



TATA MEMORIAL CENTRE
ADVANCED CENTRE FOR TREATMENT RESEARCH AND EDUCATION IN CANCER (ACTREC).

A GRANT-IN-AID INSTITUTE UNDER DEPARTMENT OF ATOMIC ENERGY, GOVERNMENT OF INDIA

Tender No.	TMC/ACTREC/ENGG/SP/ET-53/MGPS/HWCC/2019
Name of work:	SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF MEDICAL GAS PIPE LINE SYSTEM FOR HWCC AT ACTREC, KHARGHAR

Schedule of Quantities

Name of the Vendor	
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Sr.No	Item	Units	Quantity	Origin	SITC Rate	SITC SIRC SITC Amount
1	Supply , Installation, Hook up , Testing , Commissioning of Medical Oxygen system with demand of 130 CFM at minimum 55 psig Comprising of below items					
1.1	Indoor Fully Automatic 3 source Control Panel- conforming to NFPA 99, between LOX vaporiser as primary source & 20 cylinder LHS HP cylinder Manifold as secondary & 20 cylinder RHS HP as Reserve to give flow of Liquid Oxygen minimum 1500 LPM & minimum input to panel at 175 psig . It shall be complete with source cut off & check valve, pressure gauge, pressure switch, pressure transducer, first level diaphragm regulator, line diaphragm regulator with gauge, line shut off valve, relief valve, vent valve, LED for Use-Ready-Empty etc. complete prewired & prepiped, dry contacts for wiring to Central Alarm Panel including wall/floor supporting. As per tender technical specifications	Nos	1.00	Imported		0
1.2	Oxygen Secondary & Reserve- Simplex Manifold System (tested for 3500 psig) , suitable for 20 nos. 45 liters water capacity cylinders on both LHS & RHS complete with Master shut of valve, high pressure copper pipe (ISO 7396-1) of 25 mm OD header, Firmed Header to cylinder tees to suit pig tail, forged brass Cylinder shut off & check valve, High pressure copper pig tail, comprising baseframe, stand pipe, cylinder holding straps with all steel & structural work in 2.5mm HRCA steel & zinc plated with Epoxy paint. As per tender technical specifications	Nos	2.00	indigenous		0
1.3	Oxygen Emergency Simplex Manifold System (tested for 3500 psig), suitable for 10 nos. 45 liters water capacity cylinders complete with Master shut of valve, high pressure copper pipe (ISO 7396-1) of 25 mm OD header, Firmed Header to cylinder tees to suit pig tail, forged brass Cylinder shut off & check valve, High pressure copper pig tail, comprising baseframe, stand pipe, cylinder holding straps with all steel & structural work in 2.5mm HRCA steel & zinc plated with Epoxy paint. As per tender technical specifications	Nos	1.00	indigenous		0
1.4	Fully Automatic Emergency Oxygen Manifold control Assembly , wall mounted for conforming to NFPA 99, complete prepiped, complete with bank isolation & check valves, Single stage diaphragm regulator, Inlet & Outlet pressure gauges, Pressure switch with pressure transducer etc. As per tender technical specifications	Nos	1.00	Imported		0
1.5	45 liters water capacity cylinders for Medical Oxygen cylinders, 150 bar operating, Seam less, Colour coded, Seamless, Chief Controller Of Explosive approved, conforming to IS 7285 comprising handwheel, firmed gas regulator, pressure relief, bursting disc indicator, discharge port suited to connecting metallic pig tail in 1 coat of surface tolerant primer & 2 coat of polyurethane with marine grade paint filled with 7 CuM of Medical Oxygen conforming to IP 2010/2018 As per tender technical specifications	Nos	50.00	indigenous		0
2	Supply , Installation, Hook up , Testing , Commissioning of Breathing Air system demand of 80 CFM at 55 psig including civil works foundation, supporting, cut-out, etc. comprising	Set	1.00	Imported		0
2.1	Rotary, Oil free, Air cooled, Screw/ Scroll/ Tooth, Compressor complying to NFPA 99, single point connection, Silent type Continuously Rated, 10 ⁰ F in Single Point Connection pack, skid mounted, in Duplex/ Triplex/ Quadruplex to meet system demand of 80 CFM+ purge air demand (15% for Dessicant dryer) .Each anti vibration mounted compressor with IE2 drive & starter with door interlock-CB Thermal protection, Intake flex hose-isolation valve-filter, outlet flex with isolation & check valve & safety relief, fan assisted After cooler with drain trap & automatic solenoid drain valve, Fail safe temperature sensor, Master controller - Touch screen-Label-operating parameter- PDO&CO levels, status of compressors-next to start-sequence, self diagnostic-service alerts- test mode- alarm & shutdown, Unit controller - Touch screen, with operating mode- operating status-Unit shutdown-Test mode, connectivity to BMS, control wiring harness etc. As per tender technical specifications					

Sr.No	Item	Units	Quantity	Origin	SITC Rate	SITC SIRC SITC Amount
2.2	240 gallons Compressed Air Receiver , NFPA 99 compliant, ASME code stamped, Corrosion resistant, 150 psig, complete with pressure gauge, liquid glass level indicator, safety relief valve, Zero loss drain electronic drain valve, Manual drain valve, 3 way bypass valve, prepiped & prewired etc As per tender technical specifications					
2.3	Compressed Air Duplex - Twin Tower Dryer NFPA 99 compliant, Filter Regulator pack with Auto/Manual purge air control, for system demand of 80CFM 55 psig minimum set, Heat less Desiccant Dryer(15%purge air) type, 10 ⁰ F PDP, air quality to suit NFPA 1989, full duplex 0.1 micron prefilter for aerosol + particulate matter with auto drain & element change indicator, full duplex after filter with element change indicator, touch screen controller having text display-PDP & CO levels & visual+audible alarm, pre piped & pre wired, dry contacts for connection to Master Alarm Panel. As per tender technical specifications					
3	Supply , Installation, Hook up , Testing , Commissioning of Instrument Air system demand of 62 CFM at 125 psig including civil works foundation, supporting, cut-out , etc. complete with	Set	1.00	Imported		0
3.1	Compressor Reciprocating /screw Oil lubricated , complying NFPA 99,Air cooled, continuous rated, in Single Point Connection pack, - 40 ⁰ F skid mounted, in Duplex/ Triplex/ Quadruplex to meet system demand of 62 CFM+ purge air demand (15% for Desiccant dryer).Each single or double stage (with stage cooler) unit shall be with grey cast iron cylinder & crank case, forged crank shaft, cast aluminum piston, IE2 drive with belt drive with sheave in OSHA approved enclosure, drive with door interlock safety switch-CB-Thermal protection, Manual-Off-Auto selector switch & dry contacts for alarm. Each compressor shall have Intake filter & Isolation valve, Air cooled after cooler with moisture separator-auto zero loss drain valve & Discharge metal braided hose-filter-isolation valve-check valve. High discharge air temp. sensor & with anti vibration mounts & connectivity to BMS, control wiring harness etc. As per tender technical specifications					
3.2	Control module					
3.3	200 gallons Compressed Air Receiver , NFPA 99 compliant, ASME code stamped, Corrosion resistant, 250 psig complete with pressure gauge, liquid glass level indicator, safety relief valve, Zero loss drain electronic drain valve, Manual drain valve, 3 way bypass valve, prepiped & prewired etc As per tender technical specifications					
3.4	Duplex fine line filters , complying NFPA 99, oil indicators, regulator,oil/water separator,PDP sensor with filter set at -22 ⁰ F having +/- 2 ⁰ F accuracy wired to touch screen & air sampling port As per tender technical specifications					
3.5	Controller Touch screen, complying NFPA 99 with Label-Operating parameter-PDP level, status of compressors- Run hours - FIFO sequencing- High discharge temperature-Lead-Lag sequencing, self diagnostic-service alerts- test mode- alarm & shutdown, dry contacts for connection to master controller As per tender technical specifications					
4	Supply , Installation, Hook up , Testing , Commissioning of Medical Vacuum system demand of 140 CFM at 450 mm Hg including civil works foundation, supporting, cut-out , etc. complete with	Set	1.00	Imported		0
4.1	Medical Vacuum Pump System Oil Lubricated Rotary Vane/ Claw,NFPA 99 compliant, single point connection, indoor air cooled on skid, in Duplex/ Triplex/ Quadruplex to suit relevant standard with minimum 140 CFM plant output at 482 mm Hg vacuum. Each pump complete with IE2 drives & starter with door interlock-CB-Thermal protection, circulating oil system 3 stage oil filter 99.9% efficient, high temp.switch, discharge manifold with flexes, drip ball valve & condensate drain, intake piping with antisuck back system- isolation valve-check valve-flex connection, Master controller -Label-operating parameter- PDO&CO levels, status of compressors-next to start-sequence, self diagnostic-service alerts- test mode-alarm & shutdown, As per tender technical specifications					
4.2	240 gallon Receiver , NFPA 99 compliant, ASME code stamped, Corrosion resistant, 150 psig complete with vacuum switch backed by vacuum transducer,Manual drain valve, 3 way bypass valve, prepiped & prewired etc As per tender technical specifications					
4.3	Duplex Stream Bacterial Filter System , NFPA 99 compliant, using filters having penetration level of 0.005% to BS 3928:1969 & particle count up to 0.02-2 micron size with transparent auto-claveable drain flask connected to each filter, differential vacuum indicator across filter, inlet & outlet pressure sensors, internal pressured drop<25 mm Hg, isolation valve for each drain flask,all prewired & prepiped, fittings etc. As per tender technical specifications					

Sr.No	Item	Units	Quantity	Origin	SITC Rate	SITC SIRC SITC Amount
5	Supply , Installation, Hook up , Testing , Commissioning of Medical N2O system with system demand of 15 CFM at minimum 55 psig Comprising of below items Comprising					
5.1	N2O Duplex Manifold System (tested for 3500 psig) suitable for 3 nos. 45 liters water capacity cylinders on each LHS & RHS complete with Master shut of valve, high pressure copper pipe (ISO 7396-1) of 25 mm OD header, Firged Header to cylinder tees to suit pig tail, forged brass Cylinder shut off & check valve, High pressure copper pig tail, comprising baseframe, stand pipe, cylinder holding straps with all steel & structural work in 1 coat of surface tolerant primer & 2 coat of polyurathene with marine grade heat resistance thickness 100 DFT As per tender technical specifications	System	1.00	indigenous		0
5.2	Fully Automatic Medical N2O Duplex Manifold control panel wall mounted for conforming to NFPA 99, complete with each bank Shut off & Check Valve, Presure switch, Pressure gauge, Pressure transducer, first level diaphragm regulator & intermediate relief valve. The Line shut off valve with pressure gauge & bleed valve, solenoid valve, line vent valve shall be provided. The LED visual shall be available for Green -In use/Green-Ready/Red- Empty shall be available including wall/floor supporting. As per tender technical specifications	System	1.00	Imported		0
5.3	N2O Emergency Simplex Manifold System (tested for 3500 psig) suitable for 2 nos. 45 liters water capacity cylinders complete with Master shut of valve, high pressure copper pipe (ISO 7396-1) of 25 mm OD header, Firged Header to cylinder tees to suit pig tail, forged brass Cylinder shut off & check valve, High pressure copper pig tail, comprising baseframe, stand pipe, cylinder holding straps with all steel & structural work work in 2.5mm HRCA steel & zinc plated with Epoxy paint. As per tender technical specifications	System	1.00	indigenous		0
5.4	Fully Automatic Emergency N2O Manifold control assembly , wall mounted for conforming to NFPA 99, complete prepiped, complete with bank isolation & check valves, Single stage diaphragm regulator, Inlet & Outlet pressure gauges, Pressure switch with pressure transducer etc. As per tender technical specifications	System	1.00	Imported		0
5.5	45 liters water capacity cylinders for Medical N2O cylinders, 150 bar operating, Seam less, Colour coded, Seamless, Chief Controller Of Explosive approved, conforming to IS 7285 comprising handwheel, firged gas regulator, pressure relief, bursting disc indicator, discharge port suited to connecting metallic pig tail in 1 coat of surface tolerant primer & 2 coat of polyurathene with marine grade paint filled with 17 CuM of Medical N2O conforming to IP 2010/2018 As per tender technical specifications	System	8.00	indigenous		0
6	Miscellaneous items					
6.1	Supply, Installation, Hook up, Testing, Commissioning Medical Gas Plant Central Alarm Panel in Touch Screen , NFPA 99 comoliant, located in MGSS building to give centralized view of a. Air plant. b. Vaccum Plant c. Oxygen & N2O manifolds, d. LOX vessel-Evaporators- 3 source controller. It shall monitor a. Med Ox b. N2O, c. Med Air d. Med Vac e. N2O. The factory built panel shall be wall/ floor mounted mounted in corrosion proof enclosure. The initiating signal shall be dry contacts/Ethernet. The staus indicators shall be Power On & Normal, System Fault, Each service status, self test, Mute for 80 dBA Audible & Visual alarm, 20 CHR 2 line alphanumeric text, filed programmable with scroll button. For individual service with touch screen panel showing individual gas label in colour code, service parameters, dry contacts for Normal-High-Low etc complete with structral supporting. As per tender technical specifications	Nos	1.00	Imported		0
6.2	Supply, Installation, Hook up, Testing , Commissioning Zone Alarm Panel Touch screen , NFPA 99 compliant, located in each wing of each floor, to give view of services of a. Med Air. b. Med Vaccum c. Med Oxygen d.MedN2O e. Instrument air. The factory shall be panel shall be NFPA 99 compliant, floor mounted mounted in corrosion proof enclosure. The gas labels shall colour coded by gas type-service parameter-unit - Normal/Alarm (Lo&Hi)-Location. Panel indicators shall be Power On & Normal, System Fault warning, Each self test, Mute for 80 dBA Audible & Visual alarm, field programmable complete with structural supporting. As per tender technical specifications					
6.2.1	5 gas - 7th floor	Nos	2.00	Imported		0
6.2.2	3 gas Ground & 1st & 4th & 5th & 6th	Nos	7.00	Imported		0
6.2.3	2 gas 1st & 2nd & 3rd floor	Nos	6.00	Imported		0
6.3	Supply, Installation, Testing & Commissioing of Medical Gas Distribution Zone / Area Valve Box , NFPA 99 compliant, for local isolation of service distributors on floor, factory made in corrosion proof enclosure with hinged temper proof door in 18 swg 1 coat of surface tolerant primer & 2 coat of polyurathene with marine grade heat resistance thickness having opaque door with pull ring & gauge window complete with gas labels & pressure/ vacuum gauges. As per attached Tech Specs & Layout drawings for valves sizes					

Sr.No	Item	Units	Quantity	Origin	SITC Rate	SITC SIRC SITC Amount
6.3.1	Zone valve box with 5 service on 7th floor including approved make Valves & 4-20 mA Transducers & gauges	Nos	2.00	Imported		0
6.3.2	Zone Valve box 3 gas Ground & 1st & 4th & 5th & 6th floor including approved valves & 4-20 mA Transducers & gauges	Nos	7.00	Imported		0
6.3.3	Zone Valve Box with 2 gas 1st& 2nd & 3rd floor including approved valves & 4-20 mA Transducers & gauges	Nos	6.00	Imported		0
6.3.4	Area Valve box 3 gas Ground floor including approved valves & Gauges	Nos	1.00	Imported		0
6.3.5	Area Valve Box with 2 gases Ground& 1st& 2nd&3rd&4th floor including approved valves & gauges	Nos	15.00	Imported		0
6.4	Supply, Installation, Testing, Commissioning of Medical Gas Isolation valves, bare on line , NFPA 99 compliant, High tensile bronze/ brass 4 bolt bronze body double seal union ball type with TFE/ Viton seal 400 psig isolation valves with K type pipe stubs-Medical Grade Copper pipe for fixing in the Floor Local Zone Valve box,Area Valve Boxes, Bare for wards in HWCC building As per tender technical specifications					
6.4.1	1/2" (for 15mm OD Tube)	Nos	139.00	Imported		0
6.4.2	3/4"(for 22mm OD Tube)	Nos	121.00	Imported		0
6.4.3	1" (for 28 mm OD Tube)	Nos	4.00	Imported		0
6.4.4	1.1/4" (for 35 mm OD Tube)	Nos	5.00	Imported		0
6.4.5	1-1/2" (for 42 mm OD Tube)	Nos	4.00	Imported		0
6.4.6	2" (for 54 mm OD Tube)	Nos	1.00	Imported		0
6.4.7	3" (for 76 mm OD Tube)	Nos	1.00	Imported		0
6.5	Supply, Installation, Testing, Commissioning of as per NFPA 99 Level 6020 Medical Grade Gas distribution piping manufactured from phosphorus deoxidized non arsenical copper to BS EN 1412:1996 grade CW024A manufactured to metric outside diameters having mechanical properties in accordance with BS EN 13348:2008-R250 half hard for sizes up to 54 mm or BSEN 133348:2008-R290 for larger sizes in ready made built up trenches as per applicable standard, open execution on internal / external walls, in vertical shafts, above false ceilings as also inside removable trunking, in walls by chasing cutting complete with factory made fittings such as tee/ elbow/ crossover/ wall sleeves etc., complete with vertical & horizontal supports and termination at both ends, colour coded painting etc. As per tender technical specifications					
6.5.1	15 mm ID x 0.9 mm thick	Mtrs	1411.00	indigenous		0
6.5.2	22mm ID x 0.9 mm thick	Mtrs	2238.00	indigenous		0
6.5.3	28 mm ID x 0.9 mm thick	Mtrs	305.00	indigenous		0
6.5.4	35 mm ID x 0.9 mm thick	Mtrs	214.00	indigenous		0
6.5.5	42 mm ID x 1.2 mm thick	Mtrs	46.00	indigenous		0
6.5.6	54 mm ID x 1.2 mm thick	Mtrs	62.00	indigenous		0
6.5.7	76 mm ID x 1.5 mm thick	Mtrs	62.00	indigenous		0
6.6	Supply, Installation, Testing, Commissioning of Medical Gas specific terminal Outlets , NFPA 99 compliant,geometric quick fix type for breathing air/surgical air/medical vacuum/medical oxygen complying & matching with correct medical gas probe according to the gas service outlets to be fitted in bed head panels in General Wards & HDU areas(excluding those used in OTs). As per tender specifications					
6.6.1	Medical Oxygen	Nos	465.00	Imported		0
6.6.2	Medical Air	Nos	25.00	Imported		0
6.6.3	Medical Vacuum	Nos	465.00	Imported		0
6.6.4	Instrument air	Nos	7.00	Imported		0
6.7.1	Supply, Installation, Testing, Commissioning of Vacuum Unit complying with ISO100793 :2000 for ward areas consisting of 0-760 mbar vacuum regulator, vacuum filter & 1000 ml vacuum collection jar made from polycarbonate/ polysulphone material As per tender technical specifications	Nos	245.00	Indigenous		0
6.7.2	Supply, Installation, Testing, Commissioning of Vacuum Unit complying with ISO 100793:2000 for casualty ward area consisting of 0-760 mbar vacuum regulator, vacuum filter & 1750 ml vacuum collection jar made from polycarbonate/ polysulphone material As per tender technical specifications	Nos	6.00	Indigenous		0
6.8	Supply, Installation, Testing, Commissioning of Oxygen flow meters with humidifier bottle complying with ISO 15002:2008 range of 0-15 LPM, 3-5 psig humidifier setting As per tender technical specifications	Nos	251.00	Indigenous		0
6.9.1	Supply, Installation, Testing, Commissioning of Hi pressure antistatic medical hoses colour coded in respect of each gas as per ISO standard As per tender technical specifications	Mtrs	753.00	Indigenous		0
6.9.2	Supply, Installation, Testing, Commissioning of Lo pressure silicone tube medical hoses colour coded in respect of each gas as per ISO standard As per tender technical specifications	Mtrs	1255.00	Indigenous		0

Sr.No	Item	Units	Quantity	Origin	SITC Rate	SITC SIRC SITC Amount
6.10	Supply, Installation, Testing, Commissioning of Bed Head Panel Extruded Aluminum 3 mm thick sheet, duly rendered resistant to UV/ Chemical/ Corrosion/ Pollution resistant, while Surface mounted housing conforming to NFPA 99 standard suitable for fixing gas outlets, power socket & switch modules with identified colour , telephone/DATA connection, nurse call button complete with barrier between gas & power section etc. complete with Rails, IV Pole, Document basket, Monitor tray , LED luminaire with switch etc. As per tender technical specifications					
6.10.1	For General Care wards - Horizontal – 2 nos of gas outlets, 2 nos UPS 5A/15A universal switch socket & 14 nos. 5/15A Raw power switch sockets, 2 nos telephone/DATA connection, Nursing call system, ELCB	Nos	2.00	Indigenous		0
6.10.2	For General Care wards - Horizontal – 3 nos of gas outlets, 2 nos UPS 5A/15A universal switch socket & 14 nos. 5/15A Raw power switch sockets, 2 nos telephone/DATA connection, Nursing call system, ELCB	Nos	3.00	Indigenous		0
6.10.3	For General Care wards - Horizontal – 4 nos of gas outlets, 2 nos UPS 5A/15A universal switch socket & 14 nos. 5/15A Raw power switch sockets, 2 nos telephone/DATA connection, Nursing call system, ELCB	Nos	215.00	Indigenous		0
6.10.4	For General Care wards - Horizontal – 5 nos of gas outlets, 2 nos UPS 5A/15A universal switch socket & 14 nos. 5/15A Raw power switch sockets, 2 nos telephone/DATA connection, Nursing call system, ELCB	Nos	25.00	Indigenous		0
6.10.5	For General Care wards - Vertical – 4 nos of gas outlets, 2 nos UPS 5A/15A universal switch socket & 14 nos. 5/15A Raw power switch sockets, 2 nos telephone/DATA connection, Nursing call system, ELCB	Nos	2.00	Indigenous		0
6.10.6	For General Care wards - Pendant single arm swivel type – 4 nos of gas outlets, 2 nos UPS 5A/15A universal switch socket & 14 nos. 5/15A Raw power switch sockets, 2 nos telephone/DATA connection, Nursing call system, ELCB	Nos	4.00	Indigenous		0
7	Supply, Installation, Testing, Hookup, Commissioning of Dummy runners will be of modular design and shall be made in extruded aluminium profiles, which can be assembled together to form each of different models catered for different applications. The lengths of the units are customizable to suit different requirements and can be joined to form extended lengths for multiple beds layout. The units will be of surface mounted type and the front covers shall be of modular design for ease of installation and maintenance on site. All screws or fasteners will be hidden for easy cleaning. Material :- Extruded Aluminium Grade:- ALU 6063 T5 Surface Finishing:- Powder Coating Color:- off-White (Standard) L X W X D :- Customizable X 200 mm X 65 MM	Mtrs	283.20	Indigenous		0
8	Interconnection piping from LOX tank					
8.1	Excavation in foundation / trenches / pits drains etc. in all soils upto a required depth Not exceeding 1.5 mtrs. Including shoring and dewatering if necessary and refilling around foundation plinth and drain line with selected excavation earth in layers Not exceeding 250mm consolidating and disposing surplus earth out of hospital premises and backfilling as per Standard complete all as directed by the Engineer-in-Charge.	cum	20	Indigenous		0
8.2	Supply, Installation of GI sleeve pipe/hume pipe for copper piping run of 40 mm dia C class with complete support and fittings as per NFPA requirement	Mtrs	60	Indigenous		0
8.3	Supply, Installation, Connection to LOx and existing Manifold Piping with appropriate valve and other fittings , Testing & Commissioning of Medical grade Copper pipe Laying underground/above ground level/on wall, painting as per code, sleeve etc. complying with NFPA 99. Pipe lines should be supported at the intervals specified in NFPA 99 using suitable metallic, non ferrous material. Complete with civil/structural foundation. 35 mm ID x 0.9 mm thick					
8.3.1	35 mm ID x 0.9 mm thick	Mtrs	150	Indigenous		0
8.4	Back Filling in plinth & superstructure under Floors/ Roads with selected excavated earth available within site, in layers of 15 cms. to 20 cms. Including watering, ramming consolidating to 15cm thick or so , by manually compaction or using mechanical plate compactor / vibro-roller etc. finished to desired levels all as per drawings to get MPD of 95% as per detailed drawings. Including cost of transportation anywhere within site. all complete as per specification or as directed by OIC-ES	cum	20			0
9	MGSS Block PCC Panel comprising of	Set	1	Indigenous		0
9.1	Incomer					
9.1.1	1no.-TP+N 250 A-35kA MCCB-FROH with cable spreader & integral Microprocessor based LSIG protection release, 3x metering CTs, MFM(EM6459), R/G/A lamps for On/Off/Trip & R/Y/B indications					
9.2	Outgoing					

Sr.No	Item	Units	Quantity	Origin	SITC Rate	SITC SIRC SITC Amount
9.2.1	7 nos.-TP 63A-25kA MCCB-FROH with cable spreader with integral LSI protection, along with R/G/A lamps for On/Off/Trip indications					
9.2.2	7 nos.-TP 40A-25kA MCCB-FROH with cable spreader with integral LSI protection, along with R/G/A lamps for On/Off/Trip indications					
10	LT CABLES					
10.1	Supplying, erecting & terminating XLPE armoured cable 3½ core 150 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	Mtrs	120	Indigenous		0
10.2	Supplying, erecting & terminating XLPE armoured cable 4 core 6 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	Mtrs	100	Indigenous		0
10.3	Supplying, erecting & terminating XLPE armoured cable 4 core 10 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	Mtrs	100	Indigenous		0
11	CABLE TRAYS					
11.1	Providing & erecting Hot dipped galvanized perforated type cable tray manufactured from 16 swg (1.6 mm thick) GI sheet of 150 mm width & 75 mm height complete with necessary coupler plates & hardware in approved manner.	Mtrs	25	Indigenous		0
11.2	Supplying and erecting iron, sheet metal work consisting of CRCA sheets, various sections of iron, plates, chequered plates, rods, bars, MS pipes, etc. for panel board or any other purpose with bending, cutting, drilling and welding complete erected at the position with necessary materials duly painted with one coat of red oxide and two coats of enamel paint to match the switchgears or as per directions by the authority.	kg	40	Indigenous		0
Total						0

Following list of Equipment under AMC/CMC of MGPS		
Sr. No	Equipment Details	Qty
1	Indoor fully automatic 3 source Oxygen Control Panel between Liquid Oxygen as primary source and 20 cylinder LHS Manifold and 20 cylinder RHS as reserve to give flow Of Liquid Oxygen min. 1500 LPM & min input to panel at 175 psig.	1
2	Oxygen Secondary & Reserve Simplex Manifold Size 1x20	2
3	Oxygen Emergency Simplex Manifold Size 1x10	1
4	Fully automatic Emergency Oxygen Manifold Control Assembly	1
5	Breathing Air Compressor Plant for System demand of 80 CFM at 55 psig including 240 gallon Air Receiver, Dryer , filters, controller, etc.	1
6	Instrument Air Compressor Plant for System demand of 62 CFM at 125 psig including 200 gallon Air Receiver, Dryer ,filters,controoler, etc.	1
7	Medical Vacuum Pump system with min 40 CFM plant output at 482 mm Hg vacuum including 240 gallon Receiver, Filters, dryer etc.	1
8	N2O Duplex Manifold System. Size 2x3	1
9	Fully automatic Medical N2O Duplex Manifold Control panel	1
10	Fully Automatic Emergency N2O Manifold control assembly,	1
11	Medical Gas Plant Central Alarm Panel in Touch Screen as per technical specification	1
12	Zone Alarm Panel Touch screen as per below details	
12.1	5 Gas	2.00
12.2	3 Gas	7.00
12.3	2 Gas	6.00
13	Medical Gas Distribution Zone / Area Valve Box,	
13.1	Zone valve box with 5 service on 7th floor including approved make Valves & 4-20 mA Transducers & gauges	2.00
13.2	Zone Valve box 3 gas Ground & 1st & 4th & 5th & 6th floor including approved valves & 4-20 mA Transducers & gauges	7.00
13.3	Zone Valve Box with 2 gas 1st& 2nd & 3rd floor including approved valves & 4-20 mA Transducers & gauges	6.00
13.4	Area Valve box 3 gas Ground floor including approved valves & Gauges	1.00

13.5	Area Valve Box with 2 gases Ground& 1st& 2nd&3rd&4th floor including approved valves & gauges	15.00
14	Medical Gas specific terminal Outlets as per below details	
14.1	Medical Oxygen	465.00
14.2	Medical Air	25.00
14.3	Medical Vacuum	465.00
14.4	Instrument air	7.00

AMC Charges 1.5% of equipment cost for 5 years after defect liability period of 2 years.
CMC Charges 5% of equipment cost for 5 years after defect liability period of 2 years.