



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

(PR No. 1000040082)

(Rfx No. 6100001759)

Technical Specifications for AMC for Transmission Electron Microscopy 300 KV
(Qty: 1 Nos.)

Sr. No	Specification	Compliance (Yes/No)	Additional Information if any
1.	<p>Configuration</p> <p>1. Extreme Field Emission Gun (X-FEG):</p> <ol style="list-style-type: none">Brightness ($\geq 7 \cdot 10^7$ A/m² sr V)Current (≥ 50nA before Monochromator)Current Stability ($\leq 1\%$ over 7 days)Spatial CoherencyTemporal Coherency (Energy Resolution at 300KV)without Monochromator ≤ 0.8eV) <p>2. Accelerator:</p> <ol style="list-style-type: none">60 to 300 KV <p>3. 3 Lens Condenser</p> <ol style="list-style-type: none">Large parallel illumination range in TEM (nm to μm range)Large convergence angle range in STEM <p>4. Super-Twin Objective Lens</p> <ol style="list-style-type: none">Wide Pole Piece Gap (5mm)Large sample tilting range (± 70) <p>5. Piezo Stage</p> <ol style="list-style-type: none">Atomic step size (20pm) in X, Y and Z		

	<p>6. Super-X EDS Detectors</p> <ol style="list-style-type: none"> 1. 4 Silicon Drift Detectors / Windowless 2. Large Solid Angle (0.9 srad) 3. High Throughput rate (>240kcps) 4. Dwell Times per Pixel < 10µs <p>7. CETA Camera</p> <ol style="list-style-type: none"> 1. 4K*4K CMOS Camera 		
2.	<p>Specification of the instrument:</p> <ol style="list-style-type: none"> 1. Point resolution <= 0.20 nm 2. Information Limit <= 0.1 nm 3. Maximum specimen Drift <= 0.5 nm/min 4. Minimum Reduced Brightness $7.5 \times 10^7 \text{ A/ (m}^2 \cdot \text{sr} \cdot \text{V)}$ 5. Probe Current 1 nm spot <ol style="list-style-type: none"> a. Probe size $\leq 0.2 \text{ nm}$ b. Specification current: $\geq 0.25 \text{ nA}$ 6. Maximum Spot Drift <=0.5 nm/min 7. Maximum Resolution HAADF $\leq 0.136 \text{ nm}$ (STEM RESOLUTION) 8. EDS energy resolution at Mn $\leq 136 \text{ eV}$ (all detectors) 9. EDS energy resolution at Mn $\leq 140 \text{ eV}$ (all detectors) (At 100 Kcps) 		
3.	<p>Scope of work</p> <p>2 PM & Unlimited Break Down Visit</p> <ol style="list-style-type: none"> 1. 1st PM will be standard and for 2nd PM call has to be registered by User department. 2. All the third-party items are excluded from the scope of work 		
4.	<p>Service Level Agreement</p> <p>2 PM & Unlimited Break Down Visit</p> <ol style="list-style-type: none"> 1. Emergency visits will be unlimited. Replacement parts will be at customer's cost. 		