

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 chiller systems (20kW and more) , Linac chiller system	300
1.2	Chillers & Dry Cabinets	250
2	Cryo Components	
2.1	Liquid Nitrogen plant , storage system and accessories	570
2.2	Fabrication of SWLS cryostat	400
2.3	Cryo-compatible linear actuators	350
2.4	Cryogen free magneto optic cryostat	179
2.5	Cryogenic cernox sensor readout with wire and feed through	70
2.6	cryostream cooler for crystal diffraction	65
2.7	Supply of cryogenic control valves, relief valves, gate valves for HB 650 Cryomodule	60
3	Electrical Equipments	
3.1	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.	3150
3.2	Glass Melting Furnace	350
3.3	Optical Streak Camera system,Streak Tubes, Image intensifier tubes	300
3.4	Flux gate sensor and meter for low magnetic field measurement	260
3.5	Klystron Modulator	200
3.6	Microwave power generation and distribution to Prebuncher and Linac	200
3.7	Vector Network Analyzer & associated equipment	125
3.8	LV and HV power cables.	120
3.9	UPS and batteries	120
3.10	Electron Large size permanat magnet spectrograph	100
3.11	Supply, installation, testing and commissioning of 320 kVA Diesel generator set alongwith associated LT panels and cables for Indus Complex at RRCAT, Indore.	100

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Sr. No.	Item	Cost (Rs in lakhs)
3.12	Tuner for HB650 cavity	100
3.13	Glass Annealing Oven	85
3.14	Pulse I-V measurement system	79
3.15	Electron Gun, Prebuncher, Accelerating structure, Energy filtering system, Beam extraction system, cooling system of Linacs	60
3.16	LCW plant, Heat exchangers, Cooling and pumping system equipment, cooling tower, piping system instrumentation, controls etc.	60
3.17	Pulsed Source meter calibrator	60
3.18	Fiber-free High Temperature Insulators	50
3.19	Heating Elements	50
3.20	Trace Water Vapour Sensor	50
4	Electronics / Controllers	
4.1	E-beam source	650
4.2	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
4.3	Controls system and components, 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	450
4.4	Hot Isostatic Pressing (HIP) station	450
4.5	Scanning Electron Microscope System with detectors	400
4.6	Beam diagnostic devices and accessories, Digital BPM	320
4.7	High voltage energy storage capacitor	300
4.8	Linac control system components and accessories	265
4.9	Fabrication of proton / Electron linear accelerator components	250
4.10	Instruments like pressure transducers, level sensors, cernox temperature sensors, PT100 sensors, vaccum guages for HB650 Cryomodule, Piezo actuators, Sensors (Thermocouples, Flowmeters etc)	170
4.11	Low level RF system components	152
4.12	SEY Measurement setup (E-Gun & Power supplies, Electron Energy analyzer system etc.,)	150
4.13	Processing electronics for transverse bunch by bunch feedback system for Indus-2	140

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Sr. No.	Item	Cost (Rs in lakhs)
4.14	Automation & Control System	120
4.15	Laser Tracker System / Comprehensive AMC for 3 Years	107
4.16	Control hardware for AM systems	100
4.17	Eddy testing instrument	100
4.18	Fabrication Assembly and testing of I/O Boards for Harmonic Sextupole PS controls, I/O boards for the Upgradation of I-2 MPS DPQPSP	100
4.19	Stable Tunable Source for photo detector calibration setup, Ultra-sensitive current sources (Keithley)	100
4.20	Baseband spectrum analyzer	80
4.21	Workstation & Job manipulators	80
4.22	2D X-ray detectors	60
4.23	BAG Controllers	60
4.24	Real-time dosimetry devices, HPGe, low level activity detection instruments and setup,	60
4.25	Ultrasonic immersion testing System along with probes and accessories	55
4.26	Large translational linear stages vacuum compatible	50
4.27	XPW system for Ti:sapphire laser	50
5	IT equipments / Software	
5.1	Supply, installation and commissioning of one+ Peta-Flop High Performance Computing Cluster	3200
5.2	Procurement and commissioning of 48 port NDR 200 Gbps InfiniBand Switch for Computing setup, Power Backup and related components for Data Centre Hall-A at RRCAT, Precision Air Conditioners in Data Centre Hall-B, racks, UPS, cooling infrastructure, fire alarm & suppression system for Data Centre Hall-C, of servers for revamping of email setup and various applications.	750
5.3	Supply, installation and commissioning of high-end computing servers and file servers, Of 128 Channels IP based Video surveillance system	264
5.4	Supply, installation and commissioning of Electric Fence at RRCAT, Video Surveillance Setup	250
5.5	IOT assembly	230
5.6	CAD, DfAM and Simulation Software, Electro-Magnetic Computational Solver Software	150
5.7	Supply, installation and commissioning of centralized storage facility	100
5.8	Perpetual license of software for three-dimensional electromagnetic design and analysis of radiofrequency accelerating structures.	80

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Sr. No.	Item	Cost (Rs in lakhs)
5.9	Ethernet Switches	75
5.10	Software for AM systems	60
5.11	PCS Indus complex (AMC) - 3 years	50
5.12	Storage and networking devices for revamping of email setup	50
6	Machines	
6.1	12 kW EBW machine (Volume >3.6 m ³)	2000
6.2	5 axis Ultrasonic Grinding Machine	1550
6.3	Ion beam Figuring system (0.5 m)	1080
6.4	0.5 m diameter 5 axis Aspheric Polisher / Float Polisher,	1000
6.5	Co-ordinate Measuring Machine (0.75m diameter) and Submicron Coordinate Measuring Machine	1000
6.6	High average power fs laser for material processing, Single and multi-mode fibre lasers, KrF Excimer Laser System	500
6.7	Experimental station	335
6.8	Liquid Jet polishing Machine (0.5 m)	185
6.9	High Temperature Micro-Universal Testing Machine	150
6.10	High Temperature TGA-DSC calorimeter	150
6.11	Upgradation of SatisLOH GII & PII machines	150
6.12	3-Axes Probe Positioning System	135
6.13	CMT (Cold Metal Transfer) welding Station with accessories, CNC double column drilling/milling machine/ machining center	130
6.14	Growth chamber assembly for crystal puller	130
6.15	High temperature indentation-based Creep Test	100
6.16	Consumables for optical coating facility	65
6.17	Six axis Laser welding robot	50
7	Materials	
7.1	Supply of high RRR Niobium material	3600

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Sr. No.	Item	Cost (Rs in lakhs)
7.2	Platinum, Platinum Stirrers and Homogenisers , DPH Platinum Vessel (18 Litre)/liners	1000
7.3	Zerodur blanks	800
7.4	Fused Silica blanks, Fused Silica Crucibles	700
7.5	Titanium-45 Niobium alloy (Ti-45Nb) disks	500
7.6	Procurement of Ferrous/Non-ferrous metals	500
7.7	Meta-phosphates (Al, Ba, K)	450
7.8	Helium Gas	400
7.9	Copper bars, High purity copper	250
7.10	Magnetic elements of linacs:	200
7.11	Oxygen free High conductivity copper shapes and sizes, electronic grade (UNS N0.-C10100) Class1 ASTM F68	200
7.12	RF system components	150
7.13	Silicon substrates	150
7.14	Ultra-high Purity Gases (Oxygen, Nitrogen. Chlorine etc.)	110
7.15	Micro channel plate (MCP)	100
7.16	Refining Chemicals	80
7.17	Ultra-high purity reagents (Acetone, Iso-propoyl alcohol, First contact polymer, etc.)	70
7.18	Tin laps	70
7.19	Fumed nano-silica suspension	65
7.20	Aluminum oxide polishing compound	60
7.21	Cerium oxide polishing compound	60
7.22	Mazze crystal for Ti:sapphire laser	50
7.23	Metals and alloys (Stainless Steel and Aluminum Alloys)	50
7.24	Titanium bellows for 650 MHz RF cavity	50
7.25	UHV Hardware, Seals & Miscellenous	50

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Sr. No.	Item	Cost (Rs in lakhs)
7.26	Ultra-high Purity Nd ₂ O ₃ Powder	40
8	Mechanical Equipments	
8.1	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
8.2	Clean room facilities, equipments, oven, consumables and motorised pallet	1100
8.3	Fabrication of high RRR Nb multi-cell cavity	720
8.4	Conveyor systems:	500
8.5	Powder atomizer unit	500
8.6	High precision CNC machining centre	400
8.7	Fabrication of cryostat for superconducting magnets	400
8.8	Oxide layer deposition system	396
8.9	Fabrication, testing and supply of cryostat for Superconducting Wavelength Shifter	395
8.10	Plasma Enhanced Chemical Vapor Deposition System with Direct Liquid Injection	350
8.11	Air bearing components	350
8.12	Cutting tools, Diamond tools, Procurement of general purpose tools, cutting tools and equipment for washing, cooling, transferring weighing and heating etc. with accessories for manufacturing and chemical treatment facility	300
8.13	Helium Gas Cascade	228
8.14	On-site Upgradation of Physical Properties Measurement System	208
8.15	Accelerating structure components and beam delivery components	200
8.16	Recovery Compressor	170
8.17	Laser water micro jet cutting machine	150
8.18	XRD based residual stress measurement equipment	150
8.19	Manufacture test platforms for developing and testing RF powering system designs	150
8.20	Phased Array Ultrasonic Detector	140

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Sr. No.	Item	Cost (Rs in lakhs)
8.21	Non Evaporable Bulk Getter Modules	100
8.22	Ozonoated cleaning system	100
8.23	Controlled environment glove box	100
8.24	EPR Dosimetry equipment, HPLC system, Sodium Iodide detectors, cold facility, shielded containers, Laboratory equipment, etc.	100
8.25	Scanning Electron Microscope	100
8.26	Titanium vessel for 650 MHz RF cavity	100
8.27	Helium reliquifier system	100
8.28	Ceramic Vacuum Chambers	100
8.29	Fabrication, Testing and Supply of Lower Cold mass assembly	100
8.30	Rail System for Cryomodule Assembly	90
8.31	Vision Measuring Machine with accessories	90
8.32	Prism-Coupler Based Refractive Index Measurement System	88
8.33	EBAM Processing chamber	80
8.34	Particle shape Analyser	80
8.35	Precision Machining of UHV chambers for next generation accelerators	75
8.36	Robotic welding machines with accessories	70
8.37	Surface profiler	70
8.38	Die Bonder for Laser Diodes	60
8.39	Radiation shielding hutch	60
8.40	Fabrication and supplies of insulated containers	60
8.41	Fabrication of fixtures and toolings for Coldmass Assembly	60
8.42	Thermal Imager / Pyrometer	55
8.43	All metal gate valves	50
8.44	Gas dosing system (MFC,EP tubes, Gate valves etc.,Gauges, controllers, gas cylinders)	50

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Sr. No.	Item	Cost (Rs in lakhs)
8.45	Induction brazing system	50
8.46	Mass spectrometer helium leak detector	50
8.47	Procurement of TMP Stations	50
8.48	Table-top XRF system	50
8.49	Helium Leak Detector/HLD spares	50
9	Optics	
9.1	High energy XPS system	1000
9.2	Aperture stitching Interferometer for 0.5 m diameter optics	870
9.3	Long trace profilometers	860
9.4	Flat & Spherical References	670
9.5	Sputter Coater for 0.5 m diameter optics (Au)	540
9.6	Beamline mirrors, Deformable mirror, Large size broad band dielectric coated mirror	400
9.7	Upgradation of optical coating facility and characterization setups	400
9.8	Fiber Optic Pump & Signal Combiner Fabrication Workstation	382
9.9	Synchrotron beamline optics Test bench	200
9.10	Glass Casting Moulds (Pt)	180
9.11	High dynamic range Spectrophotometer (375nm to 2700 nm)	165
9.12	Assorted Fiber optic units like couplers, splitters, filters, multiplexers, laser diodes and drivers	160
9.13	DUV Optics Cleaner	155
9.14	Cylindrical Float Polishing Machine	150
9.15	Cylindrical References	150
9.16	Dielectric coated off Axis Parabola for PW laser	150
9.17	Dry ice optics cleaning station	150
9.18	Fusion splicing workstation for large diameter optical fibers	150

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Sr. No.	Item	Cost (Rs in lakhs)
9.19	High resolution Refractometer	100
9.20	High dynamic range Scatterometer	85
9.21	Angle Dekkor	75
9.22	Mirror chambers	70
9.23	Semi Automatic Optical Lapping Machine	66
9.24	High resolution optical spectrum analyser	60
9.25	Large aperture double Pockel cell	60
9.26	Diode pumped Nd:yag laser at second harmonic	50
9.27	Large size broad band polarizer	50
9.28	Large size Nd: phosphate glass rods	50
9.29	Optical polishing felt laps	50
9.30	fs- broad spectrum oscillator	50
10	Optics Equipments	
10.1	Double crystal monochromator	600
10.2	Echelle spectrometer with ICCD	150
10.3	Double pulse nano-second laser system for LIBS	70
11	Vacuume / UHV	
11.1	Radiation Resistant Pirani/UHV Gauges & controllers, RGA, RGA spares, Radiation Resistant Pirani/Inverted Magnetron/B-A gauge heads, vacuume gauges, spares for gauges	1000
11.2	Fabrication of Vacuum chambers & components and vessel	700
11.3	Micro CT station	500
11.4	Large capacity dry vacuum pump, TMP Vacuum pump	200
11.5	Spares for existing Turbo molecular Pumping Stations	150
11.6	Vacuum system of linacs:	100
11.7	Spare radiation resistant all metal UHV valves(Gate/Angle)	90

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Sr. No.	Item	Cost (Rs in lakhs)
11.8	Sputter Ion Pumps	50
11.9	Vacuum Seals (OFE Copper/Silver plated OFE Copper /Helicoflex gaskets)	50
11.10	Evaporable/ Non Evaporable Getter Pumps	50
11.11	HV/UHV compatible Gate Valves	50
11.12	Large aperture optical Faraday isolator	50
11.13	Stylus Profilometer with data logger system	50