

**DEPARTMENT OF PAEDIATRIC SURGERY  
RAJENDRA INSTITUTE OF MEDICAL SCIENCES, RANCHI**

List & Specification of Equipments are Enclosed herewith.

Sl. No	Description
1	Infusion Pump
2	Syringe Pump
3	High End Suction Machine
4	Hand Dinsfectant Dispenser System
5	Laryngoscope with All Blades
6	Patient Warmer
7	A.B.G. Machine
8	X-Ray View Box
9	Hand Instruments (Complete Set with Container)
10	C.S.S.D Equipment Set with Sterilizers
11	Surgical Equipments Pendants with Equipment
12	Centralised Equipment Control and Management System with Recording and Archiving System
13	Flash Sterilizer
14	IV Fluid/Blood Warmer System
15	Video Assisted Thoracoscopy Surgery Set
16	Anaesthesia Workstation
17	Oil Immersion Radiant Warmes for Cubicles
18	Neonatal and Paediatric Ventilators
19	Induction Heater
20	Transport Incubator for Neonatcs with Inbuilt Ventilator
21	Infant Radiant Warmer
22	Neonatal Open Care System with Radiant Warmers
23	Pulse Oxymeter
24	Ultrasonic Cutting and Coagulation Device
25	Paediatric Gastroscope Set
26	Paediatric Cysto-Resectoscope Set

**Item No. 1**

**Infusion Pump**

<b>Configuration, performance and technical characteristics</b>
<b>STRUCTURE:</b>
Weight: approximately 2.5 kg
<b>MECHANISM</b>
PERISTALTIC SEMI-TRANSIT FINGER SYSTEM
<b>CONSUMABLE</b>
All general IV sets brands are compatible with the unit; and dedicated IV set brand is also matched the unit with special pump structure design
Pre-configured more than 20 infusion IV SET brands, user-defined configuration possible
<b>GENERAL FEATURES</b>
Operating Modes: Rate mode, Time mode, Body weight mode, Ramp up/ down mode, Sequential mode, Loading dose mode, Micro-infusion mode, Standby mode
Rate Mode: Rate Range: 0.1-2000ml/h (Mini. Increment 0.01ml/h)
Time Mode: 00:01-99:59 hh:mm; step 1min;
Body Weight Mode: Weight: 0.1-300.0kg, step 0.1kg; Drug-Amount: 0.1-999.9, step 0.1, g/mg adjustable; Volume: 0.10-9999.99ml, step 0.01ml; Dose: 0.01-999.99, step 0.01, µg/kg/h, mg/kg/h, µg/kg/min., mg/kg/min. adjustable;
Ramp up/ down mode: VTBI: 0.10-9999.99ml Time range: 00:01-99:59 hh:mm
Sequential mode: VTBI: 0.10-9999.99ml, step 0.01ml/h; Rate: 0.10-2000ml/h; Time: 00:01-99:59 hh:mm, step 1min
Loading dose mode: Main parameter and first dose. VTBI: 0.10-9999.99ml, step 0.01ml/h; Rate: 0.10-2000ml/h; Time: 00:01-99:59 hh:mm, step 1min
Micro-infusion mode: VTBI: 0.10-1000.00ml, step 0.01ml/h, Rate: 0.10-100ml/h, step 0.01 ml/h;
Preset Volume(VTBI): 0.10-9999.99ml
Measure volumes in ml/hr
Delivery rate settings adjustable in 0.01ml/ 0.1ml/ 1ml increments
KVO Rate: 0.1-5.0ml/h adjustable, step 0.1ml/h
Purge is available with maximum rate at 2000ml/h
Bolus Rate: Manual bolus: 0.10-2000ml/h

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<b>Configuration, performance and technical characteristics</b>
Automatic bolus. 0.10-2000ml/h
Preset bolus volume: Automatic : 0.10-2000ml/h
Self-test system;
Have anti-bolus system
Titration function: Available to change the delivery rate during infusion at minimum increment of 0.01ml/h
The bolus accumulation volume and bolus rate shall be displayed
Drug library with up to 2000 drugs , add or delete drugs available in user-defined drug list
Have up to 2000 history records, including information: infusion information, pump status, parameter changing, turn on/off, start/stop infusion, bolus, alarms, silence
History records data could be transmitted to PC
Have automatic bolus system, with bolus rate and preset volume adjustable
Start reminder function: remember last infusion configuration when power off
Delivery Accuracy: $\pm 3\%$
Mechanical Accuracy: $\pm 1\%$
Data transmission is available with multi-function interface
7 languages selectable: English, Spanish, French, Russian, Turkish, Chinese
<b>ALARMS</b>
Visual & audible alarm
3 levels alarm: High level: occlusion, battery empty, VTBI done, air bubble, door-open, KVO finish, system error Middle level: reminder, battery low Low level: No battery inserted,VTBI near done,standby time expired
Occlusion alarm pressure: 11 levels: 150-975mmHg( $\pm 75$ mmHg)
Occlusion pressure unit: 4 units selectable(mmHg, kPa, psi, bar), automatically calculate and display the conversion in 4 units
Air Bubble alarm level: 1-6 levels adjustable; Minimum air bubble detection lowest to 20 ul; Accumulatated air bubble in 15 min. reached setting size will alarm
Air-bubble detection mechanism: ultrasound sensor
Alarm sound 1-8 levels adjustable
Pre-alarms. 1-30 min. selectable infusion complete, 3 min.battery empty 30 min. as low battery
<b>DISPLAY</b>

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<b>Configuration, performance and technical characteristics</b>
Screen: no less than 3.5 inch color TFT LCD, 16:9 format; Brightness 1-8 levels adjustable
Delivery rate, current infusion, VTBI, total volume, IV set brand, pressure limit, battery capacity, current drugs, remaining time, alarms, etc.
<b>POWER SUPPLY:</b>
AC100-240V, 50/60HZ
DC Voltage: 10V-15V
<b>Battery</b>
Battery type: Rechargeable Lithium battery
Battery operating time: more than 9 hours @ 25ml/h
Battery charging time: less than 6 hours for 100%
<b>SAFETY SPECIFICATION</b>
Type of shock protection : Class I, Type CF, defibrillation-proof
Water-Proof Grade : IP23
<b>CERTIFICATION:</b>
European CE / USFDA

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**Item No. 2****Syringe Pump**

<b>Configuration, performance and technical characteristics</b>
<b>STRUCTURE:</b>
Weight: approximately 2.5 kg
<b>CONSUMABLE</b>
All general syringe brands are compatible with the unit;
Pre-configured more than 20 syringe brands, user-defined configuration possible
Syringes selectable 5,10,20,30,50,60ml
Automatic recognition of syringe size and fixation
<b>GENERAL FEATURES</b>
Operating Modes: Rate mode,Time mode,Body weight mode,Ramp up/ down mode, Sequential mode,Loading dose mode,Micro-infusion mode, TIVA mode, Standby mode
Rate mode: VTBI: 0.10-9999.99ml, step 0.01ml/h; Delivery rate 0.10-1500ml/h( depending on syringe size), increment 0.01 ml/h;
Time Mode: VTBI.0.10-9999.99ml, step 0.01ml/h; Time. 00:01-99:59 hh:mm; step 1min.
Body Weight Mode: Weight.0.1-300.0kg, step 0.1kg; Drug-Amount.0.1-999.9, step 0.1, g/mg adjustable; Volume. 0.10-9999.99ml, step 0.01ml; Dose.0.01-999.99, step 0.01, µg/kg/h, mg/kg/h, µg/kg/min., mg/kg/min. adjustable;
Ramp up/ down mode: VTBI.0.10-9999.99ml Time range. 00:01-99:59 hh:mm
Sequential mode: VTBI.0.10-9999.99ml.step 0.01ml/h; Rate.0.10-1500ml/h; Time. 00:01-99:59 hh:mm.step 1min.
Loading dose mode: Main parameter and first dose. VTBI.0.10-9999.99ml, step 0.01ml/h; Rate.0.10-1500ml/h; Time. 00:01-99:59 hh:mm, step 1min.
Micro-infusion mode: Rate.0.10-100ml/h, step 0.01 ml/h; VTBI.0.10-1000.00ml, step 0.01ml/h
Preset Volume(VTBI): 0.10-9999.99ml
Measure volumes in ml/hr
KVO Rate: 0.1-5.0ml/h adjustable, step 0.1ml/h

<b>Configuration, performance and technical characteristics</b>
Purge is available 0.10-1500ml/h ( depending on syringe size)
Bolus Rate: Manual bolus:0.10-1500ml/h ( depending on syringe size) Automatic bolus:0.10-1500ml/h( depending on syringe size)
Preset bolus volume: Automatic 0.10-1500ml/h( depending on syringe size)
Self-test system;
Have anti-bolus system
Titration function: Available to change the delivery rate during infusion at minimum increment of 0.01ml/h
The bolus accumulation volume and bolus rate shall be displayed
Drug library with up to 2000 drugs , add or delete drugs available in user-defined drug list
Have up to 2000 history records, including information: infusion information, pump status, parameter changing, turn on/off, start/stop infusion, bolus, alarms, silence
History records data could be transmitted to PC
Have automatic bolus system, with bolus rate and preset volume adjustable
Start reminder function: remember last infusion configuration when power off
Delivery Accuracy: $\pm 2\%$
Mechanical Accuracy: $\pm 1\%$
Data transmission is available with multi-function interface
7 languages selectable: English, Spanish, French, Russian, Turkish, Chinese
<b>ALARMS</b>
Visual & audible alarm
3 levels alarm: High level: occlusion, battery empty, VTBI done, syringe empty, syringe disengaged, KVO finish, system error Middle level: reminder, battery low Low level: No battery inserted, syringe near empty, standby time expired
Occlusion alarm pressure: 11 levels: 150-975mmHg(+75mmHg)
Occlusion pressure unit: 4 units selectable(mmHg, kPa, psi, bar), automatically calculate and display the conversion in 4 units
Alarm sound 1-8 levels adjustable
Pre-alarms. 1-30 min. selectable injection finish, 3 min.battery empty 30 min. as low battery
<b>DISPLAY</b>

<b>Configuration, performance and technical characteristics</b>
Screen: no less than 3.5 inch color TFT LCD,16:9 format; Brightness 1-8 levels adjustable
Delivery rate, current infusion ,VTBI, total volume, syringe size, syringe brand, pressure limit, battery capacity,drugs, remaining time, alarms etc.
<b>POWER SUPPLY:</b>
AC100-240V, 50/60HZ
DC Voltage:10V-15V
<b>Battery</b>
Battery type: Rechargeble Lithium battery
Battery operating time: more than 10 hours@5ml/h
Battery charging time: less than 6 hours for 100%
<b>SAFTY SPECIFICATION</b>
Type of shock protection : Class I, Type CF, defibrillation-proof
Water-Proof Grade : IP23
<b>CERTIFICATION:</b>
CE & ISO <i>2 USFDA</i>



**Item No. 3**

**HIGH END SUCTION MACHINE**

1. Air flow rate of pump: 55 l/min
2. Maintenance free membrane pump
3. Regulated Vacuum with Max of: -98 kPa (-980 mbar / -735 mmHg)
4. Power consumption: approx. 100 W
5. Voltage: 230 V~ 50-60 Hz;
6. Noise level: 46 dB (A) @ 1 m (acc. to ISO 7779)
7. Operating time: Continuous operation
8. Ambient conditions during operation:  
Temperature: 10 to 32 °C  
  
Humidity: 20...80 % without condensation;
9. Approximate dimensions (H x W x D): 940 x 500 x 390 mm
10. Weight: Around 30-35 kg
11. Mobile system mounted on anti static 4 lockable castors
12. Standard rail holder for mounting accessories
13. Provision for one 3 liter & one 5 liter jars with changeover lever.
14. Classification: degree of protection: type BF; protection category: IPX1;  
Protection class: I;

13. CE or EN certified product. *US FDA*

**Accessories**

1	Direct Docking System (DDS) collection container; Autoclavable, with hose holder, plastic, 5 litres & 3 litres:	2 each
2	DDS collection lid complete set consisting of: <ul style="list-style-type: none"><li>o DDS jar lid with gasket</li><li>o DDS jar handle</li><li>o DDS splash protection</li><li>o DDS hose adapter set, Ø 6 mm + Ø 10 mm</li><li>o DDS bacterial filter / over -suction stop</li></ul>	2 Nos
3	Foot switch installation set.	1 No
4	Foot regulator set:	1 No.
5	Deposit tray of stainless steel:	1 No

	Consumables	
1	DDS disposable bacterial filter/over-suction stop	100 nos
2	Autoclavable, silicone suction hose, Ø 6 mm, L = 2 m, (136 °C)	3 nos
3	Autoclavable, silicone suction hose, Ø 10 mm, L = 2 m, (136 °C)	3 nos

**Note:**

- The above Equipments are to be supplied with Suitable Compatible Cabinet /Furniture /Steel /Modular make for safe custody of the Equipment
- Should confirm to all international safety standards, turnkey installation and with warranty
- The tenderer is to provide the required details, information, confirmations, etc. accordingly failing which it's tender is liable to be ignored.



**Item No. 4**

**TECHNICAL SPECIFICATIONS OF HAND DISINFECTANT DISPENSER SYSTEM**

TOUCHLESS HAND DISINFECTANT DISPENSER SYSTEM.

AUTOMATIC SENSOR OPERATED.

DESIGNED FOR HIGH FREQUENCY USAGE.

DISPENSE ALCOHOL BASED DISINFECTANT SOLUTION IN SPRAY FORM.

SPRAY SHOULD COVER BOTH HANDS UNIFORMLY.

MUST HAVE ADJUSTABLE SPRAY RANGE PER STROKE: (BY ADJUSTING BUTTON INSIDE THE MACHINE)

0.5ML , 1ML, 1.5ML, 2.0ML, 2.5ML, 3.0 ML, 3.5ML, 4.0ML, 4.5ML, 5.0ML

SHOULD ACCOMMODATE 500ML, 1000ML BOTTLE OF DISINFECTANT SOLUTION.

FRONT COVER EASILY REMOVABLE.

**RECHARGEABLE BATTERY OPERATED – 12V , 7.2Ah**

CONSISTS OF SPRAY PUMP & MOTOR – 12VOLT. WITH NOZZLE

OPERATING VOLTAGE – 12VOLT

**UNIT CONSISTS OF METERING VALVE WITH SILICONE TUBING FOR FINE METERING.**

RECHARGEABLE BATTERY CAN BE RECHARGED FROM CHARGER PROVIDED WITH THE SYSTEM FROM POWER MAINS.

COLLECTING DISH WITH LIQUID ABSORBING MEDIA TO AVOID SPILL OF SOLUTION ON FLOORS.

WALL MOUNTED. (MUST BE SUPPLIED WITH ANCHOR FASTENERS)

WEIGHT – 5 KG.

SCOPE OF SUPPLY – MUST INCLUDE DISPENSING UNIT, RECHARGEABLE 12V BATTERY,

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Item No. 5

Specification Laryngoscope with Blades

- *Macintosh Blade with European Finish Size 2 to 5 all sizes with integrated fibreoptic light carrier*
- *Foregger Magill Blade size 0 & 1*
- *Fully Autoclavable blades and handle*
- *Should have LED light illumination of more than 50000 Lux*
- *Life of LED should be more than 50000 Hours and color temperature 5500 K.*
- *Batteries should be rechargeable preferably induction charging*
- *Charger to attach two laryngoscope handles for charging at one time*
- *Life of the battery should be more than 120 minutes when fully charged*
- *Charger should have no corrosion and contact problem*
- *Batteries should have provision to be charged without taking out from the laryngoscope handle*
- *Charger should have indicator to show the charging and charged mode.*
- *The product should be European CE/FDA Certified*

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**Item No. 6**

**BROAD BASED QR**  
**FORCED AIR PATIENT WARMING SYSTEM**

1. Should be a light weight portable system
2. Should have minimum four variable temp settings (Range 35 to 42°C approx)
3. Should have hose disconnection alarm/indicator
4. Should have digital display of temp at end of hose pipe.
5. Should have quiet operation.
6. Should have display for elapsed time.
7. Should have air filter.
8. Should have full body adult and paediatric blankets  
Adult - 10  
Paediatric - 05
9. Should have European CE or FDA <sup>EU US</sup>
10. Price for Consumables to be quoted separately.

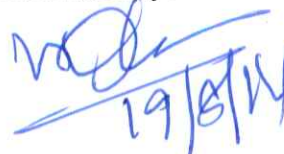
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**Item No.7**

**AUTOMATED BLOOD GAS ANALYSER**

**TECHNICAL SPECIFICATION**

1. Should be able to measure directly PH, PCO<sub>2</sub>, PO<sub>2</sub>, Sodium, Potassium, Chloride and Calcium in a single run.
2. Should have minimum 15 calculated parameters including SaO<sub>2</sub>, Bi-carbonate (HCO<sub>3</sub>), Standard HCO<sub>3</sub>, Base Excess of Blood (BE), Base Excess of extra cellular fluid.
3. Should have a sample through put of minimum 30 samples per hour.
4. Should have an automatic calibration for all the measured parameters without the use of gas cylinder.
5. Electrode should be individual with ON / OFF facility and durable.
6. Should have an inbuilt printer and minimum inbuilt memory of 100 samples.
7. Warm up time should be less than 30 minutes.
8. Reagent pack for doing 1000 test, one deprotieniser of 125 ml, printer paper and one three level quality control of 5ml.
9. Should work on 200-240Vac 50Hz power supply.
10. Should be supplied with on line pure sine wave UPS of sufficient capacity for a minimum back of 30 minutes.
11. Should be provided with calibration certificate issued by the manufacturer at the time of installation and calibration certificate should be issued for the machine by the supplier during preventive maintenance visit in the warranty/AMC period if demanded by the end user.
12. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL. Copy of the certificate / test report shall be produced along with the technical bid.
13. All types of electrodes supplied initially shall have one year warranty and there after any types of electrodes supplied shall have six months warranty.
14. Reagents supplied should have at least six months shelf life.
15. All consumables should have at least 45 days on-board stability.

  
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**Item No. 8**

**X-Ray View Box Specification**

LED Light Source - Intensity approx 10,000 lux - Intensity adjustable - Wall mounting / Desk Mounting

Sizes: 500mm x 510mm x 45mm depth approx-

850mm x 510mm x 45mm depth approx

1210mm x 510mm x 45mm depth approx

1560mm x 510mtn x 45mm depth approx

Preferable to have CE /FDA certification

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## Item No. 9

<b>INSTRUMENTS SET FOR PAEDIATRIC SURGERY</b>	
<b>MAJOR BASIC PAEDIATRIC SET</b>	<b>3 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	2
TC-DISSECTING SCISSORS, CVD., 11.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
SCISSORS, JAMESON, CVD., 15.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
DRESSING FORCEPS, MINI-ADSON, 12 CM	2
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
HAEM. FORCEPS, MOSQUITO, CVD., 14 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
FORCEPS, FOERSTER, SERR., CVD., 18 CM	2
PERITON. FORCEPS, BABY-MIKULICZ, 14.5 CM	4
DISS. FORCEPS, BABY-ADSON, CVD., 14.5 CM	2
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	2
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	2
TC-NEEDLEHOLDER, HALSEY, 13 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 16 CM	1
HOOCKET, SENN-GREEN, 10X6 MM, 16 CM	2
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, LANGENBECK, 40X11 MM, 22 CM	2
HOOCKET, DESMARRES, 14 MM, 16 CM	2
RETRACTOR, DOUBLE, BABY-ROUX, 12.5 CM	2
RETRACTOR, DOUBLE, ROUX, NO. 1, 14.5 CM	2
RETRACTOR, FRITSCH, 33X40 MM, 24 CM	2
HOOCKET, SHARP, 2-PR., 16.5 CM	2
RETRACTOR, DELIC., SHARP, 4-PR., 16.5 CM	2
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
SPATULA, MARTIN, MALLEAB., 16 MM, 20 CM	1
SPREADER, ADSON, BLUNT, 3X4 T., 13.5 CM	1
ABD. RETRACTOR, BALFOUR-BABY, 12.5 CM	1
TISSUE FCPS., ALLIS-BABY, 4X5 T., 13 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	1
ATR. INT. FCPS., DOYEN-B., CVD., 13.5 CM	2
ATR. INTEST. FCPS., DOYEN, CVD., 17 CM	2
ANASTOM. FORCEPS, DERRA, NO. 2, 17 CM	2
BONE CUR., VOLKM., OVAL, NO. 000, 17 CM	1
PROBE, BUTTON END, Ø 1.0/1.0 MM, 14.5 CM	1
PROBE, BOWMAN, CYLINDR., NS, NO. 00/0	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1

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BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 8 CH	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1
<b>MAJOR BASIC NEWBORN SET</b>	<b>3 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 20.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 9 CM	4
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	2
SCALPEL HANDLE, NO. 3, 12 CM	2
SCALPEL HANDLE F. MICROBLADE, 13.5 CM	1
TC-DISSECTING SCISSORS, CVD., 11.5 CM	1
DISSECTING & GUM SCISSORS, 13 CM	1
TC-DISS. SCISSORS, CVD., SERR., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	2
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
HAEM. FORCEPS, HARTMANN, CVD., 10 CM	6
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
PERITON. FORCEPS, BABY-MIKULICZ, 14.5 CM	4
DISS. FORCEPS, BABY-ADSON, CVD., 14.5 CM	1
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
TC-NEEDLEHOLDER, HALSEY, 13 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
HOKKLET, SENN-GREEN, 10X6 MM, 16 CM	2
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, DOUBLE, BABY-ROUX, 12.5 CM	2
HOKKLET, SHARP, 2-PR., 16.5 CM	2
RETRACTOR, DELIC., SHARP, 4-PR., 16.5 CM	2
HOKKLET, DESMARRES, 8 MM, 16 CM	2
SPATULA, MARTIN, MALLEAB., 13 MM, 20 CM	1
TISSUE FCPS., ALLIS-BABY, 4X5 T., 13 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	1
ATR. INT. FCPS., DOYEN-B., CVD., 13.5 CM	2
ATR. FORCEPS, COOLEY, ANGLED, 14.5 CM	1
ATR. FORCEPS, DE BAKEY, CVD., 13 CM	1
PROBE, BUTTON END, Ø 1.0/1.0 MM, 14.5 CM	1
PROBE, BOWMAN, CYLINDR., NS, NO. 00/0	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
KIDNEY DISH, 250X140X40 MM	1
<b>SUPL. GASTRO-INTESTINAL</b>	<b>2 Sets</b>
SCALPEL HANDLE, NO. 7, SOLID, 16 CM	1
TC-DISS. SCISS., TOENNIS, CVD., 17.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 18 CM	1
FORCEPS, POTTS-SMITH, 1X2 T., 18 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 20 CM	2



FORCEPS, KOCHER, 1X2 T., STR., 18.5 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 18 CM	2
PERITONEAL FORCEPS, MIKULICZ, 18.5 CM	2
ATR. TISSUE FORCEPS, ALLIS, 20 CM	2
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	1
<b>SUPL. VASCULAR SURGERY</b>	<b>2 Sets</b>
SCALPEL HANDLE, NO. 7, SOLID, 16 CM	1
VASCULAR SCISSORS, DIETHRICH, 25°, 19 CM	1
VASC. SCISSORS, DIETHRICH, 45°, 18.5 CM	1
VASC. SCISSORS, DIETHRICH, 60°, 17.5 CM	1
TC-DISS. SCISS., TOENNIS, CVD., 17.5 CM	1
FORCEPS, POTTS-SMITH, 1X2 T., 18 CM	1
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM	1
ATR. FORCEPS, DE BAKEY, 2 MM, 20 CM	1
TC-NEEDLEHOLDER, MICROVASCULAR, 17.5 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	1
CORONARY-SPREADER, 3X3 T., 6 CM	1
WOUNDSREADER, SHARP, 2X3 T., 11 CM	1
SPREADER, ADSON, BLUNT, 3X4 T., 13.5 CM	1
ELEVATOR, FREER, SH/BL, W/O PIN, 18 CM	1
NERVE HOOK, CUSHING, NO. 1, 19 CM	1
INTIMA SPATULA, BLUNT, 3 MM, 18.5 CM	1
VASC. DILATOR, DE BAKEY, Ø 0.5 MM, 19 CM	1
VASC. DILATOR, DE BAKEY, Ø 1.0 MM, 19 CM	1
VASC. DILATOR, DE BAKEY, Ø 1.5 MM, 19 CM	1
VASC. DILATOR, DE BAKEY, Ø 2.0 MM, 19 CM	1
VASC. DILATOR, DE BAKEY, Ø 2.5 MM, 19 CM	1
VASC. DILATOR, DE BAKEY, Ø 3.0 MM, 19 CM	1
VASC. DILATOR, DE BAKEY, Ø 3.5 MM, 19 CM	1
VASC. DILATOR, DE BAKEY, Ø 4.0 MM, 19 CM	1
VARADY MINI VEIN STRIPP.SET	1
HANDLE F. STRIPPERS, ROUND, 11.5 CM	1
RING STRIPPER, ROUND, Ø 2.0 MM, 50 CM	1
<b>ANAL RETRACTOR SET</b>	<b>2 Sets</b>
NASAL SPECULUM, KILLIAN, 75 MM, NO. 3	1
SIMS RECTAL SPECULUM, 60X20 MM	1
<b>SUPL. THORACOTOMY</b>	<b>2 Sets</b>
SCALPEL HANDLE, NO. 7, SOLID, 16 CM	1
TC-DISS. SCISS., TOENNIS, CVD., 17.5 CM	1
ATR. FORCEPS, DE BAKEY, 2 MM, 20 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	1
ATR. TISSUE FORCEPS, BABCOCK, 16 CM	1
ATR. TISSUE FORCEPS, ALLIS, 20 CM	1
RIB SHEARS, SAUERBRUCH, 26 CM	1
PERINEUM SCISS., BRAUN-STADLER, 22 CM	1
RIB RASPARTORY, DOYEN, L., CHILD, 18 CM	1
RIB RASPARTORY, DOYEN, R., CHILD, 18 CM	1
RASPARTORY, CVD., 6 MM, 17 CM	1
BONE HOLDING FORCEPS, SLIM, 20 CM	1

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BONE RONGEUR, BEYER, CVD., 18 CM	1
TC-WIRE TWISTING FORCEPS, 15.5 CM	1
TC-SIDE NIPPER, W. TRANSM., 17.5 CM	1
RIB CONTRACTOR, BAILEY, 20 CM	1
STERNAL SPREADER, F. PREMATURE BABIES	1
RIB SPREADER, COOLEY, ALU, 180 MM	1
LUNG SPATULA, ALLISON, 29.5 CM	1
SPATULA, MARTIN, MALLEAB., 13 MM, 20 CM	1
SUTURE HOOK, Ø 2.5 MM, 26 CM	1
ATR. FORCEPS, PEDIATRIC, NO. 2, 14 CM	1
ATR. FORCEPS, PEDIATRIC, NO. 5, 14 CM	1
<b>HERNIA / APPENDIX SET</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	2
TC-DISSECTING SCISSORS, CVD., 11.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
HAEM. FORCEPS, MOSQUITO, CVD., 14 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
FORCEPS, FOERSTER, SERR., CVD., 18 CM	2
PERITON. FORCEPS, BABY-MIKULICZ, 14.5 CM	2
DISS. FORCEPS, BABY-ADSON, CVD., 14.5 CM	2
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	2
TC-NEEDLEHOLDER, HALSEY, 13 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 16 CM	1
HOOKLET, SENN-GREEN, 10X6 MM, 16 CM	2
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, LANGENBECK, 40X11 MM, 22 CM	2
HOOKLET, SHARP, 2-PR., 16.5 CM	2
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
HOOKLET, DESMARRES, 14 MM, 16 CM	2
RETRACTOR, DOUBLE, BABY-ROUX, 12.5 CM	2
RETRACTOR, DOUBLE, ROUX, NO. 1, 14.5 CM	2
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 8 CH	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1
<b>THYROIDECTOMY SET</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 20.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4

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TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	2
SCALPEL HANDLE, NO. 3, 12 CM	2
TC-DISSECTING SCISSORS, CVD., 11.5 CM	1
TENOTOMY SCISSORS, SH/SH, CVD., 11 CM	1
TC-DISSECTING SCISSORS, CVD., 14.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	1
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
GOIT. SEIZ. FCPS., LAHEY, 3X3 T, 15.5 CM	1
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	10
HAEM. FORCEPS, MOSQUITO, CVD., 14 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
FORCEPS, FOERSTER, SERR., CVD., 18 CM	2
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	1
TC-NEEDLEHOLDER, HALSEY, 13 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 16 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	1
PROBE, BUTTON END, Ø 1.0/1.0 MM, 14.5 CM	1
HOOKLET, DESMARRES, 14 MM, 16 CM	2
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
HOOKLET, SENN-GREEN, 10X6 MM, 16 CM	2
HOOKLET, SHARP, 2-PR., 16.5 CM	2
RETRACTOR, DELIC., SHARP, 4-PR., 16.5 CM	2
WOUNDSREADER, SHARP, 2X3 T., 11 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., TRIANGULAR, 10 CH	1
<b>LAPAROTOMY SET</b>	<b>3 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	2
SCALPEL HANDLE, NO. 7, SOLID, 16 CM	1
TC-DISSECTING SCISSORS, CVD., 11.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISS. SCISS., TOENNIS, CVD., 17.5 CM	1
SCISSORS, JAMESON, CVD., 15.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 18 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	1
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2

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FORCEPS, POTTS-SMITH, 1X2 T., 18 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 20 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
HAEM. FORCEPS, MOSQUITO, CVD., 14 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 18.5 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 18 CM	2
FORCEPS, FOERSTER, SERR., CVD., 18 CM	2
PERITON. FORCEPS, BABY-MIKULICZ, 14.5 CM	4
PERITONEAL FORCEPS, MIKULICZ, 18.5 CM	2
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	2
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	2
TC-NEEDLEHOLDER, HALSEY, 13 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 16 CM	1
PROBE, BUTTON END, Ø 1.0/1.0 MM, 14.5 CM	1
HOOCKET, SENN-GREEN, 10X6 MM, 16 CM	2
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, LANGENBECK, 40X11 MM, 22 CM	2
HOOCKET, DESMARRES, 14 MM, 16 CM	2
RETRACTOR, DOUBLE, BABY-ROUX, 12.5 CM	2
RETRACTOR, DOUBLE, ROUX, NO. 1, 14.5 CM	2
RETRACTOR, FRITSCH, 33X40 MM, 24 CM	2
HOOCKET, SHARP, 2-PR., 16.5 CM	2
RETRACTOR, DELIC., SHARP, 4-PR., 16.5 CM	2
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
SPATULA, MARTIN, MALLEAB., 16 MM, 20 CM	1
SPREADER, ADSON, BLUNT, 3X4 T., 13.5 CM	1
ABD. RETRACTOR, BALFOUR-BABY, 12.5 CM	1
TISSUE FCPS., ALLIS-BABY, 4X5 T., 13 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	1
ATR. TISSUE FORCEPS, ALLIS, 20 CM	1
ATR. INT. FCPS., DOYEN-B., CVD., 13.5 CM	2
ATR. INTEST. FCPS., DOYEN, CVD., 17 CM	2
ANASTOM. FORCEPS, DERRA, NO. 2, 17 CM	2
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 8 CH	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1
<b>PHIMOSIS SET</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 20.5 CM	1
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	2
SCALPEL HANDLE, NO. 3, 12 CM	1
TC-DISSECTING SCISSORS, CVD., 11.5 CM	1

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TC-DISSECTING SCISSORS, CVD., 14.5 CM	1
IRIS SCISSORS, SH/SH, CVD., 11.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	1
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	1
DRESSING FORCEPS, MEDIUM WIDE, 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	1
HAEM. FORCEPS, HARTMANN, CVD., 10 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
PROBE, BUTTON END, Ø 1.0/1.0 MM, 14.5 CM	1
PROBE, BOWMAN, CYLINDR., NS, NO. 00/0	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
<b>BLADDER SET</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	2
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISSECTING SCISSORS, CVD., 14.5 CM	1
SCISSORS, JAMESON, CVD., 15.5 CM	1
VASC. SCISSORS, DIETRICH, 45°, 18.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	2
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
HAEMOSTATIC FORCEPS, PEAN, CVD., 14 CM	6
HAEMOSTATIC FORCEPS, PEAN, CVD., 16 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
FORCEPS, FOERSTER, SERR., CVD., 18 CM	2
PERITON. FORCEPS, BABY-MIKULICZ, 14.5 CM	4
DISS. FORCEPS, GEMINI, STR. CVD., 13 CM	1
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	1
TC-NEEDLEHOLDER, HALSEY, 13 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 16 CM	1
HOOKLET, SENN-GREEN, 10X6 MM, 16 CM	2
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, LANGENBECK, 40X11 MM, 22 CM	2
HOOKLET, DESMARRES, 14 MM, 16 CM	2
RETRACTOR, DOUBLE, BABY-ROUX, 12.5 CM	2
RETRACTOR, DOUBLE, ROUX, NO. 1, 14.5 CM	2
RETRACTOR, FRITSCH, 33X40 MM, 24 CM	2
HOOKLET, SHARP, 2-PR., 16.5 CM	2

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RETRACTOR, DELIC., SHARP, 4-PR., 16.5 CM	2
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
SPATULA, MARTIN, MALLEAB., 16 MM, 20 CM	1
SPREADER, ADSON, BLUNT, 3X4 T., 13.5 CM	1
ABD. RETRACTOR, BALFOUR-BABY, 12.5 CM	1
TISSUE FCPS., ALLIS-BABY, 4X5 T., 13 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	2
ANASTOM. FORCEPS, DERRA, NO. 2, 17 CM	1
ATR. FORCEPS, DE BAKEY, CVD., 13 CM	1
PROBE, BUTTON END, Ø 1.0/1.0 MM, 14.5 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 8 CH	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1
<b>KIDNEY SET</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	2
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISSECTING SCISSORS, CVD., 14.5 CM	1
SCISSORS, JAMESON, CVD., 15.5 CM	1
VASC. SCISSORS, DIETRICH, 45°, 18.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	2
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
HAEM. FORCEPS, MOSQUITO, CVD., 14 CM	6
HAEMOSTATIC FORCEPS, PEAN, CVD., 16 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
FORCEPS, FOERSTER, SERR., CVD., 18 CM	2
PERITON. FORCEPS, BABY-MIKULICZ, 14.5 CM	4
DISS. FORCEPS, GEMINI, STR. CVD., 13 CM	1
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	1
TC-NEEDLEHOLDER, HALSEY, 13 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 16 CM	1
HOOKLET, SENN-GREEN, 10X6 MM, 16 CM	2
NERVE HOOK, CUSHING, NO. 1, 19 CM	1
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, LANGENBECK, 40X11 MM, 22 CM	2
HOOKLET, DESMARRES, 14 MM, 16 CM	2
RETRACTOR, DOUBLE, BABY-ROUX, 12.5 CM	2

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RETRACTOR, DOUBLE, ROUX, NO. 1, 14.5 CM	2
RETRACTOR, FRITSCH, 33X40 MM, 24 CM	2
HOOKLET, SHARP, 2-PR., 16.5 CM	2
RETRACTOR, DELIC., SHARP, 4-PR., 16.5 CM	2
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
SPATULA, MARTIN, MALLEAB., 16 MM, 20 CM	1
SPREADER, ADSON, BLUNT, 3X4 T., 13.5 CM	1
ABD. RETRACTOR, BALFOUR-BABY, 12.5 CM	1
TISSUE FCPS., ALLIS-BABY, 4X5 T., 13 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	2
ATR. FCPS., DE BAKEY, STR. CVD., 16.5 CM	1
ANASTOM. FORCEPS, DERRA, NO. 1, 16.5 CM	1
ANASTOM. FORCEPS, DERRA, NO. 2, 17 CM	1
ATR. NEONATAL FORCEPS, CVD., 12 CM	1
PROBE, BUTTON END, Ø 1.0/1.0 MM, 14.5 CM	1
KIDNEY STONE FCP., RANDALL, NO. 3, 19 CM	1
KIDNEY STONE FCP., RANDALL, NO. 1, 23 CM	1
KIDNEY STONE FCP., RANDALL, NO. 2, 21 CM	1
KIDNEY STONE FCP., RANDALL, NO. 6, 19 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 8 CH	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1
<b>THORACOTOMY (LUNG) SET</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	8
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	6
SCALPEL HANDLE, NO. 3, 12 CM	2
SCALPEL HANDLE, NO. 4, 13.5 CM	1
TC-DISSECTING SCISSORS, CVD., 11.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 20.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 18 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
SCISSORS, JAMESON, CVD., 15.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	2
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 20 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
DRESSING FORCEPS, REES, ISOLATED, 20 CM	2
DRESSING FORCEPS, GERALD, STR., 17.5 CM	2
FORCEPS MICRO-MOSQUITO, CVD., 12 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 20.5 CM	2

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FORCEPS, GROSS-MAIER, STR., 26.5 CM	2
PERITON. FORCEPS, BABY-MIKULICZ, 14.5 CM	4
DISS. FORCEPS, BABY-ADSON, CVD., 14.5 CM	1
DISS. FORCEPS, OVERHOLT, CVD., 13.5 CM	1
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	2
DISS. FORCEPS, GEMINI, STR. CVD., 13 CM	1
DISS. FORCEPS, GEMINI, STR. CVD., 18 CM	1
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	2
ATR. TISSUE FORCEPS, BABCOCK, 16 CM	2
ATR. TANGENTIAL FORCEPS, SATINSKY, 22 CM	2
ANASTOM. FORCEPS, COOLEY-DERRA, 17 CM	2
ATR. FORCEPS, DE BAKEY, CVD., 13 CM	2
ATR. FORCEPS, COOLEY, ANGLED, 14.5 CM	1
ATR. FORCEPS, COOLEY, CVD., 17 CM	1
TC-NEEDLEHOLDER, RYDER-VASCULAR, 15.5 CM	1
TC-NEEDLEHOLDER, MICROVASCULAR, 17.5 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 18.5 CM	1
TC-WIRE TWISTING FORCEPS, 15.5 CM	1
TC-SIDE NIPPER, W. TRANSM., 17.5 CM	1
HOOKLET, SHARP, 4-PR., 16.5 CM	2
HOOKLET, CUSHING, 10 MM, 20.5 CM	2
HOOKLET, DESMARRES, 8 MM, 16 CM	1
HOOKLET, DESMARRES, 12 MM, 16 CM	1
HOOKLET, DESMARRES, 14 MM, 16 CM	1
GRAEFE STRABISMUS HOOK FIG 2	1
HOOKLET, SENN-GREEN, 10X6 MM, 16 CM	2
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, SAUERBRUCH, 45X15 MM, 22.5 CM	2
RETRACTOR, CORYLLOS, 80X22 MM, 24 CM	2
LUNG SPATULA, ALLISON, 29.5 CM	1
SPATULA, MARTIN, MALLEAB., 13 MM, 20 CM	1
SPATULA, MARTIN, MALLEAB., 16 MM, 20 CM	1
STERNAL SPREADER, F. PREMATURE BABIES	1
RIB SPREADER, CASTANEDA, ALU, 110 MM	1
RIB SHEARS, GIERTZ-STILLE, 24.5 CM	1
RIB RASPATORY, DOYEN, L., CHILD, 18 CM	1
RIB RASPATORY, DOYEN, R., CHILD, 18 CM	1
LAMBOTTE RASP. 5 MM WIDE 21,5 CM	1
RASPATORY, SEMB, NO. 1, 12 MM, 19 CM	1
RASPATORY, SEMB, NO. 3, 13 MM, 19 CM	1
BONE HOLD. FORCEPS, SEMB, CVD., 19.5 CM	1
BONE CUT. FORCEPS, RUSKIN, CVD., 18.5 CM	1
BONE RONGEUR, STILLE-RUSKIN, 23.5 CM	1
RIB CONTRACTOR, BAILEY, 15.5 CM	1
RIB CONTRACTOR, BAILEY, 20 CM	1

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19/9/14



PERINEUM SCISS., BRAUN-STADLER, 22 CM	1
STERNAL CHISEL, LEBSCHKE, 24.5 CM	1
MALLET, VICKERS, 185 GR., NYLON, 19 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, CVD., KNIFE SHAPE, 12 CH	1
GUIDE NEEDLE, CVD., KNIFE SHAPE, 14 CH	1
GUIDE NEEDLE, CVD., KNIFE SHAPE, 16 CH	1
<b>SUPL. VASCULAR CLAMPS</b>	<b>2 Sets</b>
ATR. FORCEPS, PEDI., MED. ANG., 15.5 CM	2
ATR. FORCEPS, LELAND-JONES, ANG., 18 CM	2
ANASTOM. FORCEPS, COOLEY-DERRA, 16.5 CM	1
ANASTOM. FORCEPS, COOLEY-DERRA, 17 CM	1
ATR. FORCEPS, COOLEY-BECK, ANG., 17 CM	1
ANASTOM. FORCEPS, COOLEY-DERRA, 17.5 CM	1
ATR. FORCEPS, COOLEY, SPOON-SH., 17.5 CM	1
ATR. FORCEPS, COOLEY, ANG., 17 CM	1
ATR. BULLDOG CLAMP, STR., 10 MM	2
ATR. BULLDOG CLAMP, CVD., 10 MM	2
ATR. BULLDOG CLAMP, STR., 20 MM	2
ATR. BULLDOG CLAMP, CVD., 14 MM	2
ATR. BULLDOG CLAMP, CVD., 20 MM	2
ANASTOM. FORCEPS, COOLEY-DERRA, 16.5 CM	1
ANASTOM. FORCEPS, COOLEY-DERRA, 17.5 CM	1
ATR. FORCEPS, DE BAKEY, ANG., 16.5 CM	2
ATR. FORCEPS, COOLEY, MEDIUM ANG., 16 CM	1
ATR. FORCEPS, DE BAKEY, ST. ANG., 15 CM	1
ATR. FORCEPS, COOLEY, STR., 14.5 CM	1
ATR. FORCEPS, DE BAKEY, 90° ANG., 10 CM	1
ATR. FORCEPS, DE BAKEY, S-SHAPE, 12.5 CM	1
ATR. FORCEPS, COOLEY, ANG., 17 CM	1
ATR. FORCEPS, COOLEY, STR., 17 CM	1
ATR. FORCEPS, COOLEY, STR. CVD., 16.5 CM	1
<b>VAGINAL SPECULA SET</b>	<b>1 Set</b>
BRAUN SPECULA, 56X13MM, 18CM	1
SEIDL VAGINAL SPECULA 80X8MM	1
SEIDL SCHEIDENSPEKULA 80X10 MM	1
SEIDL VAGINAL SPECULUM, SET, 90X14MM	1
KRISTELLER VAGINAL SPEKULA SET 70X15 MM	1
BRAUN VAGINAL SPECULA, 60X10MM, 18CM	1
<b>CUT DOWN SET PAEDIATRIC</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 20.5 CM	1
TOWEL FORCEPS, BACKHAUS, SHARP, 9 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	1

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FORCEPS, MINI-ADSON, 1X2 T., 12 CM	1
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	1
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	2
HAEM. FORCEPS, HARTMANN, CVD., 10 CM	2
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
HOOKLET, DESMARRES, 14 MM, 16 CM	2
HOOKLET, SHARP, 2-PR., 16.5 CM	2
WOUNDSPREADER, ALM, SHARP, 4X4 T., 10 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
<b>CUT DOWN SET NEWBORN</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 20.5 CM	1
TOWEL FORCEPS, BACKHAUS, SHARP, 9 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	1
TC-DISSECTING SCISSORS, CVD., 11.5 CM	1
IRIS SCISSORS, SH/SH, CVD., 9 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	1
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	1
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	2
HAEM. FORCEPS, HARTMANN, CVD., 10 CM	2
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
TC-NEEDLEHOLDER, HALSEY, 13 CM	1
GUTHRIE FIX HOOK SHARP LARGE	2
HOOKLET, DESMARRES, 8 MM, 16 CM	2
WOUNDSPREADER, ALM, SHARP, 4X4 T., 7 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
<b>TRACHEOTOMY SET PAEDIATRIC</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 20.5 CM	1
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	1
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	1
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	1
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	2
FORCEPS, MOSQUITO, 1X2 T., CVD., 12.5 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
HOOKLET, SHARP, 1-PR., 16.5 CM	2
HOOKLET, SHARP, 3-PR., 16.5 CM	2
WOUNDSPREADER, SHARP, 2X3 T., 11 CM	1
TRACHEAL DILATOR, TROUSSEAU, 14.5 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1

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<b>TRACHEOTOMY SET NEWBORN</b>	<b>2 Sets</b>
FORCEPS, GROSS-MAIER, CVD., 20.5 CM	1
TOWEL FORCEPS, BACKHAUS, SHARP, 9 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	1
TC-DISSECTING SCISSORS, CVD., 11.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	1
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	1
HAEM. FORCEPS, HARTMANN, CVD., 10 CM	2
FCPS. MIC. MOSQUITO, 1X2 T., CVD., 10 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	1
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
TC-NEEDLEHOLDER, HALSEY, 13 CM	1
HOOKLET, SHARP, 1-PR., 16.5 CM	2
HOOKLET, SHARP, 2-PR., 16.5 CM	2
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
<b>A-V FISTULA SET CHILDREN</b>	<b>2 Sets</b>
WEITLAN LOKT RETR BLUNT 2/3T	1
ALM RETRACTOR BLUNT	2
MICRO-MOSQUITO HAEM FCPS CVD	6
TITAN ATRAUMA FCPS 1,5 MM	1
NEONATAL CLAMP 13 CM	4
DIETRICH BULLDOG CL CVD 10MM	4
DE BAKEY DILATOR 0,5MM 19CM	1
DE BAKEY DILATOR 1MM 19CM	1
DE BAKEY DILATOR 1,5MM 19CM	1
DE BAKEY DILATOR 2MM 19CM	1
DE BAKEY DILATOR 2,5MM 19CM	1
DE BAKEY DILATOR 3MM 19CM	1
DE BAKEY DILATOR 4MM 19CM	1
DE BAKEY DILATOR 5MM 19CM	1
DIETRICH SCISSORS 45 DEG	1
CORONARY SCISSORS 10MM BLADE 45DEGR.18MM	1
TC RYDER VASCULAR NDLH	1
<b>NEONATAL THORAX INSTRUMENTS</b>	<b>2 Sets</b>
COOLEY RETRACTOR ALU 12 MM	1
LANGENBECK RETRACTOR	1
SEMB RASPATORY FIG 1	1
SEMB RASPATORY FIG 2	1
MINI LEXER CHISEL 12 MM	1
GLUCK RIB SHEARS, 8-3/4"	1
LEBSCHER STERNUM CHISEL	1
BAILEY RIB CONTRACTOR	1
VOLKMANN BONE CURETT FIG 1	1
CUTTING PLIERS 16 CM TC	1
FLAT NOS PLIERS	1
BONE RONG.FCPS.DOUBLE ARTIC.	1
<b>CHILDREN THORAX INSTRUMENTS</b>	<b>2 Sets</b>

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COOLEY RETRACTOR ALU 21 MM	1
SEMB RASPATORY FIG 4	1
SEMB RASPATORY FIG 2	1
MINI LEXER CHISEL 12 MM	1
GLUCK RIB SHEARS, 8-3/4"	1
LEBSCHER STERNUM CHISEL	1
BAILEY RIB CONTRACTOR	1
VOLKMANN BONE CURETT FIG 4	1
VOLKMANN BONE CURETT FIG 1	1
CUTTING PLIERS 16 CM TC	1
FLAT NOS PLIERS	1
ZAUFAL-JANSEN RONGEUR FORC	1
CONTAINER MICROSTOP 30X30X14 CM	46
Tray 1/2, 243x255x73 mm	1
COLOR-TAG, RED	92
CODING LABEL, WITH TEXT, WITOUT HOLE	92
<i>The Instrument should be CE &amp; FDA USA approved.</i>	
<i>Appropriate size of containers to be quoted with Each Set.</i>	
<i>The Instrument and Container should be of the same parent company.</i>	
<i>It should have reusable microbial barriers instead of disposable filters. The microbial barriers should be easy to remove and clean.</i>	

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**Item No. 10**

**a) Technical Specification of Cylindrical Sterilizer**

<b>High pressure steam sterilizer cylindrical Type</b>
Steam sterilizer for the sterilization of instruments, textiles, rubber goods, plastics and glass materials.
The sterilizer should be constructed in accordance with CE / FDA Standard
<b>Double Door System Should be available</b>
Chamber dimensions, approximately: 500 mm X 1200 mm.
Capacity of sterilization chamber in liters: minimum 250 liters.
<b>1. JACKET.</b>
Jacket of the sterilizer contain safety valve (It blow when generated pressure reach required pressure), pressure gauge, vacuum breaker.
<b>CHAMBER.</b>
Compound gauge: - It shows the chamber pressure when steam entered into the chamber.
Vacuum dryer:- It's a special hot air apparatus to prevents contamination of sterilized load during drying process
Dial thermometer: - It shows chamber temperature when steam comes into the chamber.
Plug screen:- Its prevent the dirty articles to go into the steam trap
Steam trap: - Its release condense water & arrest dry steam to build up sterilized temperature.
Non return valve :- Its allow the steam to go to in one way.
<b>DOOR.</b>
a) Door Hinge: Door is fixed with door hinge to the main unit for and smooth operation.
b) Door Gasket: Door is provided with a door gasket, fixes in the door grooves. Its prevent steam leaking through the door.
c) Mechanical Pressure lock: There is a Mechanical Pressure type Safety Door which locks automatically as soon as the Chamber under pressure and unlocking only when the chamber is exhausted.
The unit will be manufactured confining to Bureau of Indian Standard specifications and would bear certification mark IS: 3829 (Part-I).
The unit is fitted with safety door with self locking device. The gaskets would be provided on the door assembly.
<b>Provision of Microprocessor:</b>
A Microster with the facility of MMI (Man-Machine-Interface) is provided instead of manual cycle operated multi-port operating valve. The features are:
a. The operator can program the cycles with his choice of different settings of time,

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<p>temperature and corresponding pressure which can be used various contents/material to be sterilized;</p> <p>b. MMI Backlit with eight digit password protection-- ensures control of the operator;</p> <p>c. Will generally have six different settings for the cycles;</p> <p>d. Provision for digital display of temperature, time, pressure, cycle time and elapsed time for ease of operation of the cycle</p> <p>e. Can be connected to a dot matrix printer which will give the entire process taken place including date, batch, program type selected etc.,</p> <p>f. Provision of 'error code analysis' inbuilt.</p> <p>g. 'Leak test' cycle provided</p> <p>h. Dick &amp; Bowie available.</p> <p>i. The unit would be manufactured as per IS specifications Mark IS:3829(Part-I) and also would bear the certification.</p> <p>j. The unit will be mounted on tubular stand of mild steel in a ready to use condition.</p> <p>k. The sterilizer will be fitted with all necessary safety features.</p> <p>l. Feed Water Pump: Water can be filled up automatically, whenever required with the help of Feed Water Pump.</p> <p>m. HPHV (HIGH PRESSURE HIGH VACCUM): HPHV is for sterilization at high temperature and better drying.</p> <p>n. The unit will be fitted with an external high pressure high vacuum pump to give pre vacuum and post vacuum pulses.</p>
<p><b>Certification</b></p>
<p>Company should have IS-3829 marked.</p>
<p>Company should have ISO 9001-2008, ISO 2003-13485 and CE / FDA certified.</p>
<p><b>Manufacturing Experience</b></p>
<p>More Than 10 years.</p>

**b) Technical Specification of Hot & Cold Sterilizer**

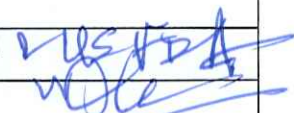

<p><b>General Specification</b></p> <p><b>Hot and Cold Water Sterilizer</b> electrically operated double tanks each of atleast 30 liters per hr capacity. The chamber is of stain less steel. The unit will be incorporated with low water protection and Automatic Pressure Cut-Off Device. Special Arrangement for cooling of Sterile Water to required temperature.</p>
<p><b>Electrical &amp; other details</b></p> <p>The Heating Load in Hot Boiler and Cold Boiler should be atleast 6 KW each. i.e. Total Load is 12 KW.</p>

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The Sterilizer will be made of atleast SS AISI316 Steel with the thickness of 1.5mm i.e. 16 Gauge										
<b>Electrical Load</b> : 12 KW in 3 phases, 440 volts, AC Supply										
<b>Boiler items at a minimum should have :</b>										
<table border="0"> <tr> <td>a) 1 no. Safety Valve; Steel</td> <td>b) 1 no. Water Filter made of Stainless</td> </tr> <tr> <td>c) 1 no. Steam Release Valve</td> <td>d) 1 no. Pressure Gauge</td> </tr> <tr> <td>e) 1 no. Dial Thermometer</td> <td>f) 1 no. Double Acting Valve</td> </tr> <tr> <td>g) 1 no. Steam Trap</td> <td>h) 1 no. Water Collection Valve and</td> </tr> <tr> <td>i) Water Level Indicator.</td> <td></td> </tr> </table>	a) 1 no. Safety Valve; Steel	b) 1 no. Water Filter made of Stainless	c) 1 no. Steam Release Valve	d) 1 no. Pressure Gauge	e) 1 no. Dial Thermometer	f) 1 no. Double Acting Valve	g) 1 no. Steam Trap	h) 1 no. Water Collection Valve and	i) Water Level Indicator.	
a) 1 no. Safety Valve; Steel	b) 1 no. Water Filter made of Stainless									
c) 1 no. Steam Release Valve	d) 1 no. Pressure Gauge									
e) 1 no. Dial Thermometer	f) 1 no. Double Acting Valve									
g) 1 no. Steam Trap	h) 1 no. Water Collection Valve and									
i) Water Level Indicator.										
<b>Certification</b>										
IS-3829 marked. Company should have ISO 9001-2008, ISO 13485-2003 and CE certified.										
<b>Manufacturing Experience</b>										
Company should have manufacturing experience more than 10 years.										

**c) Technical Specification of Bowl-Utensils Sterilizer**

<b>General Specification</b>
The Bowl sterilizer will be of All-weld, Stainless Steel Construction. Product benefits include Automatic Temperature Control for operational economy and automatic elimination of excess steam.
An inlet valve with an overflow arrangement and an outlet valve are provided. A strong, lever operated foot pedal opens the lid and pushes-up the instrument-carrying perforated tray in the Bowl Sterilizer. This operation is made possible by a Ratchet mechanism in the Bowl Sterilizer. A Hydraulic damper fitted to the release closes the lid smoothly in both units which rest on sturdy, elegantly finished tubular stands.
<b>Electrical Load-10KW</b>
<b>Electric Supply Requirement : 440 V, AC 3 Phrase</b>
Size: 800mm X 760mrp X 850 mm
<b>Main Features:</b>
1) Automatic Temperature Control and Automatic Elimination of excess Steam.
2) The machine is provided with the inlet, outlet and overflow arrangements
<b>Certification</b>
Company should have ISO 9001-2008, ISO 2003-13485 and CE certified
<b>Manufacturing Experience</b>
Company should have manufacturing experience more than 10years.

  
  
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**Item No. 11**

**SURGICAL EQUIPMENT PENDANT**

The Surgical Equipment Pendant shall be a combination of a supply column, carried by 2 swivel arms of 800 mm length each, for holding the endoscopy equipment

The pendant shall not have any sharp edges or any construction that may be an obstacle for the surgical staff.

The 2 swivel arms, carrying the supply column, shall have the maximum degree of rotary motion in the horizontal plan and shall be able to withhold a weight of not less than 115 kg.

The supply column shall be equipped with 5 height adjustable shelves of W X D X H : minimum 770 mm X 500 mm X 40 mm and a drawer. The shelves size shall be able to accommodate the requested endoscopy equipment.

The supply column shall have the following gas outlets:

2x Oxygen

2x Compressed Medical Air

1x Vacuum

1x CO2

Additionally, the supply column shall have 12 electrical sockets with face plate.

The pendant's ceiling fixture shall also be provided and shall take into account the distance between the true ceiling and the false ceiling.

The Equipment should be having MDD & CE Certification

**ENDOSCOPIC EQUIPMENT**

The successful bidder shall provide the required Endoscopic Equipment for each operating room based on the assigned discipline. The Endoscopic Equipment shall be supplied from a qualified manufacturer and shall be fully integrated with the system. The Endoscopic Equipment shall be controlled through the Touch Screen. The Touch Screen shall display the identical image of the Operating Table's remote control and the same functionality of this control shall be displayed on the Touch Screen.

**3-CHIP FULL HD ENDOSCOPIC CAMERA**

It shall be a High-Definition digital camera that captures images on three 16:9 aspect ratio CCD chips in the camera head and transmits that High-Definition signal to the 16:9 aspect ratio monitors in a 1:1 representation without scaling or de-interlacing.

The camera should have the following features:

- *It shall be compatible with the Management System and can thus be controlled from inside the sterile area via Touch Screen and from outside the sterile area via keyboard and mouse at the Nurse Station.*
- *It should convert the optical images into a digital signal at the camera head level.*

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- The camera's CCDs should have a 16:9 aspect ratio with an acquisition resolution of 1920 x 1080 progressive scanning.
- PARFOCAL optical zoom to guarantee that the best quality image will be captured by the three (3) CCDs at the camera head.
- All-digital circuitry for increased image accuracy, less noise in the image, and no image degradation from camera head to video output.
- Camera features and functions can be programmed for access via the camera head buttons.
- Digital image enhancement and fiberoptic endoscope filtering capabilities to increase the level of contrast and definition of the image.
- Eighteen options for exposure control, including automatic exposure system and seventeen manual exposure control settings.
- All camera functions can be controlled by a keyboard connected to the camera control unit.

The camera should have the following technical specifications:

**- Camera Control Unit:**

Power supply voltage: 100-240 VAC  
 Power frequency: 50-60 Hz  
 Operating temperature: +10°C to +40°C  
 AGC: +18dB  
 Video output: 2x DVI-D signal (HD digital signal)  
 1x RGB signal to 15pin-HD-D-Sub-sockets  
 2x S-Video (Y/C signal) to S-Video  
 1x Composite signal to BNC socket

**- Camera Head:**

Image sensor: 3x 1/3"  
 Aspect ratio: 16:9  
 Picture elements: 1920x1080p (2,073,600 pixels)  
 Scan method: progressive  
 Refresh rate: 50 Hz  
 Internallens: Parfocal 2:1 Optical Zoom Lens, f=14-30mm

The camera should also comply with the following standards:

According to: IEC 60601-1, 60601-2-18, UL 2601.1 CSA 22.2 No. 601.1-M90:

- Type of protection against electrical shocks: Protection Class I.

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- Degree of protection against electrical shocks: Applied part of type CF defibrillator proof

According to Medical Device Directive (MDD) the camera should belong to Class I and bear the CE mark in accordance with MDD 93/42/EEC

### SUCTION/IRRIGATION UNIT

It shall be a combination of suction/irrigation pump for use in gynaecological, Laparoscopic, and other endoscopic interventions. The adaptation to the correct mode of surgery intended should happen automatically when the correct type of tubing is used. The insertion of pressure lines into the unit should be simplified for ease of use. The unit should be equipped with electronic safety circuits that cut the suction/Irrigation operation if the unit departs consistently from the preset values.

The Suction/Irrigation unit should have the following features:

- It is compatible with the Management System and can thus be controlled from inside the sterile area via Touch Screen and from outside the sterile area via keyboard and mouse available at the Nurse Station.
- Easy to use bundled controls for the control of all functionalities
- Touch controls and digital displays ensure safe and precise adjustment of the set values.
- Bargraph displays, easy to read and arranged clearly parallel to one another allow the user to monitor the current actual and set values of all unit parameters at any time.
- During power-up, all systems go through an automatic self-test and are only released after a positive result
- Safety functions that control any departure from operator settings
- Automatic recognition of type of procedure intended, when tubing is inserted
- Audible alarms in case of malfunction.
- Suction rate preselects are saved in memory
- Should have a suction mode that automatically maintains irrigation pressure and flow constant.

The Suction/Irrigation unit should have the following technical specifications:

- Power supply voltage: 100-240 VAC
- Power frequency: 50-60 Hz
- Operating conditions: +10°C to +40°C

#### Irrigation:

- Pressure:
  - HYS-Mode: 0-200 mmHg (26.6 kPa)
  - LAP-Mode: 0-400 mmHg (53.2 kPa)
- Flow Rate:
  - HYS-Mode: 0-500 ml/min

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- LAP-Mode: 0-1000 ml/min

*Suction Under-pressure:*

- HYS-Mode: 0-(-)0.5 bar (50 kPa)

- LAP-Mode: 0-(-)0.8 bar (80 kPa)

*Pressure indicator*                      *Bargraph Display and Digital Display*

*Flow indicator*                         *Bargraph Display and Digital Display*

The Suction/Irrigation unit should also comply with the following standards:

*According to: IEC 60601-1, UL 60601.1, CAN/CSA 22.2 No. 601.1-M90:*

- *Type of protection against electrical shocks: Protection Class I.*
- *Degree of protection against electrical shocks: Applied part of type BF.*

*According to Medical Device Directive (MDD) Suction/Irrigation unit should belong to Class II b and bear the CE mark in accordance with MDD 93/42/EEC*

### **INSUFFLATOR UNIT**

It shall be an insufflation's device for universal application in Laparoscopic and Thoracoscopic examinations and operations. With accurate measurement and control of both the pressure and flow of gas it should enable the use of different operating modes, which can be tailored to specific situations such as the use of lasers or the performance of HF surgery. It should also be capable of high flow rate (30 L/min) to compensate for the considerable loss of gas during complex Laparoscopic surgery. A heating element should be provided to prevent potential cooling of the patient.

The CO<sub>2</sub> thermal-insufflator should have the following features:

- *It is compatible with the management system and can thus be controlled from inside the sterile area via Touch Screen and from outside the sterile area via keyboard and mouse available at the Nurse Workstation.*
- *Easy to use bundled controls for the control of all functionalities*
- *Touch controls and digital displays ensure safe and precise adjustment of the set values.*
- *Bargraph displays, easy to read and arranged clearly parallel to one another allow the user to monitor the current actual and set values of all unit parameters at any time.*
- *During power-up, all systems go through an automatic self-test and are only released after a positive result*
- *It can distinguish between two different supply modes: high pressure and low pressure.*

The CO<sub>2</sub> thermal-insufflator should have the following technical:

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Power supply voltage: 100-240 VAC

Power frequency: 50-60 Hz

Operating conditions: +10°C to +40°C

Gas supply:

- Pressure: Min. 5 bar, max. 160 bar.

- Type: CO<sub>2</sub> liquid, USP

- Fittings: American-standard types

Gas outlet:

- Pressure: 0-30 mmHg (0 -3990 Pa)

- Flow rate: 0-30 L/min

Pressure indicator Bar Display and Digital Display

Flow indicator Bar Display and Digital Display

Bottle pressure indicator Bar Display

Heat Output Max 25 VA

Heating temperature 37°C, +10%-15%

The CO<sub>2</sub> thermal-insuflator should also comply the following:

According to: IEC 60601-1, UL 60601.1, CAN/CSA 22.2 No. 601.1-M90:

➤ Type of protection against electrical shocks: Protection Class I.

➤ Degree of protection against electrical shocks: type BF

According to Medical Device Directive (MDD) CO<sub>2</sub> thermal-insuflator should belong to Class II b and bear the CE mark in accordance with MDD 93/42/EEC

### **LIGHT SOURCE (300W)**

It shall be a Xenon Cold Light Fountain with a 300W Xenon lamp that has a colour temperature exceeding 6000 °K. The light source shall be suitable for virtually all endoscopic interventions and producing excellent results especially for photographic and video documentation.

The light source should have the following features:

➤ It is compatible with the Management System and can thus be controlled from inside the sterile area via Touch Screen and from outside the sterile area via keyboard and mouse available at the Nurse Station.

➤ Easy to use bundled controls for the control of all functionalities.

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- Touch controls and digital displays ensure safe and precise adjustment of the set values.
- Full light intensity is reached as soon as the lamp is switched on.
- The brightness, continuously adjustable from 0-100%, is regulated via a microprocessor controlled optomechanical dimmer while the lamp current remains unchanged in order to avoid instabilities of the arc and to insure maximum lamp service life.
- The brightness can be regulated manually or automatically via the output signal of a video camera.
- An antifog air pump is available for endoscopes which have a special antifog channel to prevent the lens from misting up.
- Stand-by function is available to avoid switching the light source on/off frequently during short interruptions. This function would decrease wear of the Xenon lamp.
- Display of lamp service life.

The light source should have the following technical specifications:

Power supply voltage:	100-240 VAC
Power frequency:	50-60 Hz
Operating temperature:	+10°C to +40°C
Lamp wattage:	300 W
Lamp voltage:	13-16 VDC

The light source should also comply with the following standards:

According to: IEC 60601-1, 60601-2-18, UL 60601-1, CAN/CSA 22.2 No. 601.1-M90:

- Type of protection against electrical shocks: Protection Class I.
- Degree of protection against electrical shocks: Applied part of type CF
- Type of protection against moisture: drip water protection as per IPX 1

According to Medical Device Directive (MDD) the light source should belong to Class II a and bear the CE mark in accordance with MDD 93/42/EEC

### **High End Diathermy**

**The unit should have the following features:**

- The unit should have a large LCD display to show the various settings.
- The unit should have an optical support quickstep control knob to achieve and make the settings of the unit quickly.
- It should have a memory of minimal 99 individual programmes for various types of surgeries and with preference for various surgeons.
- It should have a possibility to give names (procedures/surgeons name) to the individual programmes.
- Should have a special output for vessel sealing upto 7mm of vessel in both open surgery mode and endoscopic surgery mode.
- The vessel sealing clamp forceps should be 100 % reusable and both straight & curved of different lengths.
- Should have both monopolar and bipolar cut and coagulation outputs.
- The unit should have four individual outputs 2 for monopolar and 2 for bipolar.
- The unit should have 11 different monopolar cutting currents with different cutting qualities and capabilities.

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- The Monopolar coagulation should be with Auto-Start and Auto-Stop.
- The Bipolar should have a special cutting current with simultaneous coagulation during the use of bipolar scissors.
- The following different current modes should be available:
  - MONOPOLAR CUT MODES (Minimum 8 types)
  - CARE CUT (FOR PRECISE CUTTING IN MICRO SURG.)
  - ARGON CUT MODE (SPECIAL CUTTING MODE FOR USE WITH ARGON BEAM GAS)
  - MONOPOLAR COAGULATION MODES (Minimum 15 type)
  - BIPOLAR CUTTING MODE (Minimum 3 types)
  - BIPOLAR COAGULATION (Minimum 6 types)
  - SEAL SAFE MODE
  - ENDO SEAL MODE

The following accessories should be supplied with the unit:

- FOOTSWITCH DOUBLE PEDAL
- TWIN PATIENT PLATE
- CLAMPS FOR OPEN SURGERY SEAL SAFE TECHNIQUE
- BIPOLAR SCISSORS FOR OPEN SURGERY
- BIPOLAR FORCEPS FOR OPEN SURGERY
- BIPOLAR ACCORIES
  - Footswitch with Reed Contact
  - Bipolar Cable
- MONOPOLAR DIATHERMY ACCESSORIES FOR OPEN SURGERY
- MONOPOLAR ARGON ACCESSORIES FOR OPEN / LAP SURGERY
- ARGON PROBES FOR FLEXIBLE ENDOSCOPE

Technical specifications of the Argon Plasma Coagulator

- The unit should be an Argon Gas delivery device fully controllable through the main unit only.
- Should have communications cable with the main unit.

All Items should be usfda / European CE approved

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**ITEM NO. 12**

**CENTRALISED EQUIPMENT CONTROL MANAGEMENT SYSTEM  
WITH RECORDING AND ARCHIVING SYSTEM**

- A. 19" TOUCH SCREEN (Spring arm mounted)** - The Touch Screen shall be a medical grade 19" flat screen with 1280x1024 (SXGA) resolution. It shall communicate with the Management System via an RS-232 cable.

The Touch Screen shall be mounted on a pendant (as specified in section 2) and shall be located within the sterile field for the doctor's control or his assistant.

All medical devices, Archiving system, and Communication systems shall be controlled from this touch screen.

- B. 19" TOUCH SCREEN (Located at the Nurse Station)** The Nurse Station, located outside the sterile field within each operating room, shall consist of:

- A worktop
- A 19" Touch Screen

The circulating nurse will be able to assist the surgeon or his assistant by controlling the same functions, as those of the sterile area Touch Screen,

The Touch Screen shall be a medical grade 19" flat screen with 1280x1024 (SXGA) resolution. It shall communicate with the Management System via an RS-232 cable.

- C. 26" FULL 3D HD FLAT MEDICAL GRADE LCD SCREEN (Desktop mounted)**

The surgical display screens should be medical grade 26" FULL HD (1080P) Medical Grade. The system should have facility to display in 3D and 2D modes. It should have the following inputs:

- HD-SDI for 2D signal in HD
- S-Video for 2D signal in standard resolution

The display screens should also have the following optical specifications:

LCD Panel 26 inch (16:9 aspect ratio)  
Screen Dimensions- 643mm (W) × 396 mm (H) ×87mm(D)  
Number of pixels 2,073,600 pixels (1,920 × 1,080)  
Viewing angle- Horizontal: 178 degrees, Vertical: 178 degrees (3D : TBD)  
Contrast Contrast 1000:1  
Luminance -350cd/m<sup>2</sup>  
Reaction Time – 6-8ms  
Display mode  
Dual display mode  
Triple display mode  
PIP and POP mode  
Mirror image mode

The display screens should comply the highest safety standards:

- Ø Fanless cooling prevents the introduction of contaminants into the sterile field.
- Ø Low voltage (24 VDC) external power supply maybe located 30m away from the screen, removing any electrical concern.

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Ø Front sealed, anti-glare overlay guarantees the highest level of defence against liquid ingress

**D. 26" FULL 3D HD FLAT MEDICAL GRADE LCD SCREEN (Spring arm mounted)**

The surgical display screens should be medical grade 26" FULL HD ( 1080P) Medical Grade The system should have facility to display in 3D and 2D modes. It should have the following inputs:

- HD-SDI for 2D signal in HD
- S-Video for 2D signal in standard resolution

The display screens should also have the following optical specifications:

LCD Panel 26 inch (16:9 aspect ratio)  
Screen Dimensions- 643mm (W) × 396 mm (H) ×87mm(D)  
Number of pixels 2,073,600 pixels (1,920 × 1,080)  
Viewing angle- Horizontal: 178 degrees, Vertical: 178 degrees (3D : TBD)  
Contrast Contrast 1000:1  
Luminance -350cd/m2  
Reaction Time – 6-8ms  
Display mode  
Dual display mode  
Triple display mode  
PIP and POP mode  
Mirror image mode

The display screens should comply the highest safety standards:

- Ø Fanless cooling prevents the introduction of contaminants into the sterile field.
- Ø Low voltage (24 VDC) external power supply maybe located 30m away from the screen, removing any electrical concern.
- Ø Front sealed, anti-glare overlay guarantees the highest level of defence against liquid ingress

**E. FIBER OPTIC CABLE FOR THE FLAT SCREEN AND ENDOSCOPIC CAMERA**

The fiber optic cable connecting the Flat Screen and Endoscopic Camera to the system shall consist of:

- 6x color-coded strands transmitting the DVI-D signal

The fiber optic cable shall be flexible enough to sustain the spring arm's motion in the horizontal and vertical plane.

**F. 32" Medical Grade FLAT SCREEN (Wall mounted) (Wall mounted) At least 36"**

Large Screen shall be mounted on a selected wall within the OR. This screen shall provide a large viewing area especially when having teleconferencing.

At least 32" Large Screen should be mounted on a selected wall within the OR.

The surgical display screens should be medical grade 32" FULL HD Medical Grade The system should have facility to display in 3D and 2D modes. It should have the following inputs:

- Ø DVI-D for 3D signal
- Ø HD-SDI for 2D signal in HD
- Ø S-Video for 2D signal in standard resolution

The display screens should also have the following optical specifications:

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LCD Panel 32 inch (16:9 aspect ratio)  
Screen Dimensions- 643mm (W) × 396 mm (H) ×87mm(D)  
Number of pixels 2,073,600 pixels (1,920 × 1,080)  
Viewing angle- Horizontal: 178 degrees, Vertical: 178 degrees (3D : TBD)  
Contrast Contrast 1000:1  
Luminance -350cd/m2  
Reaction Time – 6-8ms  
Display mode  
Dual display mode  
Triple display mode  
PIP and POP mode  
Mirror image mode  
The display screens should comply the highest safety standards:

- G. CENTRAL CONTROL UNIT** - The main purpose for the implementation of the Integrated OR is the ability to provide full control for the Surgeon or his assistant of the OR equipment, and environment via a Touch Screen. The system should be simple, user friendly, secure and upgradeable.

The successful bidder shall design, construct and complete a seamless Management System consisting of a medical grade Central Control Unit that provides full flexibility to the Surgeon or his assistant and to the OR nurse for the control of all functions, systems and devices available in the operating room via a SINGLE Touch Screen located within the sterile field and simultaneously from mouse and keyboard located in the Nurse Station, which positioned outside the sterile field.

The Central Control Unit shall be able to manage the medical and non-medical devices inside the operating room. Therefore it shall integrate the endoscopy equipment, Archiving and Communication Systems. In addition, it shall be able to control 32 different Endoscopic units and to store up to 100 individual presets (by doctor and procedure, or both) for the endoscopy equipment that can be accessed for quick set up for individual physicians. The system should also provide an overview display of up to 12 units simultaneously.

**Furthermore, the Central Control Unit shall be able to display on the Touch Screen an exact replica of the actual endoscopy devices' front panel. This is necessary for the ease of control and to ensure that any person familiar with the key functions of the medical devices will also be able to operate the device by using the Touch Screen.**

The Central Control Unit should also be able to display on the Touch Screen alert text messages, whenever a warning signal is emitted from a faulty device.

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The Management System's functions shall include but not limited to:

- **The ability to integrate and to control the medical devices, Archiving and Communication systems from a SINGLE Touch Screen located inside the sterile field.**
- The ability to identify any errors or malfunctions of the connected device.
- The ability to call up any type of endoscopic equipment on the Touch Screen menu and be able to control all its functions simultaneously on the Touch Screen or directly from the machine itself.
- The ability to control all the motions of the operating table via the Touch Screen.
- The ability to display an identical image of the actual device panel on the Touch Screen.
- The ability to switch on or off the room lights.
- The ability to switch on or off the room's green light (Endoscopy Procedures)
- The ability to route any image source to any destination via the Touch Screen.
- The ability to broadcast real time images from any source from the OR to the conference room & doctor's room or any location of choice inside or outside the hospital through a videoconferencing system. Control of images shall be done via the Touch Screen.
- The ability to connect to a telephone system within the sterile field and control it via the Touch Screen.

#### H. Full HD IMAGE/VIDEO RECORDING AND DATA ARCHIVING SYSTEM

- User friendly software designed specifically for medical purposes
- Captures still Full HD (1080P) images, & Full HD (1080P) video sequences (from 3 sources), and audio files
- Resolution of both still images & videos should be 1920x1080 p
- Writes multi-session and multi-patient CDs/DVDs
- Controllable via Touch Screen, camera head buttons, footswitch mouse and keyboard
- Fully controllable from inside and outside the sterile field
- Supports network storage on file servers
- Supports FTP storage
- USB support for storage on USB drives
- Customizable print-outs for the documented information
- Prints to any connected printer (local or network)
- HIPAA compliant
- Buffer system to insure reliability
- Medical grade unit with CE mark
- Chipset: Intel® 855GME + Intel® 6300ESB Embedded Chipset
- Processor: Intel® Pentium® M 735
- Graphic: Intel® Extreme Graphics 2 Controller onboard
- Grabber-card: DVI-D, SDI, S- Video, Composite;
- Audio: AC97/DD5.1 onboard
- RAM: 2GB
- Harddisk: 500 GB SATA 3.5"
- Drive: Multiform Slim line DVD RW
- PCI Slots: 3 x PCI
- LAN: 3 x 10/100/1000 Mbps onboard
- I/O Ports: 2 x PS/2, 2 x Serial, 3 x RJ45 (LAN), 4 x USB 2.0 (1 x Front), 3 x Audio (Line In, Line Out and Microphone), VGA;
- DICOM and HL7 interface

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The DICOM 3 interface shall be installed to the system in order to allow the surgeon to view all the DICOM 3 images stored in the PACS system on a digital light box within the operating rooms. Furthermore, all intra operative images recorded can be sent via the DICOM 3 interface to the PACS system for further processing.

The HL7 interface system shall be connected to the Image and Data Archiving system to allow the patients demographics to be downloaded directly to the patients data file.

### **AUDIO VISUAL COMMUNICATION**

**A. AV RACK BASED LOCAL COMMUNICATION CENTER** The Local Communication Center installed inside the OR shall be rack-based and shall house the following Control /Video/Audio equipment:

- Control equipment
  - 1x RS232 control module 16x Relays control modules
  
- Video equipment
  - Video Matrix
    - 8x 8 DVI-D matrix
  
  - Fiber optic-to-DVI-D transmitters and receivers for the transmission of the HD DVI-D signal over long distances:
    - 4x Fiber optic-to-DVI-D transmitters to transmit the HD DVI-D signal in optical format to the Communication Center, the Surgical Displays and the Large Screen.
    - 4x Fiber optic-to-DVI-D receivers to convert the HD DVI-D signal from optical format back to its original electrical format.
  
- Audio equipment
  - Audio Mixer with 3 inputs and one output
  
  - Audio Matrix switcher capable of integrating up to:
    - 8x Audio Sources such as the Wireless Microphone.
    - 8x Audio Destinations such as the OR's Active Speaker.
  - Additional Audio Distributor and Audio Mixer.
  - Fiber optic converters for optical isolation of any ingoing/outgoing audio/video signal to/from the OR
  - Medical Isolation Transformer for isolating the AC input power supplying the Communication Center.

**Audio/Video routing** shall be possible via the 19" Touch Screen (same Touch Screen that controls Medical and non-medical devices) located inside the sterile field and via Medical Grade Touch Screen available at the Nurse Station:

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**Video routing** shall make efficient use of the provided video matrix system to route any video source to any video destination in its optimal signal quality.

For instance, the digital DVI-D video matrix is intended to switch the HD digital signal from the HD Endoscopic camera to any of the Flat Screens without conversion to any lower level signal. The other video matrices will ensure the connection and routing of a variety of video sources such as the Overhead Camera, Room Camera, etc...

The OR shall integrate at least the following Video Sources and Destinations:

Sources	Destinations
Endoscopic Camera	2x 26" Flat Screens
Surgical Camera	Large Screen
Room Camera	Touch Screen's video preview
Connection to one SD auxiliary Video Source	Archiving System

The OR shall integrate at least the following Audio Sources and Destinations:

Sources	Destinations
Wireless Microphone	Loudspeaker
Archiving System	Archiving System
Telephone	Telephone

The OR Communication Center shall also include the required software and hardware components for integrating the following telemedicine features:

- Patient safety checklist
- Patch Panels.
- Telephone module.
- 2-way Audio/Video connection with Conference Room

**Patch Panels** All relevant flush mounted video patch panels for integration of the various Video Sources shall be installed.

**B. ROOM CAMERA**

A Room Camera shall be installed on a selected wall in the OR. The Room Camera shall have the following technical specifications:

VideoSignal          PAL

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<i>Effective Pixels</i>	768 (H), 492 (V), 752 (H) X 585 (V)
<i>Horizontal Resolution</i>	460 TV lines 450 TV lines
<i>Vertical Resolution</i>	350 TV lines 400 TV lines
<i>Lens</i>	×12 Power Zoom, f=5.4 to 64.8 mm, F1.8 to F2.7
<i>Angle of View (H)</i>	4.3 to 48.8 degrees
<i>Minimum Illumination</i>	7 lx (F1.8)
<i>Illumination Range</i>	7 to 100,000 lx
<i>Auto Exposure</i>	Auto Iris, AGC
<i>Shutter Speed</i>	1/60 to 1/10,000
<i>Gain</i>	Auto/Manual
<i>White Balance</i>	ATW / One Push Hold, Indoor Preset, Outdoor Preset
<i>S / N Ratio</i>	>48 dB
<i>Pan / Tilt</i>	Horizontal ±100° (Max speed 80° sec), Vertical ±25° (Max speed 50° / sec)
<i>Video Output</i>	RCA pin jack
<i>S Video Output</i>	4 pin mini DIN
<i>Audio Output</i>	RCA pin jack
<i>Control Terminal</i>	RS-232C, 8-pin mini DIN, 9600 bps, Data 8 bit, Stop 1 bit.

The Room Camera's position, zoom, and tilt shall be controllable via Touch Screen located inside the sterile field and from the Nurse Station outside the sterile field.

### **C. BI-AMPLIFIED ACTIVE LOUDSPEAKER**

A bi-amplified active Loudspeaker, dedicated for videoconferencing and audio playback, shall be installed on a selected wall in the OR.

The Loudspeaker's volume shall be adjustable via the Touch Screen from the inside sterile field and/or via mouse and keyboard at the Nurse Station outside the sterile field.

The Loudspeaker shall have the following technical specifications:

<i>Input Signal</i>	Analog	
<i>Maximum short time sine wave</i>		≥ 100 dB SPL

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#### **F. 1-WAY VIDEO 2-WAY AUDIO STREAMER**

The Audio/Video Streamer shall provide independent streaming channels offering real time image and sound that can be accessed from any networked station provided with authorisation key.

Therefore, an Audio/Video Encoder shall be installed in the Communication Center. The Encoder shall be capable of accepting S-video and Audio signals and shall streams these signals over the hospital's LAN in MPEG4 compressed Data. Furthermore, the encoder shall be capable of 2-way audio communication between the OR and the remote location.

A dedicated high speed ( 100 Mbps or above ) multicast LAN should be available in the hospital for purpose of streaming

Furthermore, the Streamer shall be provided with an intuitive user interface that offers the user the capability to watch, from any networked station, the desired Video Source (i.e. HD Endoscopic Camera, Room Camera, etc...) from the selected OR. In addition, the user should be able to control the Room Camera's position, zoom, and tilt.

#### **G. AUDITORIUM**

The System should enable bi-directional Video Conferencing between the OR & the Conference room, The controls of all these bi-directional Audio – Video should also be enabled from the Central Touch Control Panel in the OR

#### **OPTIONALLY**

Tele-Conference facility for transmitting outside the hospital using ISDN/ INTERNET should also be provided and the same should be also controllable from the Central Touch Control Panel in the OR

**ALL THE ITEMS IN INTEGRATION SCOPE LIKE PATCH PANELS, TRANSMITTERS, RECIEVERS, ETC SHOULD BE FROM THE INTEGRATION COMPANY AND SHOULD BE MENTIONED IN THEIR CATALOGUE.**

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**Item No. 13**

**Technical Specifications**

**FLASH AUTOCLAVE**

1. Should be a table top autoclave.
2. Two automatic programmes approx. at 2.2 bar at 134 degrees C and 1.1 bar at 121 degree C. The equipment should have automatic pressure control switch / automatic water control device to ensure that the equipment does not run dry.
3. Should have flash cycle for rapid sterilization and should have an option for liquid cycle.
4. Should have Air Pump for closed door drying.
5. Should have rapid warm up facility. Built in reservoir to store water required to produce steam, and used water separately, for easy decantation.
6. The system should be equipped with required safety features. The door should have double locking safety feature and should open only with atmospheric pressure in the chamber.
7. Should have automatic cut-off to prevent overheating and cut-off for insufficient water, the machine should not start without sufficient water.
8. Should have a minimum chamber capacity of 19 litres or above.
9. Should have pressure display and temperature display.
10. Unit should function with 200-240Vac, 50/60 Hz input power supply.
11. The system should comply with National quality certification or International standards for sterilization safety.
12. Following accessories should be supplied along with the equipment.
  - 1 set of 3 removable shelves – stainless steel.
  - 1 instrument basket – stainless steel.
  - 1 set of 2 Drum for sterilization – stainless steel.
  - 1 Roll of sterilization indicator.
  - 1 box paper sheet 100 nos crepe for sterilization packs.
  - 2 spare silicone gaskets.
  - 1 sets of spare fuses.
13. Equipment should be provided with a line cord (power cord) of acceptable durability, quality, length and current carrying capacity and should be compatible with Indian standard power socket.
14. Controls should be visible and clearly defined.
15. Labels and markings should be clear and visible.
16. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL. Copy of the certificate / test report shall be produced along with the technical bid.
17. Should have air filters.
18. Gaskets should be replaced at free of cost whenever required in the comprehensive Warranty and CMC period.

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Item No. 14

IV FLUID /BLOOD (TRANSFUSION) WARMER SYSTEM:

- Excellent performance at low to moderate flow rates. Delivers normothermic fluids at flow rates from 15 ml/ min to 250 ml/ min
- Wide temperature range, with warming set points from 28 degree C to 42 degree C. Set points determine temperature of fluids at patient entry point.
- Lightweight for easy transport (only 8 lbs)
- Convenient design attaches to standard IV pole and connects to standard electrical outlet.
- Easy maintenance and self - calibrating
- Dry heat technology
- Easy to use: disposable heat exchangers insert placing a tape into a cassette
- Easy to clean: two -button access allow for effortless heater plate cleaning
- Should be European CE/USFDA approved
- Cost of consumables should be quoted seperately

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**Item No. 15****TECHNICAL SPECIFICATION OF VIDEO ASSISTED THORACOSCOPY SET**

<b>SL.NO.</b>	<b>Description</b>	<b>Qty</b>
1	Telescope 45°, enlarged view, diameter 5 mm, length 29 cm, autoclavable, fiber optic light transmission, incorporated, color code: black	1
2	Trocar, with blunt tip, size 6 mm, length 6 cm, consisting of: Cannula, Trocar, only	1
3	Trocar, with blunt tip, flexible cannula, autoclavable, size 11 mm, working length 8.5 cm, color code: green consisting of: Cannula, Trocar only	3
4	Trocar, with blunt tip, flexible cannula, autoclavable, size 6 mm, working length 8.5 cm, color code: black, consisting of: Cannula, Trocar only	2
5	Parenchymal Forceps, dismantling, atraumatic, straight jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, with geometry, axial, with 4 locking positions, Outer Tube with Forceps Insert	1
6	Parenchymal Forceps, dismantling, atraumatic, double curved jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, with geometry, axial, with 4 locking positions, Outer Tube with Forceps Insert	1
7	Lung Forceps, dismantling, atraumatic, grasping at distal end, single curved jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, with geometry, axial, with 4 locking positions, Outer Tube with Forceps Insert	1
8	Lung Forceps, dismantling, atraumatic, curved jaws, fenestrated, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Handle, with hemostat style ratchet, axial, with 4 locking positions, Outer Tube with Forceps Insert	1
9	Lung Nodule Forceps, dismantling, atraumatic, fenestrated, curved jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Handle, with hemostat style ratchet, axial, with 4 locking positions Outer Tube with Forceps Insert	1
10	Parenchymal Forceps, dismantling, parenchymal forceps, atraumatic, single curved jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Handle, with 4 locking positions, Outer Tube with Forceps Insert for special use with linear stapler	1
11	Dissecting Forceps, dismantling, with connector pin for unipolar coagulation, curved jaws, double action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle,	1

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<u>SL.NO.</u>	<u>Description</u>	<u>Qty</u>
	insulated, axial, with 4 locking positions, Outer Sheath with Forceps Insert	
12	Scissors, dismantling, with connector pin for unipolar coagulation, curved scissor blades, double action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, insulated, axial, with 4 locking positions, Outer Sheath with Scissors Insert	1
13	Scissors, dismantling, with connector pin for unipolar coagulation, distally angled outer sheath, straight scissor blades, serrated, single action jaws, scissor blade opens vertical to angulation, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, insulated, axial, with 4 locking positions, Outer Sheath with Scissors Insert	1
14	Biopsy Forceps, dismantling, insulated, with connector pin for unipolar coagulation, distally angled outer sheath, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, insulated, axial, with 4 locking positions, Outer Sheath with Forceps Insert	1
15	Grasping Forceps, dismantling, atraumatic, straight jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Handle, with hemostat style ratchet, axial, with 4 locking positions, Outer Tube with Forceps Insert	1
16	Suction-Coagulation Cannula, with connector pin for unipolar coagulation, distally angled sheath, size 5 mm, length 28 cm, for use with handle3	1
17	Suction-Coagulation Cannula, with connector pin for bipolar coagulation, distally angled sheath, size 5 mm, length 28 cm, for use with handle	1
18	Handle with Trumpet Valve, for suction or irrigation, autoclavable, for use with coagulation suction tubes size 5 mm	1
19	Suction and Irrigation Tube, with lateral holes, distally angled sheath, size 5 mm, length 28 cm or use with Handles 30805, 37112 A and 37113 A	1
20	Suction and Irrigation Cannula, with lateral holes, distally angled sheath, size 10 mm, length 28 cm for use with handles	1
21	Two-way Stopcock, suitable for both irrigation and suction, for use with 5 mm Coagulation- and Dissection Electrodes with channel and Suction and Irrigation tubes, autoclavable	2

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<u>SL.NO.</u>	<u>Description</u>	<u>Qty</u>
22	Coagulating and Dissecting Electrode, L-shaped, with connector pin for unipolar coagulation, distally angled sheath, size 5 mm, length 28 cm	1
23	Palpation Probe and Knot Tier, distally angled sheath, size 5 mm, length 28 cm	1
24	Dismantling needle holder, ergonomic pistol grip with disengageable ratchet, ratchet release on the left side, straight jaws, with tungsten carbide insert $\varnothing$ 5 mm, length 33 cm consisting of: insert, outer tube, Handle	1

All the items should be from the same company and should be USFDA and European CE approved

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**Item No. 16**

**Anaesthesia Workstation for Operation Theatre**

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Sl. No.	
1.	The machine should have separate indexed (pin-indexed / DISS / NIST) provision for connecting central pipeline gas supply of oxygen, nitrous oxide and air. It should have mounting capability for two oxygen and two nitrous oxide pin-indexed gas cylinders.
2.	Topshelf with weight limit $\geq 100$ lb / 45 Kg. Folding side shelf with weight limit $> 20$ Kg. / 50 lb.
3.	Each Anaesthesia workstation <b>MUST</b> be capable of accommodating Desflurane vaporizer (i.e. heating unit must be included).
4.	High pressure tubing, nitrous oxide and air for central supply connection with pipeline connectors should be supplied with machine.
5.	There should be pressure-indicating gauges for each gas for both cylinder as well as pipeline supply in accordance to ISO requirement.
6.	Alarm should be initiated in the event of O <sub>2</sub> failure. Air should provide automatic back up to drive the ventilator in such an event and air should be driven to the Common Gas Outlet (CGO).
<b>Gas Flow Management :</b>	
7.	<ul style="list-style-type: none"> <li>a. Mechanical colour coded flow-meters precisely calibrated 5 tube flow meters for oxygen and nitrous oxide and Air.</li> <li>b. Mechanical hypoxic guard to ensure minimum concentration of 25% oxygen, across all oxygen-nitrous oxide mixtures and oxygen failure alarms along with nitrous-oxide cut-off conforming to ISO requirements.</li> <li>c. Emergency oxygen flush that can deliver flows between 35-50 litres per minute. It should be protected from accidental activation as per ISO requirements</li> </ul>
8.	<p><b>Vaporizers : MAINTENANCE FREE with Delivery Range 0 - 6 %</b></p> <ul style="list-style-type: none"> <li>a. Vaporizers shall mount to Selectatec manifold for two vaporizers which allows easy exchange between agents. There must be an extra vaporizing storage provision on the machine itself for a third vaporizer.</li> <li>b. With each work station temperature, pressure and flow compensated anesthetic agent specific vaporizers for Halothane, Sevoflurane and Isoflurane should be provided. Each machine must be capable of accommodating a Desflurane vaporizer. A total of 4 Desflurane vaporizers shall be provided in addition to the above.</li> </ul>
9.	<p><b>Breathing System :</b></p> <ul style="list-style-type: none"> <li>a. Closed circle system with carbondioxide absorbent double canisters 2 Kgs. Should be part of machine. Machine with bi-stable bag vent switch. There should be</li> </ul>

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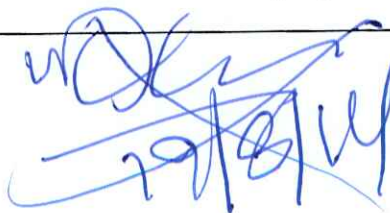


	common gas outlet for using other type of breathing systems with this machine.
	Anesthesia machine should be mounted on four large antistatic castor wheels with foot brake / locking facility for at least front two wheels.
	There should be work surface and at least two drawers - both lockable.
2.	<b>Specifications for Anaesthesia Ventilators : 220 - 240 volts</b>
	The anaesthesia machine should have integrated Anaesthesia Ventilator System that should have at least CMV, PCV, SIMV+PSV and Pressure Support mode with adjustable breath rate, tidal volume and I:E ratio and apnea backup. The ventilator display should be multicoloured, Touch Screen, Low circuit volume, with tidal volume compensation (for compression losses within absorber and bellows assembly).
3.	Ventilator bellows should be integrally mounted to the breathing system and ascending type. Bellows assembly should be autoclaveable.
4.	Anaesthesia ventilator should have following adjustable parameters : a. Tidal volume range of 20 ml to 1500 ml. b. Respiratory rate range 3 to 99 breaths per minute. c. I:E ration range 2:1 to 1:5 d. Inspired airway pressure range is 10 to 50 cm of water. e. Patient Mode : Adult, Pediatric and Neonate. f. PEEP adjustable 0-20--- g. High peak inspiratory flow 120 - 150 LPM. h. Capable of minimum flow techniques. i. It should have a Bain Circuit / Module.
5.	Anaesthesia ventilator should have audio visual alarms (with temporary muting facility) for power failure, breathing system disconnection, and high inspiratory airway pressure.
6.	Ventilator monitoring FiO <sub>2</sub> oxygen %, inspired and expired volume, PAW, Pressure Waveform, Flow Waveform and spirometry loop, Mean Pressure, MV, Fresh Gas Flow i.e. full spirometry features including compliance and airway resistance, with simultaneous display of reference and real time loops. O <sub>2</sub> Sensor - paramagnetic type.
7.	<b>Alarms :</b> Apnea, Setting Error, Low Supply, No Charge, Inspiratory Flow Transducer Error, Comm Fail, Fresh Gas Too High, Peep Error, Power Supply Failure, Vent Inoperative, Under Pressure.
8.	Ventilator should be used in adult, pediatric and neonate mode.
9.	Ventilator should have fresh gas compensation and compliance compensation.

  
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10.	Anaesthesia workstation should be FDA approved. CE certified, all the documents should be attached with the tender.
1.	<b>Technical Specification for Modular Monitor (220-240 Volts)</b>
2.	The Modular Monitor should measure 12 lead ECG, EEG Resp., Temperature (Two Ports) SPO2, NIBP, Dual IBP, CO, ETCO2 (with mainstream type) Neuro-Muscular (NMT) and mixed various oximetry module. <b>ECG Module :</b> There must be ST segment analysis with J-points selection. It should have arrhythmia detection including all life - threatening arrhythmias such as VTACH, ASYST, VFIB as Standard feature. <b>NMT Module :</b> The NM Monitoring Module (NMT) should display, TOF count, TOF %, ST, DBS, Tetanic & trend for continuous usage. All relevant accessories must be supplied for maximal utilization of NMT Module.
3.	It should have bright, high visible Touch Screen with minimum 19" color TFT display for easy viewing.
4.	The monitor display at least 8 waveforms traces on the screen.
5.	The monitor should have slots for module for flexible configuration.
6.	The monitor should have changeable screen configuration for various monitoring setting.
7.	Should be provided AGM (Anesthesia Gas Monitor) which can also monitor MAC values.
8.	There should be provision for BIS/AEP/Entropy and EEG monitoring. <b>EEG Modules :</b> Three (3) nos. minimum 4 channel with display of spectra (along with reference electrode). Should display SEF, BSR, Median Frequency total power and $\beta$ , $\chi$ , $\theta$ , $\delta$ , powers. Reversible leads and electrodes.
9.	There should be provision for using wireless LAN Card & Memory Card.
10.	There should be external ports for Slave Display, Emergency Nurse Call & USB Ports.
11.	There should be alarm limit setting for every parameter.
12.	It should have priority color coded audio - visual alarm system with bright prompt message on the screen. There should be a separate color coded audio-visual alarm when patient data deviates from normal limits and machine failure, improper function.

  
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13.	There should be complete ST segment & Arrhythmia analysis.
14.	There should be provision for various calculations like Drug dose, Oxygenation, Ventilation, renal and Hemodynamics.
15.	It should come with exchangeable batteries with minimum 3 hours battery backup in the event of power failure.
16.	There should be provision of system interfaces to integrate data and alarms from standalone devices at the bedside.
17.	It should provides Data option for seamless transfer of patient data between monitors ensuring that information always stays with the patient.
18.	Monitor should be FDA approved / CE certified, all the documents should be attached with the tender.
19.	It should be HL7 compliant.
20.	It must be capable of being interfaced with any open architecture Hospital Information Management System. It will be the responsibility of the vendor to integrate / interface this anaesthesia workstation (inclusive of monitor) to the HMIS that the Institute acquires (inclusive of costs). Its monitors should be able to access vital information e.g., lab results, radiology etc. via HIS to the patient monitor. In case the HMIS is not open architecture and licensing issues are involved, these charges only will be applicable.
21.	Anesthesia Gas Scavenging System capable of High vacuum with variable flow with indicators. The complete installation will be the responsibility of the supplier.
22.	Must be fully upgradeable to all newer versions of the workstation / monitor over the next five years. Certificate should be attached. If it is not possible, the company will have to replace all the systems with newer within the cost of warranty.

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## Item No. 18

### Neonatal Ventilator Technical Specification

#### APPLICATION:

High end Ventilator system which incorporated with microprocessor system that provides various modes of ventilation to support **Neonate and Paediatric and Adults** in intensive care unit. Should be capable of ventilating ELBW new born less than 500 grams.

#### FEATURES:

1. Ventilator should have more than 12 inch TFT/LCD
2. Ventilator shall have color touch screen **with 3 simultaneous real time waveforms**
3. Expiratory channel shall include integral **heated viral/bacterial filter** for all exhaled gases in order to prevent contamination of ICU air.
4. Waveforms and loops shall be color coded to denote inspiratory and expiratory breath phases.
5. Ventilator shall have integrated nebulizer port which is timed, delivers set FiO<sub>2</sub>, is volume compensated, and synchronized to inspiratory phase.
6. Bias flow shall be user adjustable in all patient populations
7. Ventilator shall have the ability to “bookmark” events such as “Arterial Blood Gas” “Chest X-Ray” “Intubation” etc. into trends
8. Ventilator only require single button to press for automatic measurement of high and low Pflex point
9. The ventilator comes with STANDBY mode which allows the user to suspend the ventilator cycle
10. The Tidal volume should be minimum 2 mL for neonatal mode.
11. The ventilator have three waveforms and two loops:
  - Pressure – Time Waveform
  - Volume – Time Waveform
  - Flow – Time Waveform
  - Pressure – Volume Loop
  - Flow – Volume Loop
12. The ventilator able to store up to four loops for reference.

  
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13. The ventilator **only required 90 seconds** for ventilator self test for circuit compliance, circuit resistant and oxygen sensor calibration.
14. Ventilator should have imported standalone (same make) or In-built Medical Air Compressor, it should automatically start in case of air loss from pipeline.
15. **The Unit (Ventilator and its compressor) should be US FDA “and” CE**
16. Ventilator should have internal battery standard, capable of powering ventilator and Compressor for minimum 30 minutes OR UPS powering the Unit (Ventilator and its compressor) for minimum 30 minutes.

## MODES

### 1. Modes of Ventilation:

- Assist Control with Pressure Control or Volume Control
  - SIMV with Pressure Control or Volume Control and Pressure Support
  - Nasal Continuous Positive Airway Pressure (nCPAP) with/without Pressure Support
  - Pressure Regulator Volume Control (PRVC)
  - Airway Pressure Release Ventilation (APRV) / BiPhasis / BiLevel
  - Time Cycle Pressure Limited (TCPL) Ventilation for Neonate
  - Artificial Airway Compensation (AAC) / Tube Compensation with Pressure Support in all the modes of ventilation
  - Non invasive ventilation for all the modes of ventilation.
2. In Pressure Control mode, users are allows to adjust the minimum tidal volume and have volume limit to avoid barotrauma or volume trauma
  3. Apnea modes for ventilation shall include Pressure Controlled and Volume Controlled modes with user settable parameters
  4. Volume Controlled mode shall have option to disable demand flow and shall offer option of square or decelerating flow waveform
  5. Artificial Airway Compensation (AAC) should able to adjust the diameter and length of the endotracheal tube to provide accuracy of setting.
  6. Ventilator shall have Synchronized Independent Lung Ventilation capability

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### MONITORED VALUES

1. Monitored values include "Percent Leak" in all patient ranges
2. Monitored values to include Tidal and Minute Volumes divided by patient's weight (ml/kg)
3. Monitor screen shall be able to be projected "live" via LCD projector (teaching purposes)
4. Patient triggered breaths shall be identified by a distinct color change on waveforms and loops
5. Monitor display shall rotate at least 90 degrees

### ALARMS

1. Alarms shall be color coded to distinguish High, Medium, and Low priority alarms
2. Alarms shall have distinctive audible tones to differentiate High, Medium, and Low priority alarms
3. **Apnea alarm time** delay shall be user adjustable, **6-60 seconds**
4. Alarms shall include "Volume Limit" function in pressure targeted modes that ends inspiration when set maximum Tidal Volume is reached
5. Alarm settings shall be bracketed on primary controls to indicate alarm position to current setting

### MANEUVERS/TRENDS

1. Ventilator shall trend and display all monitored parameters for minimum 24 hours
2. Ventilator shall return to normal ventilation at end of maneuver without any changes required to primary controls
3. Inflection point maneuver shall calculate upper and lower inflection points and display on Pressure/Volume loop
4. Ventilator shall store up to 4 inflection point Pressure/Volume loops for reference
5. Stored inflection point loops shall be able to be superimposed on current loop for comparison

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## Setup

Automatic Tube Compensation:	Facility
Leak Compensation:	Facility
Circuit Compliance:	Facility
Humidifier Compensation:	Active, Passive

## Primary Settings

Rate:	1 to 150 bpm (neonatal),
Tidal Volume:	2.0 mL to 2.4 L
Inspiratory Pressure:	0 to 80 cmH <sub>2</sub> O Neo,
Peak Flow:	0.5 to 150 L/min
Inspiratory Time:	0.15 to 5.0 sec
Pressure Support Ventilation (PSV):	0 to 80 cmH <sub>2</sub> O
PEEP:	0 to 50 cmH <sub>2</sub> O
Flow Trigger:	0.1 to 20 L/min
%O <sub>2</sub> :	21 to 100%

## Manual Controls

Manual Breath:	Facility for One Breath
Expiratory Hold:	Maximum 20 sec (3 sec for neonatal)
Inspiratory Hold:	Maximum 3 sec
Disconnect for Suction:	Active

## Standard Accessories

1. Arm, Patient Ckt Support x 1 unit
2. Support Arm Rail clamp x 1 unit
3. Tube Hanger x 1 unit
4. Water Trap Assy x 1 unit
5. Water collection Jar x 1 unit
6. Exhalation Filter, Re-Usable x 1 unit
7. Proximal Flow Sensor, for Neonates x 1 unit
8. Exhalation Filter Cartridge x 1 unit
9. Patient Breathing Circuit Kit x 2 units

All consumable prices should be quoted separately

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Item No. 20

Equipment Specifications for Transport Incubator for Neonates

*1 Description of Function*

*1.1 Required for transportation of premature babies and neonates and it can be used for long distance transportation.*

*2 Operational Requirements*

*2.1 It should be mobile intensive care station including transport ventilator, monitors, incubator, rechargeable power supply unit and infusion stand*

*3 Technical Specifications*

*3.1 It should be mounted on collapsible trolley having lockable rust free castors of the size 4 inches or more and with facility to mount two A type Aluminum oxygen cylinders on rack under the Incubator .*

*3.2 Single walled incubator with at least two large port holes for access. Iris ports for ventilator & other tubings. Bed level at least 80 cms above ground level. Two shelves cabinet with door. 3-3 Width: app 80 cm+ 5 cms. , Depth 30 cm + 5 cm, height 115 + 5 cms, Mattress to hood distance at least 30 cms.*

*3.2 Air Mode: adjustable set temperatures between 20 – 39 C. Display of set temperatures with resolution of 0.1 C.*

*Skin mode adjustable set temperatures between 34 – 38 C. Display of set temperatures with resolution of 0.1 C.*

*3.3 Alarms of High , Low and Probe failure for the set air mode up to +2.5 C and skin mode of + 0.5 C of temperatures*

*3.4 Oxygen monitor in incubator hood with display of 21 – 100% Oxygen alarms for high, low and probe failure.*

*3.5 Heart and Oxygen saturation monitor: Fixed, built monitors, dual wavelength probe for Oxygen saturation with Digital LED display for Heart rate and Oxygen saturation. Alarms for high and low for Heart Rate, Oxygen saturation and probe failure*

*3.6 The system should have an internal rechargeable maintenance free battery to ensure continued functioning of the unit for at least 4 hours during transport. It should have automatic switch circuit for change over from battery to AC and vice versa.*

*3.7 One suction apparatus with negative suction pressure of 5- 120 mm Hg should be provided. IV fluid stand should support two infusion bottles*

*3.8 One Syringe infusion pump with stand compatible with 10, 20, and 50 ml syringes compatible with locally available brand of syringes.*

*Range of infusion rate 1 – 99 ml / hr.in steps of 0.1ml. Display infusion rates, Alarms for occlusions, end of infusion with internal rechargeable battery should be provided along with the quoted price*

*3.9 Height less than 60", depth less than 30", width 33"-36". Weight 90-100 kg. With wheel mounted.*

*(All dimensions in approximation of +/-10%)*

*4 System Configuration Accessories, spares and consumables*

*4.1 System as specified. The incubator should be supplied with non-disposable 4 patient circuits for neonates, 10 saturation monitoring probes (2 non-disposable and 8 disposable), 5 non-disposable skin probes for temperature monitoring,*

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*5 Environmental factors*

- 5.1 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.*
- 5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%*
- 5.3 The unit shall be capable of operating continuously in ambient temperature of 10 -40 deg C and relative humidity of 15-90%*

*6 Power Supply*

- 6.1 Power input to be 220-240VAC, 50Hz*
- 6.2 Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications. (Input 160-260 V and output 220-240 V and 50 Hz)*

*7 Standards, Safety and Training*

- 7.1 Should be FDA, European CE approved product*
- 7.2 Manufactures/Supplier should have ISO certificate to Quality Standard.*
- 7.3 Comprehensive warranty for 5 years and thereafter 5 years CMC.*
- 7.4 Electrical safety conforms to standards for electrical safety IEC-60601 / IS- 13450*

*8 Documentation*

- 8.1 User/Technical/Maintenance manuals to be supplied in English.*
- 8.2 Certificate of calibration and inspection. 8.3 List of Equipments available for providing calibration and routine Preventive Maintenance Support. As per manufacturer documentation in service/technical manual.*
- 8.4 List of important spare parts and accessories with their part number and costing.*
- 8.5 Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist.*

*The job description of the hospital technician and company service engineer should be clearly spelt out*

*Note:*

- The above Equipments are to be supplied with Suitable Compatible Cabinet /Furniture /Steel /Modular make for safe custody of the Equipment*
- Should confirm to all international safety standards*

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## Item No. 21

### Technical Specifications for Infant Radiant Warmer :

#### 1 Description of Function :

- 1.1 A radiant warmer is used to keep the patient's core temperature stable at 37C.

#### 2 Operational Requirements :

- 2.1 It should be microprocessor controlled radiant warmer with manual and servo options.

#### 3 Technical Specifications :

- 3.1 It should have facility to display both skin and air (ambient) temperature separately.
- 3.2 It should have audiovisual alarm facility for overheating beyond set temperature range.
- 3.3 It should have alarm facility for patient temperature less than or greater than the required temperature i.e. above or below the set range.
- 3.4 It should rotate and swivel in different direction, so as to allow taking X-ray.
- 3.5 The light should be dazzle free.
- 3.6 It should have alarm for power failure.
- 3.7 It should have alarm for heater failure.
- 3.8 It should have alarm for probe failure.
- 3.9 It should have time out alarm in manual mode.
- 3.10 It should have inbuilt or provided along rechargeable battery to run equipment in case of power failure for at least ½ hour.
- 3.11 It should have manual setting for high and low alarm setting.
- 3.12 In servo mode, the heater output should be controlled to maintain the baby at the required set temperature.
- 3.13 In manual mode, the heater output should be directly controlled by a setting on the front panel.
- 3.14 The desired temperature range from 25 to 40 degree C.
- 3.15 The resolution should be 0.1 degree C.
- 3.16 The height of the warmer should be adjustable for different types of bed.
- 3.17 Halogen based observation light should be provided for observing the baby.
- 3.18 It should be mounted on a pole with sturdy base with lockable castors.

#### 5 Environmental Factors :

- 5.1 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.
- 5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 – 50 deg C and relative humidity of 15 – 90 %.

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

**6 Power Supply :**

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

6.2 Suitable Autovoltage corrector with spike protector should be available.

**7 Standards Safety and Training :**

7.1 Should be FDA, CE, UL or BIS approved product.

7.2 Manufacturer should be ISO certified for quality standards.

7.3 Certified to be compliant with IEC 60601-2-21, Medical Electrical Equipments part-2-21 particular requirements for Electrical Safety of Infant Radiant Warmers.

7.4 Comprehensive warranty for 5 years and 5 years CMC after warranty.

7.5 Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service / maintenance manual.

**8 Documentation :**

8.1 User / Technical / Maintenance manuals to be supplied in English.

8.2 Certificate of Calibration and inspection from the factory.

8.3 List of important spare parts and accessories with their part number and costing.

8.4 Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist.  
The job description of the hospital technician and company service engineer should be clearly spelt out.

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**Item No. 22**

**Technical Specifications of Neonatal Open Care System with Radiant Warmer :**

**Description :** Quartz heater based radiant warmer with integral bed used for clinical management of neonatal hypothermia.

The equipment can be operated in servo or manual modes.

Facility for halogen based phototherapy units are provided to use the equipment in the labor ward, NICU or general nursery.

The equipment electronic control panel should have key lock facility, Celsius to Fahrenheit change over facility and battery back up to 20 minutes or more better backup of 45 mins to one hour.

Working Temperature	: 26.4° C to 40° C.
Accuracy	: ± 0.2° C.
Resolution	: 0.1° C.
Accuracy of Probe Interchangeability	: ± 0.2° C.
Need for Probe Calibration	: Not required.
Temperature Probe	: Thermistor based interchangeable probe. Wire should be easy to clean, long lasting, teflon coated with silicon rubber sleeve.
Set Temperature Range	: 32° C to 38° C.
Voltage	: 180 to 250 V at 50 Hz.
Power	: Less than 1 K. W.
Heating Element	: Quartz encapsulated heater with parabolic reflector.
Temperature Display	: Bright numerical LED display at 1" for viewing from distance.
Alarms	: High temperature (more than 0.5° C difference). Low temperature (more than 0.5° C difference). Temperature probe failure. Power failure. System failure. Heater failure. Time out alarm (manual mode).
Maximum Mattress Tilt	: +8° (continuously variable) both side.
Maximum Mattress Swivel on both sides of vertical column	: +45° C.
Diameter of Castors	: 4" (front 2 wheels lockable). Imported castors with antistatic wheel.
Observation Lamp	: Halogen based lamp focusable any where on the bed.
Bed	: Oval-suitable for preterm and LFD babies.
Phototherapy / Halotherapy	: Should be placed on the both sides of overhead heaters bulbs on each side angled for effective treatment.

Certification

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**Phototherapy / Halotherapy (Optional) :**

Supply to Each Unit Irridance : 12 V 12 A 50 Hz; 6 – 8 w / cm<sup>2</sup> / nm at bed level.

**Recommended Environmental Specifications :**

Operating Temperature Range : 20° C to 33° C.

Storage Temperature Range : -25° C to 60° C.

Operating Humidity Range : 0 to 100 % RH.

Coating : Epoxy / Powder coated body for scratch and rust prevention.

1. Confirms to IEC-601 safety standard for medical equipment.
2. Microcontroller based electronic system that performs periodical self-diagnosis.
3. Built in automatic diagnostic software to check the internal working of the equipment periodically.
4. Service free equipment construction with epoxy coated metallic surfaces for easiness to clean.
5. The unit is mobile with 4 swivel castors fixed to the base. Optional anti-static castors for improved electrical safety.
6. Easy to use membrane keypad for improved efficiency.
7. Inbuilt basinet.
8. Oval shaped bed.
9. With 2 swivel drawn in the bottom.
10. Body made with FTP (fibre reinforced plastic) with epoxy powder coated.
11. Firm should have ISO 9001 : 2000 certification. + USFDA & CE
12. Facility of stand – for I. V. fluids.

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**Item No. 22**

**Technical Specifications of Neonatal Open Care System with Radiant Warmer :**

**Description :** Quartz heater based radiant warmer with integral bed used for clinical management of neonatal hypothermia.

The equipment can be operated in servo or manual modes.

Facility for halogen based phototherapy units are provided to use the equipment in the labor ward, NICU or general nursery.

The equipment electronic control panel should have key lock facility, Celsius to Fahrenheit change over facility and battery back up to 20 minutes or more better backup of 45 mins to one hour.

Working Temperature	: 26.4° C to 40° C.
Accuracy	: ± 0.2° C.
Resolution	: 0.1° C.
Accuracy of Probe Interchangeability	: ± 0.2° C.
Need for Probe Calibration	: Not required.
Temperature Probe	: Thermistor based interchangeable probe. Wire should be easy to clean, long lasting, teflon coated with silicon rubber sleeve.
Set Temperature Range	: 32° C to 38° C.
Voltage	: 180 to 250 V at 50 Hz.
Power	: Less than 1 K. W.
Heating Element	: Quartz encapsulated heater with parabolic reflector.
Temperature Display	: Bright numerical LED display at 1" for viewing from distance.
Alarms	: High temperature (more than 0.5° C difference). Low temperature (more than 0.5° C difference). Temperature probe failure. Power failure. System failure. Heater failure. Time out alarm (manual mode).
Maximum Mattress Tilt	: +8° (continuously variable) both side.
Maximum Mattress Swivel on both sides of vertical column	: +45° C.
Diameter of Castors	: 4" (front 2 wheels lockable). Imported castors with antistatic wheel.
Observation Lamp	: Halogen based lamp focusable any where on the bed.
Bed	: Oval-suitable for preterm and LFD babies.
Phototherapy / Halotherapy	: Should be placed on the both sides of overhead heaters bulbs on each side angled for effective treatment.

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**Phototherapy / Halotherapy (Optional) :**

Supply to Each Unit Irridiance : 12 V 12 A 50 Hz; 6 – 8 w / cm<sup>2</sup> / nm at bed level.

**Recommended Environmental Specifications :**

Operating Temperature Range : 20° C to 33° C.

Storage Temperature Range : -25° C to 60° C.

Operating Humidity Range : 0 to 100 % RH.

Coating : Epoxy / Powder coated body for scratch and rust prevention.

1. Confirms to IEC-601 safety standard for medical equipment.
2. Microcontroller based electronic system that performs periodical self-diagnosis.
3. Built in automatic diagnostic software to check the internal working of the equipment periodically.
4. Service free equipment construction with epoxy coated metallic surfaces for easiness to clean.
5. The unit is mobile with 4 swivel castors fixed to the base. Optional anti-static castors for improved electrical safety.
6. Easy to use membrane keypad for improved efficiency.
7. Inbuilt basinet.
8. Oval shaped bed.
9. With 2 swivel drawn in the bottom.
10. Body made with FTP (fibre reinforced plastic) with epoxy powder coated.
11. Firm should have ISO 9001 : 2000 certification. + USFDA + CE.
12. Facility of stand – for I. V. fluids.

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**Item No. 23**

**Pulse Oximeter**

**1 Description of Function**

SI	Name	Technical Specs quoted by bidder	Bidders Deviation if any
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- 1.1 A pulse oximeter is a medical device that indirectly measures the amount of oxygen in a patient's blood (as opposed to measuring oxygen saturation directly through a blood sample) and changes in blood volume in the skin, producing a photoplethysmograph

**2 Operational Requirements**

SI	Name	Technical Specs quoted by bidder	Bidders Deviation if any
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- 2.1 Suitable for all types of Patient range :Adult, pediatric, infant, and/or neonate

**3 Technical Specifications**

SI	Name	Technical Specs quoted by bidder	Bidders Deviation if any
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- 3.1 Display- LCD, Backlight illuminated
- 3.2 Parameters and waveform displayed- SpO2, pulse rate, system status, plethysmogram, menus for user settings
- 3.3 SPO2 range- 70-100 %
- 3.4 Accuracy of SPO2- 3%
- 3.5 Pulse rate range should be 30-240 bpm
- 3.6 Audiovisual Alarms- High/low SpO2 and pulse rate, sensor off, sensor failure, low battery

- 3.7 Alarm override facility
- 3.8 Cable length should be minimum 1 metre
- 3.9 RS 232C Interface for datacommunication.
- 3.10 Integrated Printer
- 3.11 Battery back-up operating time 5 hours.

#### 4 System Configuration Accessories, spares and consumables

SI	Name	Technical Specs quoted by bidder	Bidders Deviation if any
4.1	System as specified-		
4.2	SpO2:Adult SpO2 sensor with cable- two nos per monitor and Pediatric SpO2 sensors- one no. per monitor, Neonatal Sensor-01 per monitor		

#### 5 Environmental factors

SI	Name	Technical Specs quoted by bidder	Bidders Deviation if any
5.1	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.		
5.2	The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%		
5.3	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%		



## 6 Power Supply

SI	Name	Technical Specs quoted by bidder	Bidders Deviation if any
6.1	Should work on 220-240V AC as well as rechargeable batteries. Mains adaptor to be supplied		
6.2	Rechargeable battery operated system. Charger to be provided if integrated charger is not there		

## 7 Standards, Safety and Training

SI	Name	Technical Specs quoted by bidder	Bidders Deviation if any
7.1	Should be FDA , CE,UL or BIS approved product		
7.2	Manufacturer/Supplier should have ISO certification for quality standards.		
7.3	Comprehensive warranty for 5 years and 5 years CMC after warranty		
7.4	Electrical safety conforms to standards for electrical safety IEC-60601-1 General Requirements		

## 8 Documentation

SI	Name	Technical Specs quoted by bidder	Bidders Deviation if any
8.1	User/Technical/Maintenance manuals to be supplied in English.		
8.2	Certificate of calibration and inspection.		
8.3	List of important spare parts and accessories with their part number and costing		