

Procurement Plan for RRCAT 2023-26

(The items indicate consolidated requirements to be processed as and when required)

Sr. No.	Item	Cost (Rs in lakhs)
1	Chiller Systems	
1.1	Various types of water airchilling systems,Cabinets and their AMCs	900
2	Cryo Components	
2.1	Cryo Compatible Magnetic shield	600
2.2	Cryo-compatible linear actuators	350
2.3	Cryocoolers with accessories.	80
2.4	Cryogen free magneto optic cryostat	180
2.5	Cryogenic cernox sensor readout with wire and feed through	70
2.6	Cryogenic control valves, relief valves, gate valves & Fabrication of Vacuum vessel for HB 650 Cryomodule	200
2.7	cryostream cooler for crystal diffraction	65
2.8	Fabrication of SWLS cryostat	400
2.9	Liquid Nitrogen plant , storage systems including Dewars/Tank and accessories and AMCs	700
3	Electrical / Electronic Equipments	
3.1	2D X-ray detectors	60
3.2	320 kVA Diesel generator set alongwith associated LT panels and cables	100
3.3	Arbitrary waveform generator, Tesla-meter and digital integrator, Digital storage oscilloscope, data acquisition and interface card.	160
3.4	Area Radiation Monitors (ARM) and electrometers	180
3.5	Automation & Control System componets and accessories	120
3.6	Baseband spectrum analyzer, Real time spectrum analyser, Spectrum analyser, Spectrum analyser with tracking generator	200
3.7	Beam diagnostic devices and accessories, Digital Beam Position Monitors(BPMs)	320
3.8	Control hardware for AM systems	100
3.9	Controls system and components, DAQ hardware, Data Loggers,DSO, PLC, SCADA and associated systems, Test and measuring equipment (Multichannel data logger, oscilloscopes, current probes, digital multi-meters, VNA, Signal generators etc.), TMP, SIP, SIP Controllers & cables, TSP Controllers & cables, Robotic Arm based workstation	500
3.10	E-beam source	650
3.11	Eddy current scanners and testing intruments	220
3.12	Electron Gun, Gun Modulator, Prebuncher, Accelerating structure, Energy filtering system, Beam extraction system, cooling system of Linacs	150
3.13	Electron Large size permanat magnet spectrograph	100
3.14	Flux gate sensor and meter for low magnetic field measurement	260
3.15	Glass Annealing Oven	85
3.16	Glass Melting Furnace	350
3.17	Heating Elements and Fiber-free High Temperature Insulators	100
3.18	High average power fs laser for material processing, Single and multi-mode fibre lasers, KrF Excimer Laser System	500
3.19	High voltage energy storage capacitor	300
3.20	Hot Isostatic Pressing (HIP) station	450
3.21	I/O Boards for Harmonic Sextupole PS controls, I/O boards for the Upgradation of I-2 MPS DPQPSP	100
3.22	Instruments like pressure transducers, level sensors, cernox temperature sensors, PT100 sensors, Head mounted temperature sensor with transmitter, vaccum guages for HB650 Cryomodule, Piezo actuators, Sensors (Thermocouples, Flowmeters etc)	250
3.23	Intensified CCD camera, Silicon based large area two-dimensional detector system , X-ray CCD camera, X-ray detectors (1D), High dynamic range CCD camera, Indirect x-ray CCD camera	600
3.24	IOT assembly	230
3.25	Klystron-36 kW and Klystron Modulator	600
3.26	Laser Tracker Systems & Accessories and AMCs	350
3.27	Low level RF system components	150

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3.28	LV and HV power cables.	120
3.29	Magnets, Solenoid Magnets & Power Supplies	350
3.30	Microwave power generation and distribution to Prebuncher and Linac	200
3.31	Modular Instrument racks, housing systems	50
3.32	Modulator and HV CCPS of various ratings	550
3.33	New RSIS system for Indus-2 and spares	75
3.34	Optical Streak Camera system, Streak Tubes, Image intensifier tubes	300
3.35	Permanent magnet undulator with control system.	200
3.36	Position sensors, adaptors, reflectors, stages and calibration systems, upkeep of instruments for alignment studies	125
3.37	Power Conditioning System (PCS) components and AMC	200
3.38	Power supplies for Lasers, thin film coating applications etc, 10kW DC SMPS, 40 kV, 3.5 A modular DC power supply, 50 V, 1600 A modular water cooled and air cooled DC power supply, .50V, 1950 A modular water cooled DC power supply, Magnet power supplies, Power Supplies for Ion Pumps/Getter Pumps, Multi Output SMPS for VME systems, HV Constant current power supplies and accessories, kJ Flash lamp power supply, Precision high stability power supplies	3200
3.39	Processing electronics for transverse bunch by bunch feedback system	140
3.40	Proton / Electron linear accelerator components and accessories	500
3.41	Pulse I-V measurement system	80
3.42	Pulsed Source meter calibrator	60
3.43	Rare earth permanent magnets	100
3.44	Real-time dosimetry devices, Radiation Survey meters and Contamination monitors, HPGe, low level activity detection instruments and setup,	120
3.45	RF system components	150
3.46	Scanning Electron Microscope Systems with detectors	700
3.47	SEY Measurement setup (E-Gun & Power supplies, Electron Energy analyzer system etc.,)	150
3.48	Stable Tunable Source for photo detector calibration setup, Ultra-sensitive current sources (Keithley)	100
3.49	Test platforms for developing and testing of RF powering system designs	150
3.50	Theodolites	110
3.51	Thyratron	150
3.52	Trace Water Vapour Sensor	50
3.53	Tuner for HB650 cavity	100
3.54	Ultrasonic immersion testing System along with probes and accessories	60
3.55	UPS and batteries	370
3.56	Vector Network Analyzer & associated equipment	125
3.57	Vortex flow meter, Electromagnetic flow meters and switches	220
3.58	Workstation & Job manipulators	80
3.59	WR-284 waveguide circulator and window	100
3.60	XPW system for Ti:sapphire laser	50
4	IT equipments / Software	
4.1	48 port NDR 200 Gbps InfiniBand Switch for Computing setup, Power Backup and related components, Precision Air Conditioners, fire alarm & suppression systems for Data Centre Halls and other allied equipment	750
4.2	CAD, Design for Additive Manufacturing (DfAM) and Simulation Software, Electro-Magnetic Computational Solver Software	200
4.3	Centralized DATA Storage facility	100
4.4	High-end computing servers and file servers, of 128 Channels IP based Video surveillance system, cameras, electric fence etc	500
4.5	Perpetual license of software for 3-D Electromagnetic design and analysis of radiofrequency accelerating structures.	80
4.6	Peta-Flop High Performance Computing Cluster	3200

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Sr. No.	Item	Cost (Rs in lakhs)
4.7	Storage and networking devices, Ethernet Switches	125
5	Machines and Systems	
5.1	0.5 m diameter 5 axis Aspheric Polisher / Float Polisher,	1000
5.2	3-Axes Probe Positioning System	135
5.3	5 axis Ultrasonic Grinding Machine	1550
5.4	Adiabatic/hybrid cooling system, accessories and hardware	70
5.5	CMT (Cold Metal Transfer) welding Station with accessories, CNC double column drilling/milling machine/ machining center	130
5.6	Controlled atmosphere brazing facility	500
5.7	Co-ordinate Measuring Machine (0.75m diameter) and Submicron Coordinate Measuring Machine	1000
5.8	Electron Beam Welding Machine and allied systems & components and their AMCs	2100
5.9	Fabrication and precision machining of Level pots	50
5.10	Growth chamber assembly for crystal puller	130
5.11	High temperature indentation-based Creep Test System	100
5.12	High Temperature Micro-Universal Testing Machine	150
5.13	High Temperature TGA-DSC calorimeter	150
5.14	HPGe based gamma spectrometry system	55
5.15	Indoor units for LCW cooling	60
5.16	Ion beam Figuring system (0.5 m)	1080
5.17	Liquid Jet polishing Machine (0.5 m)	185
5.18	Nano-indenter	150
5.19	Ozonated cleaning system	60
5.20	Precision motion system along with necessary automated drive system	60
5.21	Precision vertical stages	70
5.22	Six axis Laser welding robot	50
5.23	Ultra high vacuum goniometer for beamline experimental station	335
5.24	Upgradation of SatisLOH GII & PII machines	150
6	Materials	
6.1	Consumables for optical coating facility	65
6.2	Fumed nano-silica suspension	65
6.3	Fused Silica blanks, Fused Silica Crucibles	700
6.4	Helium Gas and Helium Gas Cascade	700
6.5	Magnetic elements of linacs	200
6.6	Mazze crystal for Ti:sapphire laser	50
6.7	Metals and alloys (Stainless Steel and Aluminum Alloys)	50
6.8	Meta-phosphates (Al, Ba, K)	450
6.9	Micro channel plate (MCP)	100
6.10	Oxygen free High conductivity / electronic grade copper shapes and sizes, Copper bars, High purity Copper	450
6.11	Packing design and implementation and transportation of HTS cryostat to Chicago	55
6.12	Platinum, Platinum Stirrers and Homogenisers , DPH Platinum Vessel (18 Litre)/liners	1000
6.13	Polishing compounds	120
6.14	Procurement of Ferrous/Non-ferrous metals	600
6.15	Refining Chemicals	80
6.16	Silicon substrates	150
6.17	Special material like Niobium, Titanium, Platinum and alloys	4000
6.18	Tin laps	70
6.19	Titanium bellows	50
6.20	UHV Hardware, Seals etc.	50
6.21	Ultra-high Purity Gases (Oxygen, Nitrogen. Chlorine etc.)	110

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Sr. No.	Item	Cost (Rs in lakhs)
6.22	Ultra-high purity reagents	70
6.23	Zerodur blanks	800
7	Mechanical Equipments	
7.1	Air bearing components	350
7.2	All metal gate valves	50
7.3	Clean room facilities, equipments, oven, consumables and motorised pallet	1100
7.4	Controlled environment glove box	100
7.5	Conveyor systems	500
7.6	Cutting tools, Diamond tools, General purpose tools and equipment with accessories for manufacturing and chemical treatment facility	300
7.7	Die Bonder for Laser Diodes	60
7.8	EBAM Processing chamber	80
7.9	EPR Dosimetry equipment, HPLC system, Sodium Iodide detectors, cold facility, shielded containers, Laboratory equipment, etc.	100
7.10	Fabrication and supplies of insulated containers	60
7.11	Fabrication of cryostat for superconducting magnets	400
7.12	Fabrication of fixtures and toolings for Coldmass Assembly	60
7.13	Fabrication of high RRR Nb multi-cell cavity	720
7.14	Gas dosing system (MFC, EP tubes, Gate valves etc., Gauges, controllers, gas cylinders)	50
7.15	Helium Leak Detectors and spares	100
7.16	Helium reliquifier system	100
7.17	High precision CNC machining centre	400
7.18	Induction brazing system	50
7.19	Laser water micro jet cutting machine	150
7.20	LCW plant, Heat exchangers, Cooling and pumping system equipment, cooling tower, piping system instrumentation, controls etc.	60
7.21	Low Conductivity Water plant components, Pumps & Accessories and AMCs	150
7.22	Lower Cold mass assembly	100
7.23	Non Evaporable Bulk Getter Modules	100
7.24	On-site Upgradation of Physical Properties Measurement System	210
7.25	Oxide layer deposition system	400
7.26	Ozonoated cleaning system	100
7.27	Particle shape Analyser	80
7.28	Phased Array Ultrasonic Detector	140
7.29	Plasma Enhanced Chemical Vapor Deposition System with Direct Liquid Injection	350
7.30	Powder atomizer unit	500
7.31	Preloaded Piezo Actuator	50
7.32	Radiation shielding hutch	60
7.33	Rail System for Cryomodule Assembly	90
7.34	Recovery Compressor	170
7.35	Robotic welding machines with accessories	70
7.36	Supply of Linac systems for three linacs (including Microwave systems, Electron gun, Accelerating structure, Beam delivery systems, magnet systems, Vacuum systems, Power supplies, beam diagnostic systems, control systems, cooling systems, support and qualifications systems, etc.)	5400
7.37	Surface profiler	70
7.38	Table-top XRF system	50
7.39	Thermal Imager / Pyrometer	55
7.40	Titanium vessel for 650 MHz RF cavity	100
7.41	Vision Measuring Machine with accessories	90
7.42	XRD based residual stress measurement equipment	150

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8	Optics and Equipments	
8.1	Angle Dekkor	75
8.2	Aperture stitching Interferometer for 0.5 m diameter optics	870
8.3	Assorted Fiber optic units like couplers, splitters, filters, multiplexers, laser diodes and drivers	160
8.4	Beamline mirrors, Deformable mirror, Large size broad band dielectric coated mirror	400
8.5	Cylindrical References	150
8.6	Dielectric coated off-Axis Parabola for PW laser	150
8.7	Diode pumped Nd:YAG laser at second harmonic	50
8.8	Double crystal monochromator	600
8.9	Double pulse nano-second laser system for LIBS	70
8.10	Dry ice optics cleaning station	150
8.11	DUV Optics Cleaner	155
8.12	Echelle spectrometer with ICCD	150
8.13	Fiber Optic Pump & Signal Combiner Fabrication Workstation	400
8.14	Flat & Spherical References	670
8.15	fs- broad spectrum oscillator	50
8.16	Fusion splicing workstation for large diameter optical fibers	150
8.17	Glass Casting Moulds (Pt)	180
8.18	High dynamic range Scatterometer	85
8.19	High dynamic range Spectrophotometer (375nm to 2700 nm)	165
8.20	High energy XPS system	1000
8.21	High resolution optical spectrum analyser	60
8.22	High resolution Refractometer	100
8.23	Large aperture double Pockel cell	60
8.24	Large size broad band polarizer	50
8.25	Large size Nd:Phosphate glass rods	50
8.26	Laser interferometer (100 m)	100
8.27	Long trace profilometers	860
8.28	Mirror chambers	70
8.29	Optical polishing felt laps	50
8.30	Prism-Coupler Based Refractive Index Measurement System	90
8.31	Semi Automatic Optical Lapping Machine	70
8.32	Sputter Coater for 0.5 m diameter optics (Au)	540
8.33	Synchrotron beamline optics Test bench	200
8.34	Upgradation of optical coating facility and characterization setups	400
9	Vacuum / UHV	
9.1	Ceramic Vacuum Chambers	100
9.2	Evaporable/ Non Evaporable Getter Pumps	50
9.3	Fabrication of vacuum chamber and associated components	180
9.4	Fabrication of cryostat, vacuum chamber miscellaneous pipings, valves etc.	190
9.5	Fabrication of Vacuum chambers & components and vessel	700
9.6	HV/UHV compatible Gate Valves	50
9.7	Large aperture optical Faraday isolator	50
9.8	Large capacity dry vacuum pump, TMP Vacuum pump	200
9.9	Micro CT station	500
9.10	Precision Machining of UHV chambers	75
9.11	Radiation Resistant Pirani/UHV Gauges & controllers, RGA, RGA spares, Radiation Resistant Pirani/Inverted Magnetron/B-A gauge heads & controllers , vacuume gauges, spares for gauges	1000
9.12	Spare radiation resistant all metal UHV valves(Gate/Angle)	90
9.13	Sputter Ion Pumps	50

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Sr. No.	Item	Cost (Rs in lakhs)
9.14	Stylus Profilometer with data logger system	50
9.15	TMP Stations and spares	200
9.16	TMP Stations with controllers and UHV Gauge Heads	60
9.17	Vacuum compatible Large translational linear stages	50
9.18	Vacuum deaerator	50
9.19	Vacuum Seals (OFE Copper/Silver plated OFE Copper /Helicoflex gaskets)	50
9.20	Vacuum system of linacs	100