Annexure A

Technical Manual

The Modular Operation Theatres will be equipped with State-of-Art equipments for providing general surgery and laparoscopy.

The following Operation Theatre equipments as per the specification given has to be operated on rental basis -

SCHEDULE 1-
1.1- <u>O.T. TABLE</u> (Major Item)

1. It should have radiolucent table top comprising of five parts, Head rest, Back section, seat section with cut out and divided leg plate
2. Operating table should be electro-hydraulic adjustment
3. Movements may also be operated manually
4. Provided with remote control for four different positioning
5. Adjustment of Hydraulic positions is done with pre selector and having indicator on the base and foot pump.
6. It should have an electric motor which is activated by pre selector with indication and remote control
7. Additional power backup with internal rechargeable batteries with an external battery charger for at least 12 Hrs back up.
8. Additionally with manually & electrical longitudinal displacement of table top by up to 250 mm, enabling optimized use of X-ray amplifier (C-arm) as well as enlarging the surgeon's working space with some positionings. (wrt head and leg section)
9. Provided with integrated body / kidney elevator

It should satisfy following Technical data :(all the dimensions will have a permitted deviation of +/- 10 %)

A.) Overall length, without head plate : 1780 mm

B)Overall length, with head plate : 2130 mm

C)Width of tabletop `: 500 mm

D)Total width : 540 mm

E)Base (L X W) : 850 X 350 mm approx. (Narrow Base for comfortable standing)

F)Diameter of swivel castors with breaks : 125 mm(minimum)

G)Height adjustment : from 740 - 1100 mm

H)Trendelenberg : 30 deg.

I)Reverse Trendelenberg: 30 deg

J)Lateral either side 30 deg

K)Longitudinal displacement : 250 mm

L)Back section : 20 deg

M)Swiveling of leg plate : +20 / - 90 deg

N)Head section :+25/-45 deg.

System Configuration Accessories, Spares and Consumables

1. System as specified-01
2. Standard Accessories -01
3. Anaesthetic Screen with clamp with telescopic tubes
4 .Body restraint strap with clamp
5. Padded Shoulder supports - 02
6 .Padded Leg support with swivel type clamp -02
7 .Two padded arm rests 450 -500 mm long with two arm clamps.
8 .Two Padded Lateral support with universal attachment clamp
9 .Two sets of padded rubber mattresses with Anti Microbial agent incorporated into all components that assists in Prohibiting growth of bacteria & fungi and easy to clean and maintain and of at least of 1" thickness
10 .Head rest
11. I.V drip stands attachable to the table
12. Wider arm Board which can be fixed to the Table

Environmental factors

1 .Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC; EMC directive.
2 .The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%
3 .The unit shall be capable of operating continuously in ambient temperature of 10 - 40 deg C and relative humidity of 15-90%

Power Supply

1. Power input to be 180-270 V AC, 50-60 Hz

2 .Battery back up of 12 Hrs

Standards, Safety and Training

1. Should have current leakage less than 70 micro amperes AC (0.07m Amp).

1.2. <u>O.T. Light</u> (Major Item)

1.Should comprise of two identical light heads with light intensity of about 1,00,000 Lux each with an individual intensity control arrangement for each light-heads.

2.All the controls should be wall mounted and should be keypad type flushed with wall.

3.The colour temperature should be between 3300K to 4000°K and colour-rendering index should be around 95Ra.

4.Lights should be working on the principle of Refraction for the maximum output and minimum power loss.

5.Shadow reduction should be achieved by prismatic optical system with adjustable volume of light.

6.Law Power consumption, should not be more than 100-110 watts per lighthead.

7.Should be comprising of high quality athermic filters to block majority of infrared wavelengths and to produce cool and homogenous light to prevent tissue dehydration in the surgical field and also to ensure surgeons comfort.

8.Light-heads should be lightweight, compact, aerodynamic and easily maneuverable.

9.The system should be provided with sterlizable handle.

10.The Diameter of the light head should be 50-55 cm. App.

11.The Diameter of illuminated field should be 14 - 17 cm. App.

12.The Volume of light should be 80 cm.App.

13.The Illuminating surface should be 1200 sq.cm App.

14.All technical values are measured in compliance with new IEC 601.2.41 Standard.

SCHEDULE 2- ANAESTHESIA MACHINE (Major Item)

1. Should have provision for delivery of oxygen, nitrous oxide and medical air with pressure gauges.
2. Should have independent attachments for connecting central gas supply and pin indexed cylinders. Should have provision for attaching 1 cylinder each for O2 and N2O (Total 2 cylinders).
3. Flow Meter – Cascade type of flow meter – 2 for O2, 2 for N2O and 1 for Medical Air
4. Oxygen and Nitrous oxide should be linked either mechanically or pneumatically to ensure a minimum of 25% oxygen delivery at all times to avoid delivery of hypoxic mixture.
5. Should have audio-visual oxygen Failure warning System with Nitrous oxide cut off.
6. Should have back bar which is ISO pin type to attach vaporizer easily.
7. Should be supplied with necessary reusable and disposable breathing circuits (Bains, Jackson-Rees and closed circuit etc.,)
8. Should have top shelf to keep monitors and a tabletop to keep anaesthetic drugs, equipments etc.
9. The machine should possess battery back up for electrical components
10. Castor wheels should be durable and moisture resistant & Smooth.
11. The Anaesthesia machine frame should be made of rust proof material/Stainless steel.
12. Silicone cushion high quality, adult and Pediatrics face mask of four different sizes –2 each size

Dual Chamber Circle Absorber System

a)Should have adjustable pressure limiting valve, breathing circuit pressure measuring device.
b)Should have a bag/ventilator selecting valve integrated onto the absorber.
c)Should be suitable to use low flow techniques
d)Facility to attach oxygen sensor.
e)Should have CO2 absorbent chamber canister
f) It should be dual chamber

Precision Vaporizers (Temperature, pressure and flow compensated) for Halothane, Isoflurane and Sevoflurane.

a)Should be easy to mount and dismount from the back bar.

b)Vaporizers should have ISO pin type (Selectatec) mounting and vaporizer interlocking facility.

c)Should have a standard filling port with keyed filling device.

d) Should be designed for transport with liquid in vaporizer chamber with protection against tipping and shaking

e) It should be maintenance free

Ventilator (Integrated)

a).It should be a bag in bottle anaesthesia ventilator with standing (ascending/Piston) bellows.

b). It Should be supplied with adult and pediatric bellows.

c).It Should be able to set tidal volume, respiratory rate and I:E ratio

d).Ventilator should have audible alarms for ventilator failure, low oxygen supply pressure, inadequate volume delivery,disconnection alarm, and power supply failure.

e).Ventilator Should have battery backup for min 30min

Integrated Monitoring system

Should provide facility to monitor

a) Oxygen and Nitrous oxide and anaesthetic agent in the inspired mixture

b) Inspired and end tidal carbon dioxide through side stream

c) Oxygen saturation of the blood with both adult, paediatric/ neonates, probes & sensors (Reusable)

d) Monitoring of ECG (5 leads), NIBP (inclusive of adult, paediatric & neonatal NIBP cuffs), IBP and CVP should be present Pressure transducers and necessary accessories as per requirement (preferably four reusable transducers with bracket and holder and 100numbers disposable domes with pressure lines per monitor)

e) Airway Pressure monitoring should be present

f) Temperature Monitoring with 2 probes esophageal / rectal and skin probe.

g) Glare free TFT/LCD color monitors with large screen for easy visibility.

h) Monitor should be accurate, precise and standard monitoring modes in modular type

System Configuration Accessories, spares and consumables

1. Anaesthesia Gas Delivery system -01
2 .Circle absorber –01
3 . Ventilator –01
4. Monitor –01
5 .Vaporiser Halothane -01
6 .Vaporiser Savoflurane -01
7 .Vaporiser Isoflurane -01
8 .Accessories for above- 02 sets
9 .Should be supplied with negative pressure leak test equipment

Environmental factors

1 The unit shall be capable of operating continuously in ambient temperature of 100C - 400C and relative humidity of 15-90%
2 The unit shall be capable of being stored continuously in ambient temperature of 00C - 500C and relative humidity of 15-90%
3 Shall meet IEC-60601-1-2: 2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.
4 Safe disposal system/port of waste anesthetic gases (Anesthetic Gas Scavenging System/Port) should be in place. Supplier will be held responsible if this is not ensured at the time of installation

Power Supply

1 Power input to be 220-240VAC, 50Hz fitted with Indian plug
2 Resettable over current breaker shall be fitted for protection
3 Suitable Servo controlled Stabilizer/CVT
4 UPS of suitable rating shall be supplied for minimum 1 hour backup for the entire system

Standards, Safety and Training

1. Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450

2. Certified to be compliant with IEC 60601-2-13-Medical Electrical Equipments part 2- 13:Particular requirements for the safety of Anaesthesia Workstations

SCHEDULE 3

3.1- MULTI PARAMETER MONITOR (Major Item)

1.It shall measure & Display waveforms or numerical data for various parameters, including ECG, Temperature, Respiratory Rate, invasive Blood Pressure, Non Invasive Blood Pressure, Capnography, Pulse Oximetry, Cardiac Output etc.

3. It shall have parameters like ECG, Temperature, Respiration, NIBP, Oximetry, IBP, Etco2, and Cardiac Output etc.

4.The screen Size shall be at least 8 inch. The unit shall be low weight for portability.

5.It shall have TFT colour Display It shall have numerical data display displaying parameters like Heart Rate, VPC, ST level, Respiration Rate, IBP, NIBP, Spo2, Pulse Rate, Temperature, ETCO2.

6.The monitor shall display at least 4 waveforms at a time. It shall have Synchronization marks for Heart Rate & Respiration.

7.ECG monitoring shall ensure detection of small voltages of about 1mV that appear on the skin as a result of cardiac activity.

8.It shall measure arrhythmias like Asystole, VT, VF, VPC Run, Couplet, Early VPC, Bigeminy, Fre.VPC, Tachycardia, and Bradycardia.

10.It shall have multi lead ST Segment Analysis and 12 lead continuous ST Display.

11. NIBP monitoring shall ensure measurement of arterial, venous and mean pressure.

12.ETCO2 monitoring shall have side stream. Mainstream and micro stream facilities.

13.The unit shall be upgradeable to other physiological parameters.

14.It shall have necessary alarms such as

a.ECG Lead Fault,

b.Sensor fault,

c.Low battery,

d.Signal loss,

e.Patient related settings.

15. It shall have memory with event trend storage capacity, Number of events, Event review.

16.It shall have battery back up of at least 30 minutes.

17.It shall have standard accessories such as

a ECG Cable

b ECG electrodes { Both Limb and pericardial}

c NIBP Hose

d NIBP Cuff {both adult and paediatric}

e SPO2 Sensor {both adult and paediatric}

f Temperature probes, Skin Surface probes,

g Power cord .

18.It shall be pre-configured or Modular or shall be hybrid.

19.It shall have central station capable of displaying all physiological parameters and other information from any bedside within the system.

20.It shall have telemetry software as optional.

3.2. <u>DEFIBRILLATOR</u> (Major Item)

1 Defibrillator should be Bi- Phasic, light weight and latest model

2 Should monitor vital parameters and display them

3 Should print the ECG on thermal recorders.

4 Should work on Manual and Automated External Defibrillation (AED) mode. Manual selection up to270 J.

5 Should be capable of doing synchronized &asynchronized cardioversion

6 It Can be operated from mains as well as battery

7 Should have defibrillator testing facility

8 Demonstration of the equipment is a must.

9. Should be a Low Energy Biphasic defibrillator monitor with Recorder, having capability to arrest all arrhythmia within a maximum energy of 360 Joules

10. Should monitor ECG through paddles, pads and monitoring electrodes and Defibrillate through pads and paddles. Should have Automatic Lead switching to see patient ECG through paddles or leads

11.Should measure and compensate for chest impedance for a range of 25 to 150ohms

12. Should have a built in 50mm strip printer/ thermal recorder

13 Should have charging time of less than 3 seconds for maximum energy. Charging indicator should be there.

14 Should have bright electroluminescent display for viewing messages and ECG waveform of 4 seconds

15 Should have external & internal paddles with paddles contact indicator – for good paddle contact. Single Adult and pediatric paddles should be available.

16 Should have event summary facility for recording and printing at least 250 events and 50 waveforms.

17 Should have a battery capable of usage for at least 90minutes or 30 discharges.

18 Should be capable of printing Reports on Event summary, configuration, self test, battery capacity etc

19 Should have facility for self test/check before usage and set up function

20 Should have SP02 and NIBP integrated facility

21 Should be capable of delivering energy in increments of 1-2 joules up to 30J and increments of maximum 50J thereafter.

22. Should have user friendly 1,2,3 colorcoded operation.

23.System Configuration Accessories, spares and consumables

a Defibrillator -01

b Paddles Adult/Paediatric (pair) -01

c Paddles –Internal (pair) -01

d Patient cable -02

e ECG Rolls -50

f Disposable pads-10 nos.

g NIBP Cuff Adult - 02

h NIBP Cuff Paediatrics- 02

i NIBP Cuff Infants- 02

j Reusable SPO2 Finger Probe-Adult -02

k Reusable SPO2 Paediatric Finger Probe - 02

l Complete set of ECG Leads- 02

Environmental factors

1 The unit shall be capable of operating continuously in ambient temperature of 10 - 400 C and relative humidity of 15-90%

2 The unit shall be capable of being stored continuously in ambient temperature of 0 - 500 C and relative humidity of 15-90%

3 Shall meet IEC-60601-1-2: 2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.

POWER SUPPLY

1 Power input to be 220-240VAC, 50Hz

2 Resettable over current breaker shall be fitted for protection

Standards, Safety and Training

1 Electrical safety conforms to standards for electrical safety IEC-60601-1 General Requirements and IEC-60601-2-25 Safety of Electrocardiograms. (OR EQUIVALENT BIS Standard)

2 Drop Test-Withstands 1 meter drop to any edge, corner or surface.

3 Should conform to international test protocols on exposure to shock forces and to vibration forces.The standard should be documented.

4 Should meet IEC 529 Level-2 (IP2X) for enclosure protection solid foreign object ingress.

5 Should meet IEC 529 Level 3 (IP3X)(spraying water) for enclosure protection, water ingress.

SCHEDULE 4

4.1 - <u>SYRINGE PUMP</u> (Major Item)

1.Pump must have all the necessary certifications.

2. Pump system includes syringe, controls, actuation mechanism, and a motor. It should be able to accept all the major brand of syringes upto 60ml, without compromising on the accuracy.

3.Pumps must be stackable and mountable on the IV pole.

4.The controls must include the setting for the infusion rate in terms of ml/hr, and provision for the bolus delivery.

5.External feeding pumps if available should also be quoted.

6. Indicators and Alarms

a.It should have a series of alarms and indicators that would inform the operator of the status of the infusion system that could be harmful to the patient.

b.Alarms must include

i air-in line alarm,

ii occlusion,

iii empty fluid container,

iv set disengagement,

v flow error,

vi low battery.

7.It must also be lightweight with a good battery support, and a memory to retain the settings in case of power failure.

8.It is also preferable to have a bi-directional interface port, RS232.

4.2 - <u>INFUSION PUMP</u> (Major Item)

2. It should be capable of fluid delivery in applications like, continuous epidural anesthesia, chemotherapy, and administration of IV cardiovascular drugs and for the pediatric cases.

3. The infusion pump with peristaltic mechanism should have various controls, display for the rate of infusion, quantity delivered; time elapsed, and the battery status.

4. The controls must include the setting for the infusion rate in terms of ml/hr and/or drops/min, and provision for the bolus delivery.

5. It should be able to accept the IV sets of all the major brands without any change in accuracy and should be capable of normal as well as micro-infusion.

6. Pump should be mountable on the IV pole.

7. Indicators and alarms

a. It should have a series of alarms and indicators that would inform the operator of the status of the infusion system that could be harmful to the patient.

b. Alarms must include,

i air-in line alarm,

ii occlusion, empty fluid container,

iii set disengagement,

iv flow error,

v. low battery,

vi door open,

8. It must also be light weight with a good battery support, and a memory to retain the settings in case of power failure.

9. It is also preferable to have a bi-directional interface port, RS23

SCHEDULE 5

5.1 - <u>HARMONIC SCALPEL</u> (Major Item)

1. It should have Ultrasonic generator generating ultrasound at app 55.5 khz frequency

2. It should have Hand-piece with in-built transducer & silicon cable

3. It should have Hand-switch activation adopter for blade & hook probe

4. It should have Cart to house the generator and accessories

5. It should have Dual foot-switch attachment

6. It should have Stand-by mode for better safety

7. It should have System diagnostics and troubleshooting guide

8. It should have Warning system for malfunctioning cable, probe etc

9. It should have Power entry filters to suppress electromagnetic disturbances to monitors

10. It should have dual foot switch receptacles to connect two footswitches to allow simultaneous use by 2 surgeons.

11. It should have a vibration range of 50-100micrometer.

System Configuration Accessories, spares and consumables

I) Accessories

1. It should have Foot-switch with max and min pedals and cable.

2. It should have 5 mm blade system adopter

3. It should have Hand switch adopter

4. It should have Open Surgery Instruments such as:

a. Coagulating shears – 10 mm dia, 20 cm long

b. Short Curved Coagulating shears- 5 mm dia, 14 cm long.

c. Dissecting hook, 5 mm dia,10cm long

d. Hand Activted Coagulting shears with Clicker – 5 mm di ,Curved mode 23 cm long.

5. It should have Endoscopic Surgery Instruments such as:

a. Dissecting Hook, 5mm dia, 32 cm long.

b. Curved Blade , 5mm dia, 32 cm long.

c. Laparoscopic Coagulating shears , 10mm dia , 34cm long.

d. Laparoscopic Coagulating shears , 5mm dia ,knife mode, 34cm long.

e. Laparoscopic Coagulating shears , 5mm dia , curved mode, 36cm long.

f. Laparoscopic Hand Activated Coagulating shers , 5mm dia, curved mode, 36 cm long.

g. Laparoscopic Coagulating shears , 5mm dia , Curved mode, 45cm long.

h. Laparoscopic hand activated Coagulating shears with clicker -5mm dia curved mode, 36cm long.

II) Probes

1. It Should have both 5 mm & 10 mm instruments.

2. It should have the following types of shears for open & laparoscopic surgery.

a. 10 mm Coagulating shear capable of working in 3 modes – flat, Blunt & Sharp.

b. 5 mm Laparoscopic Curved coagulating Shears, 360 degree rotable, capable of sealing blood vessels upto 5 mm diameter with clicker & integrated bilateral integrated hand control to enable precise operation of system by hand.

3. All Hand Pieces should be steam autoclavable.

Environmental factors

1 Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC; EMC-directive.

2 The unit shall be capable of being stored continuously in ambient temperature of 0 - 50 deg C and relative humidity of 15-90%

3 The unit shall be capable of operating continuously in ambient temperature of 10 - 40deg C and relative humidity of 15-90%

Power Supply

1 Power input to be 220-240VAC, 50Hz fitted with Indian plug

2 UPS of suitable rating with voltage regulation and spike protection for 120 minutes back up.

Standards, Safety and Training

1 The generator must be CF isolated applied device and defibrillator protection must be available.

.

5.2. HIGH DEFINITION LAPAROSCOPY SYSTEM (Major Item)

High Definition Three Chip Camera System

1. It should have Camera console 220 v with universal coupler & Autoclavable camera head
2. It can able to provide Pure Digital signal with high definition video (1280X1024 native resolution)
3. Resolution should be 2000 horizontal lines
4. It should have 8 specialty settings
5. The machine should have Integrated Flexible Scope filter
6. Signal to Noise ratio should be 70 db
7. It should incorporated Progressive scan technology both on camera head & console
8. Brightness Control should be on console & camera head
9. Aperture Control should be on console
10. It should have In-built 16 step digital Image Enhancer on console
11. Digital zoom & white balance should be on camera head
12. There should be Integrated Gain/shutter/Enhancement with brightness control with machine
13. There should be two peripheral control on camera head

14. Video Output

1. Two DVI output
2. Two SVHS & 1 RGB out put
3. One Composite out put

15.Automatic Light source

1. 220 V,300 W. Xenon Bulb(with one spare bulb)
2. Elliptical Bulb technology
3. Bulb Working life 5800hrs
4. Digital Bulb life counter on light source
5. Automatic /Manual Light Adjustment
6. Stand By Mode
7. Universal Jaw Assembly to adapt any make of fiber optic cable without adapter.

16.Fiber Optic Cable

6.5mmX7.5 feet Snap Fit cable

17.Monitor

19" Flat Panel Monitor Colour

18.Insufflator

40Liter of high flow

Microprocessor controlled unit

Soft Approach Pressure control for safe recovery of abdominal pressure Gas heating

LCD based central display monitor with multilingual text & graphics AV warning signal

19.Laparoscopes, Fully Autoclavable with working length 300mm

Wide angled distortion free view

Universal adaptor for other light sources

Yellow Glass index for optimum evenness of focus & contrast

0 degree, 10mm

30 degree, 10 mm

0 degree , 5mm

Flexible video telescope

20.Laparoscopic Instruments

Laparoscopic hand instruments (reusable) with 310mm working length, take apart locking / unlocking mechanism, rotable with interchangeable handle with monoploar diathermy attachment (Except trocars and veress needle)

Vass needle 12 cm length	:04
Varss needle 15 cm length	:04
Carbon-di-oxide gas tubing	:04
Trocars sleeves 11 mm	:04
Reducer 11/5 mm	:02
Trocars sleeves 5.5 mm	:04
Trocars (pyramidal tip) 10 mm	:04
Trocars (pyramidal tip) 5 mm	:04
Trocars washer 5 mm	:100
Trocars washer mm	:50
Laproscopic biopsy forceps 5 mm,	:02
Maryland dissector 5mm with unipolar diathermy	:02
Maryland dissector 5mm, high performance with bipolar cutting	:02
Atraumatic graspers, 5mm	:02
Metzenbaum scissors (5cm) with unipolar diathermy	:02
Metzenbaum scissors (5cm) high performance with bipolar cutting	:02
Fan retractors 5 mm	:02
Laproscopic cautery lead	:04
Suction irrigation device with two way valve	:02
L shaped hook electrode 5mm	:02
L shaped hook 5mm , high performance with bipolar cutting	:02
Laproscopic bowel grasper 5mm, length 33-36 cm	:02
Laproscopic spoon forceps 10mm length 33- 36 cm	:02
Needle holder 5mm, 33 cm long	:04
Laproscopic suction cannuala, 10 mm	:02
Laparoscopic suction cannula 5 mm	:02

Clip applicator 10 mm Large, Medium, Small Clips

Gall bladder extraction 5mm Large, Medium, Small Clips

Hassan cannula

Lap

Eondotrainer

Port closure needle

Sterilization tray with cover 3 x 1

5.3- HEAD LAMP (Major Item)

1.Should be comfortable mounted on the forehead have possibility to be rotated around from a fix position.

2.There should be an optic cable, which will be connected to the main light source, which will place separately.

3.Light source will consists of at least 1 clear light Xenon Bulbs so in case of failure the other lamp takes over.

4.The light source will have its own cooling fan to ventilate the heat produced in the light source.

5.There should be a provision for regulating the intensity of the light as per the comfort of the Surgeon

6.The Optic Cable should have enough clips to hold the surgeon neatly and light enough in case needed to move around with it.

7.The bulbs used in the light Source should be easily available and should be able to be replaced in easily in case of a failure

8.The Machine should work on standard power supply of 230 volts.

SCHEDULE 6- STERNAL SAW

1. Electrically operated motor control unit with forward and reverse speed motor.
2. Power cable with motor working with the power supply 220-240 VAC 50Hz
3. Should contain a foot control paddles with waterproof and anesthetic agent proof. 130x200x60 mm
4. Sternal saw with first time and redo (Oscillating) blades, Light weight with blade protector, saw cable connector for both blades

5. Overheating cut off of motor with reset facility.
6. Additional blades 10each of normal and redo (Oscillating)
7. Saw should be in all respects complete and ready to use
8. Flexible cable with minimum 180 cm in length.
9. Should provide minimum 1 nos. of sterile micro oil 300 ml
10. Should have minimum 2 years warranty and service back up as per Tender

SCHEDULE 7 – PATIENT WARMING SYSTEM (Major Item)

I. It should be able to apply sufficient heat to the skin surface to raise body temp. by 2.5 deg/hr.

II. It should satisfy the following

1. Arched blanket design – hugs patients and transfers heat to as much as 70% of the body surface area.
2. Central manifold – direct heat to core of the body and ensure even temp. from head to toe.
3. Provide even temp. across the blankets and patient.
4. Light weight over patient fit safe warming avoids tissue damaging.
5. Variety of blankets are available such as upper body lower body, full chest access, multi access for adults/infants/cub blankets.
6. Absolute heat transfer – 49 watts.
7. Weight 11.5 lbs/ 5.2 kg.
8. Temp. range – ambient to 110 degree Fahrenheit max filter high efficiency 2 micron filter.
9. Can also be used for warming/ blood warming.

SCHEDULE 8 - <u>FLASH STERILISER</u> (Major Item)

1.It shall guarantee express sterilization of instruments for Operation Theatre at 140 degree centigrade for 7 minutes.

2.Chamber capacity shall be 40 Litres.

3.Chamber temperature shall be 140 Degree Centigrade

4.Chamber shall be fabricated from stainless steel 304 with high quality argon welding.

5.It will have stainless steel 316L racks for easy loading & unloading

6.It will have high vacuum ejector to ensure effective air removal for excellent steam

penetration & efficient post sterilization drying.

7.It shall have inbuilt steam generator fabricated from high quality stainless steel with water feeding & pressure control

8.Process Interlock as a safety feature to avoid opening of the door when the process is on

9.Provision of alarm if the door is open during the process.

10.There should be alarm when the water in the chamber is low & there should be process cut off facility when this happens.

11.Equipment shall be microprocessor based automatic system from add water to sterilization & dry cycle.

12.Material of construction shall be Stainless steel S.S 304.

13.System shall have attached thermal printer

14.It will have safety features like temperature control, Overheat protection, Safety valve, Electronic Circuit safety system, Low water indicator, Sterilization complete indicator, Emergency Exhaust Switch, Automatic preheating programme.

SCHEDULE 9

9.1-Two Plate X-Ray Viewing Screen (Size 948 x 648 mm) with variable intensity of Light control:

1. A twin plate X-Ray Viewing Screen, designed to provide a high level of control Luminance, without flicker from a unit that is easy to clean and maintain.
2. The X-Ray viewing screen illumination should be by high frequency fluorescent lamps, controlled by dimming ballast.
3. The front panel diffuser should be of a glare free type, sealed flush with the inside face of the operating theater wall (or may as an option be integrated within the control panel fascia).
4. It should be equipped with eight spring-loaded clips to secure the X-ray negative when in use. The fluorescent lamps should provide a uniform level of illumination across the entire front panel diffuser and should be controlled by an electronic step-less dimming controls to provide flicker free dimming from maximum brightness to off.
5. Access for maintenance and lamp charging should be from the front of the panel.

All internal wiring should terminate in connectors with screw and clamp spring connections. Individual fuses or miniature circuit breakers should protect all internal circuits, all internal wiring should be of a high temperature and secured

by propriety cable clips.

SCHEDULE 9.2- <u>SUCTION APPARATUS</u>

1 Shall have Motor of minimum ¼ H.P. capacity

2 The machine should be portable on four wheels and handle for transportation

3 The Suction pump should be oil immersed fitted on Motor shaft

4. Suction pump should have line grinding internally.

5. To facilitate maintenance the cover of machine should be easily to open from the top & sides

6.The suction machine should be capable of producing minimum vacuum of 500 approx mm Hg. which should be adjustable and monitored by vacuum gauge of suitable range.

7.The suction capacity should be 15 litres per minute and can be regulated.

8. It should have two bottles of 1 or 2 liters (As per requirement) with synthetic rubber lids. The bottle shall be fitted with the arrangement to prevent overflow of fluid.

9. ON/OFF Switch and Power indicator should be available

10. Body material: Base, top & panel made of rust proof and corrosion resistant moulded ABS/Stainless Steel.

11.Jar/Bottle material should be Autoclavable polycarbonate.

12. Inbuilt maintenance free battery. Battery backup up to 60 minutes on full charge. Provided with cable for ambulance/car use.

System Configuration Accessories, spares and consumables

1.System as specified-

2 .Three core lead of 2 meter along with one 3 pins 15 amp. Plug –01

3. Power cable-3 core lead of 5 meter along with one 3 pins 15 amp. Plug – 01

The Following spares per machine are also required: -

(i) Bottles 2 Nos.

(ii) Lids 2 Nos.

(iii) Rubber Seals 2 Nos.

(iv) Blades 2 Nos.

(v) Suction Tubing set 1 No

Environmental factors

1. Shall meet IEC-60601-1-2: 2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC, EMC directive.

2 .The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%

3 .The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%

Power Supply

1. Power input to be 220-240VAC, 50Hz fitted with Indian plug

2 .A fuse or a resettable circuit breaker of a appropriate capacity should be incorporated for protection of motor

3. Should work on 220-240V AC as well as batteries. Mains adaptor to be supplied

Standards, Safety and Training

1. Conforms to BIS standard for suction apparatus IS- 4533, Latest Revision except where specified here differently