1. Maximum Rotor Capacity: 40 mL x 6 tubes</li> <li>2. Maximum Rotor Speed: 28,000 rpm</li> <li>3. Maximum Rotor g-Force: 141,000 x g</li> <li>4. K Factor – 252</li> <li>5. Weight – 6.3 Kg</li> <li>6. 100 no's of 40 mL polypropylene tubes should be supplied along with the rotor and its necessary accessories</li> <li>7. Should have option for <b>Polyethylene terephthalate (PET)</b> tube for easy sliceable and puncturing of the tubes to recover sample.</li> <li>8. Should have options for small volume for 34 mL net volume tubes along with accessories</li> <li>9. Should have option for small volume bucket of 16 mL in the same rotor</li> </ol>	1		
III	<p><b>Warranty:</b> 3 years from the date of installation.</p>			