



MAHATMA GANDHI MISSION TRUST
MGM INSTITUTE OF HEALTH SCIENCES, CENTRAL PURCHASE DEPARTMENT (CPD)

Plot 1 & 2, Sector -1 Kamothe, Navi Mumbai 410209

eTender of HVAC Ductable split AC - DX for MRI (3T) Room

Tenders invited from reputed Manufactures or their authorised distributors / dealers of HVAC Ductable split AC - DX for MRI (3T) Room for supply and installation at MGM Hospital, Kamothe, in the format given

Name & Address of Vendor: _____

Sr. No.	DESCRIPTION OF WORKS	Required Make	Make & Model	TOTAL QTY	UNIT	Unit Rate Supply (Rs.)	Total Amount Supply (Rs.)	Unit Rate Labour (Rs.)	Total Amount Labour (Rs.)	Total Amount Supply + Labour (Rs.)	GST %
A	AIR CONDITIONING EQUIPMENTS:										
1.0	DX Split A.C. Units with Scroll / Rotary compressor consisting of:	Daikin/ Mistubishi /Toshiba / Blue Star / Carrier									
	(i) Condensing unit with reputed make hermetically sealed Inverter Scroll / rotary / 5 Star Inverter compressor, air cooled condenser having copper tubing with extended aluminum fins and condenser fan with adequate air flow capacity suitable for operation at ambient temp. of 40 deg C.										
	(ii) Fan coil unit consisting of 3/4 row-cooling coil blower with motor, filters, drain pan & casing.The evaporator shall be complete with expansion valve and distributor.The evaporator motor shall be 3-phase, TEFC, IP-55, foot mounted.										
	(iii) Interconnecting piping between evaporator & condensing units as per site requirement. The length of piping to be included is 8 RMT/ Machine. In case of multiple refrigeration circuits, this would include 8 RMT for each circuit. i.e a set of insulated suction line & liquid line for all the circuits of one machine. The suction lines shall be insulated with Armaflex or equivalent Nitrile rubber insulation. Minor civil works shall be included with wall openings for pipes, ducting, cabling etc. as required & making good / sealing of those. Final finish shall be under interior scope.										
	(iv) Supporting frames for condensing and evaporating units with vibration isolating pads. These shall be MS Powder coated.										
	(v) Necessary charge of oil and refrigerant gas as required up to handling over the system.										
	(vi) Electrical panel, power wiring & control wiring for the condensing & evaporator units including earthing to be included including end terminations. Power along with earthing would be provided near the Indoor Units. unless specified otherwise.										
	(viii) Condensate drain piping with approved quality rigid PVC pipe upto the nearest drain point / drain pipe to be included upto 8RMT with necessary chipping , chiselling etc. to conceal the pipe within the masonry wall, partition, as required. Minor civil works shall be included with wall openings for pipes, ducting, cabling etc. as required & making good / sealing of those. Final finish shall be under interior scope.										

	(ix) The units shall be year round programmable with real time microprocessor. The units shall be suitable for operation on 400/440 Volts, 3 ph., 50 Hz, 4 wire A.C. supply. 1 no separate outdoor duty isolator (MCB type) to break power (3 phase) is to be provided per cond. unit.									
1.1	DX HI-WALL SPLIT UNITS									
1.1.1	Capacity : 2.0 TR, Air Flow :840 CFM / Inverter type min. 5 star / with addl. NO-NC contact (Tech Room)			3	Set	0				0
1.1.2	Capacity : 2.0 TR, Air Flow :840 CFM / Inverter type min. 5 star / with addl. NO-NC contact (Console Room)			1	Set	0				0
1.1.3	Capacity : 2.0 TR, Air Flow :840 CFM / Inverter type min. 5 star / with addl. NO-NC contact (UPS Room)			2	Set	0				0
1.1.4	Capacity : 2.0 TR, Air Flow :840 CFM / Inverter type min. 5 star / with addl. NO-NC contact.- For Waiting Area (Unit to be Procured & Installed only after MGM Team approval.)			1	Set	0				0
1.1.5	Capacity : 1.0 TR, Air Flow :420 CFM / Inverter type min. 5 star / with addl. NO-NC contact. for Radiologist Room (Unit to be Procured & Installed only after MGM Team approval.)			1	Set	0				0
1.1.1	Ductable Unit -Capacity : 5.5 TR, Air Flow :2200 CFM / Inverter type min. 5 star / with addl. NO-NC contact			2	Set	0				0
2.1	Additional Set of refrigerant piping and Power & Control Cabling complete for gas & liquid line with insulation as specified, electrical cable & conduiting complete with supporting arrangement etc. and with necessary chipping , chiselling etc. to conceal the pipe within the masonary wall, partition, as required for circuit for 1 TR to 4.0 TR machines.	Copper Pipes: Hariom, Mandev, Rajco, Nissan, MexFlow, RR (Duly Eddy current tested) Insulation - Armaflex, K-flex, A- flex Cable: Polycab, Finolex, RR, KEI, Kenter		144	RMT	0				0
2.2	Additional Set of refrigerant piping and Power & Control Cabling complete for gas & liquid line with insulation as specified, electrical cable & conduiting complete with supporting arrangement etc. and with necessary chipping , chiselling etc. to conceal the pipe within the masonary wall, partition, as required for circuit of 2 TR Hi Wall AC Unit - from ODU location to IDU Location in UPS Room. This piping Circuit to be duly pressure tested & to be kept as pinched on both ends	Copper Pipes: Hariom, Mandev, Rajco, Nissan, MexFlow, RR (Duly Eddy current tested) Insulation - Armaflex, K-flex, A- flex Cable: Polycab, Finolex, RR, KEI, Kenter		24	RMT	0				0

2.3	<p>Additional Set of refrigerant piping and Power & Control Cabling complete for gas & liquid line with insulation as specified, electrical cable & conduiting complete with supporting arrangement etc. and with necessary chipping , chiselling etc. to conceal the pipe within the masonry wall, partition, as required for circuit upto 5.5 TR machines.</p>	<p>Copper Pipes: Hariom, Mandev, Rajco, Nissan, MexFlow, RR (Duly Eddy current tested) Insulation - Armaflex, K-flex, A-flex Cable: Polycab, Finolex, RR, KEI, Kenter</p>		36	RMT	0				0
3.0	<p>Drain piping in hard PVC with all fittings, supports and clamps upto 40mm dia. including drilling hole in wall chipping wall etc to conceal and to route the drain pipe. The piping shall be suitably insulated with 19 mm thk Closed Cell foam Class O (Nitrile Rubber) stuck with approved adhesive compound. The insulation shall be covered with glass cloth and painted with rubberised paint.</p>	<p>Drain Pipe: Prince, Astral, Supreme; Insulation: Armaflex, K-flex, A-flex</p>		144	RMT	0				0
4.0	<p>Controller for sequencing, programming scheduling the Indoor Units for critical rooms for equal run, auto stand-by change over, fault take off etc. as specified. The controller shall be enclosed in an IP-54 Panel.</p>	<p>Vemco</p>								
	<p>The particular set of indoor units shall be controlled in sequence when working on working + standby basis.</p>									
	<p>Sequential controller shall have PF contacts / NO-NC contacts so that connected indoor units shall be tripped in case of receiving fire signal, for monitoring on BMS in case indoor unit operation fails, High temperature alarm.</p>									
5.0	<p>Sequential controller for - 1 Working + 1 Standby DX Units (Timer + Thermostat signal)</p>			3	Set	0				0
6.0	<p>GI Insulated Drain Trays for Indoor units. Supply Installation of factory made GI Insulated Drain Trays for Ceiling Suspended DX Ductable and Wall mounted Hi-wall indoor units. The trays to be made as per requirement of each indoor unit sizes and as indicated on the layout complete with 25mm thick Closed Cell Insulation with minimum density of 40 Kg/m3 with minimum R Value 4.1/inch & thermal conductivity -0.035 w/mok confirming to Class 'O' & the inner side stuck to the outer facia of the GI ducts with recommended / Proprietary Synthetic adhesive bonding (SR998 or equivalent) & installed as per manufacturers recommendation. The insulation joints shall be sealed with 3" wide Black Tape. Trays shall be with liberal drain connection.</p>	<p>GI tray: Jindal; Insulation: Armaflex, K-flex, A-flex</p>								

6.1	Drip tray for DX Hi-wall unit			10	Set	0				0
6.2	Drip tray for DX Ductable unit			2	Set	0				0
7.0	Drain pumps with adequate sump and float arrangement for Hi-wall units	Aspen								
	Drain Pumps to be procured & installed only if Proper slope is not available in the drain lines of respective units									
7.1	Drain pump for DX- Hi-wall unit (Mini Blanc Model)			5	Set	0				0
7.2	Drain pump for DX Ductable unit ((Hi flow Model)			2	Set	0				0
TOTAL FOR 'A' - EQUIPMENTS										0
B	AIR DISTRIBUTION:									
1.0	PREINSULATED PANEL DUCTING									
	Supply, fabrication, assembling and installation of Preinsulated PUF / Polyisocyanurate (PIR) Panel ducting as specified & shown on the drawing complete with:	Asawa / EasyMech								
	Preinsulated aluminium embossed sandwich panel of 20 mm thick, 80 micron embossed aluminium foil on both sides, having density of 45 Kg/M3 with preinsulated PUF Panel /Polyisocyanurate (PIR) Panel ducts with reinforcement / strengthening. Fire Class "O" BS 476 Part 6 & 7, Class "A" ASTM E84. Shall be provided with corner cleats for wire hanging /supporting. Reinforcement / strengthening for ducts beyond 1000mm wide. Ducting shall be measured on duct sizes mentioned in the drawing and not by adding panel thk. Spray Painting of exposed ceiling area ducts / Insulation as per architect requirement to be included in HVAC scope.									
	a) Corner profile, flange joints, clamps, stiffner bolts									
	b) Air tight joints									
	c) Accessories such as splitter, vanes etc.									
	d) Hangers and supports. Gripple / Hilti supports to be provided.									
	e) Adhesives, Tapes and sealants for joinery.									
1.1	Ducting with 20 mm thick insulated panels in Rectangular Ducts			70	Sqmt	0				0
1.2	Ducting with 20mm thk insulated panels for Flat Oval ducts 200 micron outside / 80 micron inside			0	Sqmt	0				0
2.0	Flexible Ducting									
	Supply, Installation, Testing and Commissioning of insulated flexible ducts. The insulated flexible duct shall have inner core made of double lamination of metalized polyester film permanently bonded to a coated spring steel wire helix. Aluminium foil on inside & outside.	UP Twiga, ATCO								
	Fibreglass insulation of minimum 14 kg.cu.m. density having a R-value 4.2°F-Ft2-hr/btu and 25 mm thk shall be wrapped over the inner core and covered with stronger outer jacket cum vapor barrier made of fibreglass reinforced metalized polyester film laminate.									

	The insulated flexible duct should be fire retardant type. Limit Flexible Duct to not more than 3Ft Length/ Diffuser Connection.									
1.1	Insulated Flexible ducts of 200 mm dia		RO	RMT	0					0
1.2	Insulated Flexible ducts of 250 mm dia		10	RMT	0					0
1.3	Insulated Flexible ducts of 300 mm dia		10	RMT	0					0
2.0	Heaters Suitable for Mounting in Supply Air Ducts									
	Supply, installation, testing and commissioning of Electric strip reheaters constructed of ceramic shielded heating (low watt density) elements should be of finned tubular nickel-plated steel construction with flameproof junction box (And with 1 set each of Humidistats and Thermostats per heater bank for following capacities).	Sushma, Heatray / Any other approved supplier								
	The heating circuit should include dual safety protection through loss of air and high temperature controls. The control panel which shall be included for the heaters shall be thyrister based. The scope shall also include duct mounted combined T+RH transmitter, controller and cabling as required from the transmitter to control panel with GI conduit. The heaters shall be placed equidistant in the supply duct on the shorter side of duct. [Wherever heaters are being installed, they need to be within GI Duct of 20G, Cost of GI duct piece to be included]									
2.1	3 k W (1 kW x 1 Bank)		1	Lot	0					0
3.0	Portable Dehumidifiers									
3.1	Capacity - 26 Lit / DAY 26 litres tank capacity, with continuous drainage option, Required Auto, Dry, Sleep and Ionizer Modes for efficient performance, Programmable Timer, convenience on finger tips,Handle and Roller Castors for easy mobility.	Origin	RO	Set	0					0
3.2	Capacity - 50 Lit / Day 50 litres tank capacity, with continuous drainage option, Required Auto, Dry, Sleep and Ionizer Modes for efficient performance, Programmable Timer, convenience on finger tips,Handle and Roller Castors for easy mobility.	Origin	2	Set	0					0
4.0	Volume Control Dampers									
4	Supply, installation and adjusting of Aluminium Volume Control Damper in 18 G within ducts complete with suitable links, levers. Blades should be opposed blades type. The blades should be mounted in nylon bushes operated by an interior wheel gear system. Manual quadrant control with position indicator to be provided to enable adjust volume of air as required.	Cosmos, Airproducts, Dynacraft	1	Sq.M.	0					0
5.0	Fire and Smoke Dampers									
5.1	Fire and Smoke Dampers (FSD) shall be installed in supply air duct when they pass through AHU room walls as shown in the drawings and as per specifications. The Fire Dampers shall be operated with atleast 90 minutes fire rating as per UL-555S-Class I for fire and smoke management rated for 90 min. and UL Stamped.	Cosmos, Airproducts, Dynacraft	0	Sq.M.	0					0
	Fusible Link should be rated for 72°C. Each FSD shall be of multi leaf type, low leakage and shall be tested in the factory and will be certified by the manufacturer in form of the test certificate.									

	Each FSD shall be supplied with matching extended sleeve (factory supply) and set of retaining angles for installation on wall / slab as indicated on drawings. [up to max size of 1200 mm x 350 mm - This duct size is given as guideline for estimate, actual duct sizes in the approved drawings shall prevail]. Fire Dampers shall be provided with access doors in ducts / false ceiling.									
5.2	Fire and Smoke Dampers - Specifications same as above item B-8.2.but suitable for Motorised Actuator	Actuators & Controllers Belimo, Honeywell		1	Sq.M.	0				0
5.3	Motorised Actuator for item B-5.2			3	Nos	0				0
	The Actuator shall be direct coupled spring return type and motorised. The Actuator shall be in line with the Technical Specifications and shall be maintenance free direct coupled spring return type suitable to work on 24 V electric supply. The torque rating of the actuator shall exceed at least by 15% over torque required to open / close the damper. Shall have manual over ride facility.	Cosmos, Airproducts, Dynacraft; Actuators & Controllers Belimo, Honeywell								
	The selection of actuator size shall be the responsibility of the manufacturer. Power on indicating lamps with 230 V / 24 V transformer,damper close & open indication, reset push button, push button for manual running of actuator for periodic inspection, auxiliary contacts 24V & 230 V, contact points to receive signal from smoke detector / fire alarm panel etc. should be provided.									
6.0	Back Draft Dampers with same specifications of VCD as above item 5.1. (To be installed at Ductable Split unit outlet for MRI room, prior to plenum connection)	Cosmos, Airproducts, Dynacraft; Actuators & Controllers Belimo, Honeywell		1	Sq. m	0				0
7.0	Supply /Return / Exhaust Air L-bar Grill									
	In extruded aluminium construction, powder coated. One way/ 2 way fixed deflection with end flanges -15deg.as required and as shown in the drawings.	Cosmos, Airproducts, Dynacraft		2	Sq.M.	0				0
8.0	Box Type Dampers / Spigot Dampers:									
	Aluminium Box type collar damper with nylon - geared control & with aerofoil blades for above grills in black matt powder coated finish.	Cosmos, Airproducts, Dynacraft								
8.1	Box type dampers for S. A. collar			1	Sq.M.	0				0
9.0	Double Canvass Connection			2	Sq.M.	0				0
	Supply, fabrication & installation of double canvass (fire retardant) flexible connection as per drawings & specifications.	Mapro, Kanwal, Resistoflex								
TOTAL FOR 'B' - AIR DISTRIBUTION										0

C	INSULATION											
1.0	Insulation for Air Tight Partition & Trap Door											
	Supply, fabrication and laying of Wall thermal insulation with PIR Insulation Panels of suitable thickness & of approved make as specified and shown on the drawing complete with:	ASAWA, EasyMech, Zeco		60	Sq.M.	0						0
	Preinsulated aluminium embossed sandwich panel of 20 mm thick, 80 micron embossed aluminium foil on both sides, having density of 45 Kg/M3 with preinsulated PUF Panel / Polyisocyanurate (PIR) Panel . Fire Class "O" BS 476 Part 6 & 7, Class "A" ASTM E84.											
TOTAL FOR 'C' - INSULATION											0	
D	VENILATION AND EXHAUST											
1.0	INLINE DUCTED EXHAUST FANS	Kruger, Systemair, Dynair										
	Inline Ducted Circular / Rectangular fans shall be direct driven type with all accessories etc.complete as per specifications & drawings shall be included.											
	Fan to be provided with MCB, switch socket & cabling as per requirement.											
	Cabling: Power cabling of copper armoured cable from control panel to motor with double compression gland. Cabling and earthing limited to 10 RMT max. Contol cabling for hook up to BMS is not included here.											
	(Installation of fans shall mean unloading, lifting-shifting, positioning, levelling & installation in place)											
1.1	EF- 250 CFM / 15 mm ESP			1	Set	0						0
2.0	CABINET TYPE RETURN AIR FAN	Kruger, Nicotra, Systemair										
	Supply, Assembly, Installation, Testing and Commissioning of Ceiling Suspended Cabinet type fan section with direct drive backward curved blower & TEFC IP55 motor - IE3, vibration isolators. mounted on common base frame with vibration isolators with inspection window. Internal electrical and control wiring of Fan to be provided as factory fitted from Fan supplier. Filter section shall be with MERV 8 washable pre-filters & MERV 14 to be provided.											
	Fan outlet velocity not to exceed 1800 fpm. Fan outlet shall be top / side discharge as approved by the HVAC Consultant.											
	Quoted cost shall include control & starter panel IP-54, OLP, SPP, ON/OFF push buttons with ON indications, 3 nos. non polarised NO-NC contacts tripping on signal from fire dampers / fire alarm panel and remote operation of the fans. Panel should be suitable for all required accessories. Panel should be with Auto / Manual / By pass modes.											
	Cabling: Power cabling of copper armoured cable from control panel to motor with double compression gland. Power & control Cabling and earthing limited to 20 RMT max. Control cabling for hook up to BMS to be included here.											
	Duct cowl to be provided with Bird mesh wherever required.											
	Necessary foundation blocks / structural platform to be provided seperately.											
	(Installation of fans shall mean unloading, lifting-shifting, positioning, levelling & installation in place)											
2.1	FAF -1600 CFM / 15 mm ESP			1	Set	0						0

3.0	PROPELLER TYPE EXHAUST FANS									
	The exhaust fans shall be complete as per technical specifications, exhaust fan summary sheet and the drawings and as described below:	Kruger, Nicotra, Systemair								
	The fans shall be selected for heavy-duty operation. Fan housing shall be one-piece rugged steel construction. The fan shall be in accordance with IS-2312. The fan impeller shall be propeller type. The hub and the impeller shall be dynamically balanced and frames and arms shall be mounted on rubber bushings.									
	The motor shall be totally enclosed type, with capacitor start and run type motor, rated for continuous duty and rugged in construction. The motor shall have prelubricated double ball bearing and shall be provided with class A / E insulation.									
	The fans shall be complete with gravity shutters and leak proof closing mechanism and suitable for wall mouting with necessary framework. The costs shall include making of holes and fixing of louvers on the external facia and with the fans mounted on the inner facia of the wall.									
	Power cable with plug top and an isolator shall also be provided with the fan									
	The exhaust fans shall be capable of exhausting following capacities:									
3.1	100 cfm with 6 mm ESP (225 mm (9") dia)			1	Set	0				0
3.2	200 cfm with 6 mm ESP (225 mm (9") dia)			RO	Set	0				0
4.0	Provision of Control Panel with ON - OFF Switch for MRI EXAM Room - (for SAKU Make FAN - provided by PHILIPS - MRI Equipment Supplier)			1	Lot	0				0
	Quoted cost shall include control & starter panel IP-54, OLP, SPP, ON/OFF push buttons with ON indications, 3 nos. non polarised NO-NC contacts tripping on signal from fire dampers / fire alarm panel and remote operation of the fans. Panel should be suitable for all required accessories. Panel should be with Auto / Manual / By pass modes.									
	Cabling: Power cabling of copper armoured cable from control panel to Fan motor with double compression gland. Power & control Cabling and earthing limited to 20 RMT max. Control cabling for hook up to BMS to be included here.									

TOTAL FOR 'D' - VENTILATION & EXHAUST											0	
	Scaffolding Charges for the period of project at site with H frame / angles etc.											
												0
A	EQUIPMENTS											
B	AIR DISTRIBUTION WORKS											
C	INSULATION											
D	VENTILATION & EXHAUST											
	TOTAL FOR 'A' + 'B' + 'C' + 'D'											
	TOTAL OF GST / IGST											
	TOTAL OF ANY OTHER TAXES											
	TOTAL ALL INCLUSIVE											

Terms & Condition :

GST											
Delivery Period:											
Installation Time :											
Payment Terms											
Warranty 1 year											
Packing, Transportation, Loading & Unloading Charges											
Security Deposit - 5%											
Time Period for Work Completion											
Penalty if not complete in time period											

Kindly email your lowest quotations for above items with your terms and conditions as well as applicable Brochure / Catalog, Client list with installation Year and their Contact numbers to etenders@mgmuhs.com only.

Seal	Date:	Signature of Tenderer:
		Name:
		Designation:
		Email ID:
		Mobile No.:

Full Address: