List of equipments for the department of Urology

Sl. No.	Name of Equipments
1	Pulse Oxymeter
2	Infusion pump
3	Sryinge pump
4	ECG machine
5	Hand Dinsfectant dispenser system
6	Bowl sterilizer
7	Cylinderical Sterilizer
8	Forced Air patient warming system
9	X-ray view box
10	ICU Ventilator
11	Surgical Instruments set
12	Hot & Cold Sterilizer
13	Central Control Management system
14	Mini & Micro Nephroscope set
15	Head light
16	Neproscope
17	Suction Irrigation set for Urology
18	High End Extra corporeal shock wave Lithotripter (ESWL set)
19	Bipolar TURP set
20	Flexible Cysto-Nephro Fibroscope
21	Holmium YAG laser with Morcellator, Microscope
22	Flexible URS
23	Pneumatic Intracorporeal Lithotripter
24	URS set 8 Fr.
25	URS set 6 Fr.
26	Adult Cystoscope & Resectoscope, Cystolitholithotripsy and urethrotome
27	Integrated Bipolar and Ultrasonic Coagulation & cutting unit
28	Lap Urology set
29	Combined Ultrasound and Pneumatic Intracorporeal Lithotripter
30	Urodynamic System
31	Uroflowmeter
32	Paediatric Cystoscope, Resectoscope & Urethrotome set
33	C-Arm Image Itensifier (Multispeciality)
34	Colour Doppler system with Advanced 2D facility
35	Surgical equipment pendant
36	Anaesthesia work station
37	Scrub station
38	Flash Autoclave
39	ABG Machine
40	UROMAT

① Pulse Oximeter

1 Description of Function

Sl	Name	Technical Specs quoted by bidder	Bidders Deviation if any
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

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

3 Technical Specifications

Sl	Name	Technical Specs quoted by bidder	Bidders Deviation if any
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		

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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

Sl	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

Sl	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

Sl	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

Sl	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

Sl	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		

All instruments must be CE/ FDA certified whereever applicable

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② Infusion Pump

Configuration, performance and technical characteristics
STRUCTURE:
Weight: approximately 2.5 kg
MECHANNISM
PERISTALTIC SEMI-TRANSIT FINGER SYSTEM
CONSUMABLE
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
GENERAL FEATURES
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. Increment0.01ml/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

Configuration, performance and technical characteristics
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: Maual bolus : 0.10-2000ml/h Automatic bolus : 0.10-2000ml/h
Preset bolus volume: Automatic : 0.10-2000ml/h
Self-test system;
Have anti-bolus system
Titriation 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 remider function: remember last infusion configuration when power off
Delivery Accuracy: ±3%
Mechanical Accuracy: ±1%
Data transmission is available with multi-function interface
7 languages selectable: English, Spanish, French, Russian, Turkish, Chinese
ALARMS
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(±75mmHg)
Occlusion pressure unit: 4 units selectable(mmHg, kPa, psi, bar), automaticly calculate and display the conversion in 4

Configuration, performance and technical characteristics
units
Air Bubble alarm level: 1-6 levels adjustable; Minimum air bubble detection lowest to 20 ul; Acculmulated 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
DISPLAY
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.
POWER SUPPLY:
AC100-240V, 50/60HZ
DC Voltage:10V-15V
Battery
Battery type: Rechargeble Lithium battery
Battery operating time: more than 9 hours@25ml/h
Battery charging time: less than 6 hours for 100%
SAFTY SPECIFICATION
Type of shock protection : Class I, Type CF, defibrillation-proof
Water-Proof Grade : IP23
CERTIFICATION:
CE & ISO
WARRANTY:
60 months
RELATED SERVICES INCLUDE:

All instruments must be CE/ FDA certified whereever applicable

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(3) Syringe Infusion Pump Tender Specifications

Paramater	Desired Range / Eligibility
Flow Rate:	Should able operate in flow rate range of 0.01 mL/hr to 1200 mL/hr 0.01 - 10.00 mL/hr in 0.01 mL steps 10.00 - 100.00 mL.hr in 0.1 mL steps 100 - 1200 mL/hr in 1 mL steps Provision should be there to change the flow rate during the infusion with out compromising the patient safety Provision to increase the flow rate rapidly
Syringe Sizes:	Should have wide range of syringe sizes 5 mL to 50/60 mL Should accept any brand of Syringes
Volume Over Time:	Should calculate the flow rate automatically by entering the dose amount & time period for infusion OR Should calculate the Time required for infusion by entering the flow rate and dodage
Occlusion Pressure:	Wide range of occlusion pressure from 10 kPa to 120 kPa Should monitor the pressure changes online and indicate the changes on the screen Provision should be available to change the occlusion level during infusion with out compromising patient safety
Bolus Delivery:	Should infuse bolus volume with out stopping the infusion process Should have programmable bolus with infused volume displayed Provision for Hands Free bolus should be inbuilt & should be customizable Hands Free Bolus Dose Rate Range : 0.01 to 999 in units of mL Hands Free Bolus Time Setting Range: 1 sec. to 60 min
KVO:	Should have KVO facility
Power Supply:	Should work in A.C. Power supply in the range of 110 - 240 V Should have inbuilt battery that supports 12 hrs of back up operation
Alarms:	Should have the alaram functions like Syringe Barrel Detector, Syringe Size detection, Clutch Diengagement, Nearly Empty, Low Battery, Occlusion, Start Reminder, Re-Alarm, Delivery Limit Completion, Flow Rate / Volume judgement Alarm, No Flow Rate,
Changing Flow Rate:	A Dial unit should be inbuilt to change the flow rate

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Special Functions:	Clearing the Volume Delivered during infusion Should provide a provision for locking the keypad Fiow Rate Range Control should be inbuilt for both Lower flow rate limit & higher flow rate Limit Visual guidance for the syringe Loading mechanism should be inbuilt Stand by function should be available Display screen should be > 4 inches Brightness of the screen should be adjustable Buzzer Volumes should be adjustable Should able to detect & display the AC power connection status > 5000 events of History should be accessible from the machine Provision should be available for setting Date & Time
Safety Functions:	Buzzer Notifications while switching off the machine.Shock detection should be registered during the naked fall of machine > 1 mt height.Preventive Maintenance timer should be availble & should be customizable by user.Should prevent delivering excess volume after occlusion release.Should be Class I type & internally powered equipment & should prevent liquid ingress with IP24 certification.Biderectional Pole clamp for safer transportability
Unit Weight:	Should weigh less than 2.5 Kgs and should be Portable
Power Consupmtion:	should not exceed 25 VA
Standard Accessories:	Pole Clamp, Power Cable, Instruction Manual, Service Manual,

All instruments must be CE/ FDA certified whereever applicable

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(4) ECG Machine 12 Channel

Technical Specifications :~

1. Simultaneous 12 Channel ECG recording with 12 lead simultaneous acquisition
2. Should have visual alarm for open lead
3. Should have a digital display of 12 channel ECG
4. QWERTY Alphanumeric keyboard
5. Built-in ECG Parameters measurements and Interpretation
6. Minimum 100 ECG store in inbuilt memory
7. 3 Operating modes : Automatic, Manual and Arrhythmia
8. Should have a maintenance free digital thermal array printer
9. Printer should work with standard thermal paper (should be available in Local Market)
10. Printer should be able to print ECG report and should have on/off selection
11. Should be compact and portable
12. Should have ECG lead annotation facility
13. Minimum 2 hr battery back up
14. Should supplied with 2 patient cable sets, 8 clip on electrodes, 12 chest electrode with silicon rubber bulb, 12 packets of recording paper,1 bottle of jelly and 12 nos. reusable button type electrode.
15. Should operate on mains (220v-50Hz) and rechargeable battery (built in)
16. Recording speed should be 25 mm/ sec and 50 mm/ sec.
17. Input impedance should be greater than 12 M Ω
18. Should have defibrillation protection.
19. Skin voltage tolerance +/- 600mV
20. CMRR should be>90dB
21. Frequency response 0.3 Hz to 120 Hz.
22. Should have a digital filter for AC and EMG.
23. 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.

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High Power Suction Machine:

Housing: Powder coated Heavy MS Cabinet

Capacity: -730mm Hg at 60 LPM

Noise Level: < 50dBa

Pump Type: Oil free double piston

Jars: Polycarbonate 2x2.5 litres cap with mechanical overflow system & ABS lid

Filter: Reusable bacterial filter

Tubing: non collapsible Suction tubing

Vacuum Gauge: 2.0"

Power: 220/230V AC 50 Hz single phase

With two sets of extra jars with lids & 5 sets of Patient tubings

ISI , CE Certified

All instruments must be CE/ FDA certified whereever applicable

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(5) ***TECHNICAL SPECIFICATIONS OF HAND DISINFECTANT DISPENSER SYSTEM***

TOUCHLESS HAND DISINFECTANT DISPENSER SYSTEM.

AUTOMATIC SENSOR OPERATED.

DESIGNED FOR HIGH FREQUENCY USAGE.

DISPENSE ALCHOHOL 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 LIQIUD 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 DISPNSING UNIT, RECHARGEABLE 12V BATTERY,

All instruments must be CE/ FDA certified whereever applicable

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(6) Technical Specification of Bowl-Utensils Sterilizer

General Specification 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 trey 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.
Electrical Load-10KW
Electric Supply Requirement: 440 V, AC 3 Phrase
Size: 800mm X 760mm X 850 mm
Main Features: 1) Automatic Temperature Control and Automatic Elimination of excess Steam. 2) The machine is provided with the inlet, outlet and overflow arrangements
Certification
Company should have ISO 9001-2008, ISO 2003-13485 and CE certified.
Manufacturing Experience
Company should have manufacturing experience more than 10years.

All instruments must be CE/ FDA certified whereever applicable

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(7) Technical Specification of Cylindrical Sterilizer

Requirements:
GENERAL:
High pressure steam sterilizer cylindrical Type
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
Double Door System Should be available
Chamber dimensions, approximately: 500 mm X 1200 mm.
Capacity of sterilization chamber in liters: minimum 250 liters.
1. JACKET.
Jacket of the sterilizer contain safety valve (It blow when generated pressure reach required pressure) ,pressure gauge, vacuum breaker.
CHAMBER.
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 in one way.
DOOR. 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 confirming 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.
Provision of Microprocessor: 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, temperature and corresponding pressure which can be used various contents/materials to be sterilized; b. MMI **Backlit** with eight digit **password protection** – ensures control of the operator; c. Will generally have six different settings for the cycles; d. Provision for **digital display** of temperature, time, pressure, cycle time and elapsed time for ease of operation of the cycle e. Can be connected to a dot **matrix printer** which will give the entire process taken place including date, batch, program type selected etc., f. Provision of '**error code analysis**' inbuilt.

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g. **'Leak test'** cycle provided h. **Dick & Bowie** available. i. The unit would be manufactured as per IS specifications Mark IS:3829(Part-I) and also would bear the certification. j. The unit will be mounted on tubular stand of mild steel in a ready to use condition. k. The sterilizer will be fitted with all necessary **safety features**. l. **Feed Water Pump:** Water can be filled up automatically, whenever required with the help of Feed Water Pump. m. **HPHV** (HIGH PRESSURE HIGH VACCUM): HPHV is for sterilization at high temperature and better drying. n. The unit will be fitted **with an external high pressure high vacuum pump to give pre vacuum and post vacuum** pulses.
Certification
Company should have IS-3829 marked. Company should have ISO 9001-2008, ISO 2003-13485 and CE / FDAcertified.
Manufacturing Experience
More Than 10years.

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(8) **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 CE or any other International certification of quality

All instruments must be CE/ FDA certified whereever applicable

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(9) 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 510mm x 45mm depth approx

Preferable to have CE / FDA certification

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(10) # ICU Ventilators

1 General Requirements

The ventilator is intended to provide continuous or intermittent ventilator support for the care of individuals who require mechanical ventilation.
The ventilator can be used for adult, paediatric and neonate patients requiring tidal volumes starting at 2 ml to 2500 ml. should be capable of ventilating ELBW new born less than 500 grams, infants, pediatric and adult patients.
The ventilator should be suitable for institutional and transport use within a hospital.

- Ventilator should have US FDA certification
- Ventilator should have more than 12" inch inbuilt TFT color touch screen, with facility of swivel screen
- Ventilator should have capable to work on high pressure & low pressure Oxygen supply
- Ventilator should have inbuilt Main stream ETCO2 Monitoring facility.
- Ventilator compressor should have from the same manufacturer & USA FDA certified
- Ventilator should have Inbuilt compressor technology or external compressor mounted on ventilator trolley itself.
- Ventilator should have inbuilt synchronized nebulizer system
- Ventilator should have more than 1 hour's battery backup for full systems (Ventilator and Compressor)
- Ventilator should have reusable or disposable flow sensor- PROXIMAL FLOW SENSOR FOR NEONATES
- Ventilator should have steam/EtO sterilisable flow sensor from neonate to adult.
- Ventilator should have Tidal volume from 2ml to 2500ml
- Ventilator should have new generation lung protective ventilation –the facility of low inflation flow to find LIP (lower inflation point) & UIP (upper inflation point).

2 Required ventilation performance

2.1 Controls

Ventilation mode	Volume:- CMV, SIMV, Ventilation modes Pressure:- PCV , SIMV, SPONT, PRVC AC ,PRVC SIMV , APRV, Non invasive ventilation Mode, nCPAP, CPAP, VG in neomode, TCPL, TCPL SIMV
Special functions	Manual breath, inspiratory hold, nebulizer, 100% 02, stand-by, sigh, apnea backup, leak compensation, last setup, screen lock, EVENT MARKER FOR PROCEDURES LIKE X-RAY, ABG ETC.
Breath Rate	1 to 150 bpm in Neonatal & pediatric, 1-120 bpm in adult
Tidal volume	2-2500ml

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PEEP/CPAP	0-50 cmH2O
O2 %	21 - 100%
I:E ratio	1:3 - 4:1 (I:E, TE, and TI are always visible)
Inspiratory time	0.15 - 5 sec
Trigger (flow)	0.1 - 20 L/min
Trigger (pressure)	0.1 - 20 cmH2O
Peak flow	0.5 - 150 LPM
Pressure support ventilation	0 to 80 cmH2O
Sigh	On , OFF
Real-time curves	Volume, flow , pressure
Real-time loops	F-V, P-V

3 Monitoring Performance

Real-time curves
Real-time loops
All measured value in comprehensive table

Real-time curves	range
Volume (V)	0 to 2500 ml
Flow	-100 to 200 l/min
Airway Pressure (Paw)	-5 to 60 cmH2O
Measured Values	
Pressure	Ppeak, Pmean, PEEP/CPAP
Flow	Inspiration Flow, Expiration Flow
Volume	VTE, VTI Exp Min Volume, MV, Spont
	Leak %
Time	I:E 1:99 to 9.9:1
	Ti & Te
Compliance	Cstat
resistance	peak expiratory airway resistance
Rapid shallow breathing Index	optional

Vent Status panel	Oxygen - 21 to 100% PEEP 0 to 50cmH2O Minute Volume Peak Inspiratory pressure Mean airway pressure total breathing rate Plateau pressure Tidal Volume

4 Alarm features

Alarms are classified in three priority levels
All alarms appear in an audible and a visual way as well as in plain text on the screen
Adjustable alarm loudness
Alarm silence for 1 or 2 min
Advices on the screen provide detailed information about cause and remedy
Storage and display of alarm events with time

Alarms	Apnea time Expiratory minute volume (low) Expiratory minute volume (high) total breathing rate (high) oxygen (low) oxygen (high) Maximum pressure Tidal volume (low) Tidal volume (high)
Other Alarms	Disconnection Pressure limitation Flow sensor Gas supply Electrical supply Battery Low

Yes
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	Circuit obstructed user message technical alarm

4.1 Electrical and gas supply

Input voltage	24 V dc, 110 to 240 V 50/60 Hz
Backup battery time	1 hours for full system Ventilator and compressor internal battery or trolley mounted battery
Air Supply	Inbuilt compressor or external compressor mounted on ventilator trolley itself

4.2 Communication Interface

Video output – SVGA
Nurse call facility

5 Regulatory Requirements

The ventilator meets relevant parts of the following standards:
IEC 60601-1: Medical electrical equipment, Part 1: General requirements for safety.
IEC 60601-1-2: Medical electrical equipment:
60601-2-12:

All instruments must be CE/ FDA certified whereever applicable

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(11)

SPECIFICATIONS FOR SURGICAL INSTRUMENTS

- All the instruments should e made of high grade stainless steel. The quality of steel should comply with the DIN standards.
- It should be of high quality and precision.
- It should be light weight, strong and durable.
- It should be non-magnetic.
- All instruments should be autoclavable.
- The manufacturer should have a direct repair facility available in India.
- All instruments should be autoclavable at a minimum of 134deg.

- The Instruments should be CE and FDA certified.
- For special instruments in which both CE and FDA certification is not available either CE or FDA certification alone may be considered.
- Copies of CE and FDA certification must be provided.
- All instrument set should be suuplied with their container preferably with tray and silicon mat.

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BLADDER SET	
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	1 Set
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	2
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	6
SCALPEL HANDLE, NO. 4, 13.5 CM	6
SCALPEL HANDLE, NO. 3, 12 CM	1
SCALPEL HANDLE, NO. 4L, LONG, 20.5 CM	1
SCALPEL HANDLE, NO. 3L, LONG, 21.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 18 CM	1
TC-DISS. SCISSORS, FINE, CVD., 20.5 CM	1
TC-DISSECTING SCISSORS, CVD., 23 CM	1
TC-DISSECTING SCISSORS, CVD., 26 CM	1
TC-DISS. SCISSORS, CVD., SERR., 18 CM	1
TC-DISS. SCISSORS, CVD., SERR., 23 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
SCISSORS, POTTS, ANGLED UPW., 19.5 CM	1
TC-SCISSORS, DE BAKEY, 45°, 23 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 20.5 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 25 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 20 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 25 CM	2
DRESS. FORCEPS, ISOL., W/O CONN., 21 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	1
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	10
FORCEPS, MOSQUITO, 1X2 T., STR., 18.5 CM	10
FORCEPS, KOCHER, 1X2 T., STR., 20.5 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 24 CM	2
FORCEPS, GROSS-MAIER, STR., 26.5 CM	2
PERITON. FORCEPS, MIKULICZ, HEAVY, 20 CM	4
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	6
DISS. FORCEPS, OVERHOLT, NO. 4, 22 CM	2
DISS. FORCEPS, OVERHOLT, NO. 4, 28 CM	2
DISS. FORCEPS, GEMINI, STR. CVD., 23 CM	2
DISS. FORCEPS, GEMINI, STR. CVD., 28 CM	2
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	2
TC-NEEDLEHOLDER, HEGAR, 20 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	2
TC-NEEDLEHOLDER, DE BAKEY, 23 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 26.5 CM	1
TC-NEEDLEHOLDER, STRATTE, CVD., 23 CM	1
RETRACTOR, ROUX, SET, NO. 1-3, 17 CM	1
RETRACTOR, KOCHER, 61X25 MM, 23 CM	1
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
RETRACTOR, FRITSCH, 45X75 MM, 25.5 CM	2
RETRACTOR, MIKULICZ, 125X50 MM, 25 CM	2
MILLIN'S BLADDER RETRACTOR,LATERAL BLADES 55X25mm, CENTRE BLADE115X44mm	1
RETRACTOR, KELLY, 205X38 MM, 27.5 CM	1
ABDOM. SPATULA, HABERER, 37/45 MM, 30 CM	1
LEGUEU BLADD RETRACTOR; 27CM	1
RETRACTOR, SIMON, 115X28 MM, 28 CM	2
VAGINAL SPECULUM, KRISTELLER, SET, NO. 2	1
CASPAR EXPLOR.HOOK, MED., 90°, 245MM	1
HOOKLET, CUSHING, 10 MM, 20.5 CM	1
EMMET FISTULA HOOK, 1PRONG, SHARP, 22CM	1
ATR. ORGAN SEIZING FORCEPS, 25 CM	2
ALLIS ATRAUMA FORCEPS, 8,4MM, 22CM	2
	2

ATR. TISSUE FORCEPS, ALLIS, 24.5 CM	2
PENIS CLAMP, STOCKMANN, 8 CM	1
CITTEL CATHETER GUIDE, 46CM	1
ATR. URO-TANGENTIAL FCPS., NO. 1, 25 CM	1
PROBE, BUTTON END, Ø 2.0/2.0 MM, 30 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
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1
HALSTED FORCEPS, 1X2 TEETH, STR., 185CM	2
KOCHER HYSTERECTOMY FORCEPS STR., 200 MM	2
KOCHER HYSTERECTOMY FORCEPS STR., 240 MM	2
MAIER POLYPUS, SPONGE AND DRESS.FORCEPS	4
MIKULICZ PERITONEUM FORCEPS LARGE, 205MM	6
OVERHOLT-GEISSENDOERFER, DISS. FORCEPS	2
OVERHOLT-GEISSENDOERFER, DISS. FORCEPS	2
DISSECT.FORC.,OVERHOLT-GEISSENDOERFER	2
GEMINI DISS. AND LIGATURE FORCEPS, 230MM	2
GEMINI DISS. AND LIGATURE FORCEPS, 280MM	2
KOCHER RETRACTOR, 60X25 MM	2
VOLKMANN RETRACTOR, SEMI-SHARP,4-PRONGED	2
FRITSCH ABDOMINAL RETRACTOR, 75 MM WIDE	2
MIKULICZ ABDOMINAL RETRACTOR	1
MIKULICZ ABDOMINAL RETRACTOR	1
KELLY RETRACTOR	1
HABERER ADOMINAL SPATULA, MALLEAB., TAP.	1
LEGUEU BLADDER RETRACTOR, 260 MM	2
VAGINAL RETRAC., TUEBINGER PATT.,95X20MM	1
SIMON VAGINAL RETRACTOR, 115 X 26 MM,	1
SUPRAPUBIC TROCAR & CANNULA WITH GROOVE 6mm	1
SUPRAPUBIC TROCAR & CANNULA WITH GROOVE 8mm	1
SUPRAPUBIC TROCAR & CANNULA WITH GROOVE 10mm	1
SUPRAPUBIC TROCAR & CANNULA WITH GROOVE 12mm	1
HEGAR'S DILATOR SET	1
MARYFIELD CATHETER INTRODUCER 300mm	1
TURNER WARWICK URETHROPLASTY NEEDLES SET OF 3	1SET

KIDNEY SET	1 Set
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	6
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	6
SCALPEL HANDLE, NO. 4, 13.5 CM	1
SCALPEL HANDLE, NO. 3, 12 CM	1
SCALPEL HANDLE, NO. 4L, LONG, 20.5 CM	1
SCALPEL HANDLE, NO. 3L, LONG, 21.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 18 CM	1
TC-DISS. SCISSORS, FINE, CVD., 20.5 CM	1
TC-DISSECTING SCISSORS, CVD., 23 CM	1
TC-DISSECTING SCISSORS, CVD., 26 CM	1
TC-DISS. SCISSORS, CVD., SERR., 18 CM	1
TC-DISS. SCISSORS, CVD., SERR., 23 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
SCISSORS, POTTS, ANGLED UPW., 19.5 CM	1
TC-SCISSORS, DE BAKEY, 45°, 23 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 20.5 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 25 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 20 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 25 CM	2
SILVER CLIP APPLYING FORCEPS 180mm	2
SILVER CLIP APPLYING FORCEPS 200mm	1
SILVER CLIP MAGAZINE	1
MICHEL CLIP APPLYING & REMOVING FORCEPS 125mm	1
DRESS. FORCEPS, ISOL., W/O CONN., 21 CM	1
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	1
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	10
FORCEPS, MOSQUITO, 1X2 T., STR., 18.5 CM	10
FORCEPS, KOCHER, 1X2 T., STR., 20.5 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 24 CM	2
FORCEPS, GROSS-MAIER, STR., 26.5 CM	2
PERITON. FORCEPS, MIKULICZ, HEAVY, 20 CM	4
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	6
DISS. FORCEPS, OVERHOLT, NO. 4, 22 CM	2
FORCEPS, MIXTER, ANG., LONGIT., 22.5 CM	2
DISS. FORCEPS, OVERHOLT, NO. 4, 28 CM	2
DISS. FORCEPS, GEMINI, STR. CVD., 23 CM	2
DISSECTING FORCEPS, O'SHAUGNESSY, 23 CM	2
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	2
TC-NEEDLEHOLDER, HEGAR, 20 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	2
TC-NEEDLEHOLDER, DE BAKEY, 23 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 26.5 CM	1
TC-NEEDLEHOLDER, STRATTE, CVD., 23 CM	1
RETRACTOR, DBL., FARABEUF, SET, 15.5 CM	1
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	1
RETRACTOR, FRITSCH, 45X75 MM, 25.5 CM	2
RETRACTOR, MIKULICZ, 125X50 MM, 25 CM	2
RETRACTOR, MIKULICZ, 160X50 MM, 25 CM	1
ABDOM. SPATULA, HABERER, 37/45 MM, 30 CM	1
CASPAR EXPLOR.HOOK, MED., 90°, 245MM	1
HOOKLET, CUSHING, 10 MM, 20.5 CM	1
ATR. KIDNEY PEDI. FORCEPS, GUYON, 24 CM	1
ATR. KIDNEY PEDI. FORCEPS, GUYON, 23 CM	1
ATR. TANGENTIAL FORCEPS, SATINSKY, 22 CM	1

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ATR. TANGENTIAL FORCEPS, SATINSKY, 26 CM	1
ATR. FORCEPS, POTTS, CVD., 26 CM	1
ATR. LIGATURE FORCEPS, DE BAKEY, 24 CM	1
ATR. ORGAN SEIZING FORCEPS, 25 CM	1
ALLIS ATRAUMA FORCEPS, 8,4MM, 22CM	2
ATR. TISSUE FORCEPS, ALLIS, 24.5 CM	2
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
PROBE, BUTTON END, Ø 2.0/2.0 MM, 30 CM	1
KOCHER HYSTERECTOMY FORCEPS STR., 200 MM	2
KOCHER HYSTERECTOMY FORCEPS STR., 240 MM	2
MAIER POLYPUS, SPONGE AND DRESS.FORCEPS	4
MIKULICZ PERITONEUM FORCEPS LARGE, 205MM	6
OVERHOLT-GEISSENDOERFER, DISS. FORCEPS	2
OVERHOLT-GEISSENDOERFER, DISS. FORCEPS	2
MIXTER LIGATURE FORCEPS230MM	2
BILE DUCT DILATOR, BAKES, 1 MM, 32 CM	1
Dissecting scissor Metzenbaum180 CVD	1
Dissecting scissor MetzenbaumCVD 200MM	1
Dissecting scissor Metzenbaum CVD 230 MM	1
POTTS-SMITH, CARDIOVASC.SCISSORS,180 MM	1
STRATTE MEEDLEHOLDER, 230MM, DUROGRIP	1
ROUX RETRACTOR, DOUBLE-ENDED, SET OF 3	1
DESCHAMPS NEEDLE, BL, CVD TO LE, 215 MM	1
GEMINI DISS. AND LIGATURE FORCEPS, 230MM	2
VOLKMANN RETRACTOR, SEMI-SHARP,4-PRONGED	2
FRITSCH ABDOMINAL RETRACTOR, 75 MM WIDE	2
MIKULICZ ABDOMINAL RETRACTOR	1
MIKULICZ ABDOMINAL RETRACTOR	1
MIKULICZ ABDOMINAL RETRACTOR	1
HABERER ADOMINAL SPATULA, MALLEAB., TAP.	1
DE'BAKEY VESSEL CLAMP, JAW 38MM,220 MM	1
DE'BAKEY VESSEL CLAMP, JAW 48MM,265 MM	1
DE BAKEY VESSEL FORCEPS, JAW 65MM, 280MM	1
DE'BAKEY VESSEL CLAMP, JAW 54MM,270 MM	1
DE BAKEY DISS. A. LIG. FORC., ACUT. CVD.	1
REDON SPIKE,CHAR.12,SLIG.CVD.,TRIANG.TIP	1
REDON SPIKE,CHAR.14,SLIG.CVD.,TRIANG.TIP	1
Dissecting scissor Nelson- Metzenbaum260	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, 10 CH	1
LANGENBECK RETRACTOR, 28X14MM, 210MM	2
LANGENBECK RETRACTOR, 40X10MM, 210MM	2
KOCHER-LANGENBECK RETRACTOR, 55X11 MM	2
BENGOLEA ARTERY FORCEPS, STRAIGHT, 245MM	2
BENGOLEA ARTERY FORCEPS, CURVED, 245 MM	2
NON-TRAUMATIC INTEST.CLAMPS KOCHER 250MM	2

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NON-TRAUMATIC INTEST.CLAMPS KOCHER 246MM	2
FRITSCH ABDOMINAL RETRACTOR, 75 MM WIDE	2
MIKULICZ ABDOMINAL RETRACTOR	2
MIKULICZ ABDOMINAL RETRACTOR	2
HABERER ADOMINAL SPATULA, MALLEAB., TAP.	1
KIRSCHNER RETRACTOR, COMPLETE	1
NON-TRAUM.INTEST.CLAMP,DOYEN,CVD.170 MM	2
GUIDE NEEDLE, ANG., KNIFE SHAPE, 12 CH	1
Reusable Ligaclip Applier- LIGACLIP straight applier for large size clip 26.7 cm long (for open	1
Reusable Ligaclip Applier- LIGACLIP straight applier for medium size clip 19.1 cm long (for	1
Reusable Ligaclip Applier-LIGACLIP straight applier for small size clip 19.1 cm long (for open	1

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URETHRA SET	1 Set
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	6
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	1
SCALPEL HANDLE, NO. 4, 13.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
DISSECTING SCISSORS, KILNER, CVD., 15 CM	1
SCISSORS, POTTS, ANGLED UPW., 19.5 CM	1
SCISSORS, POTTS -Millin's, with one ball end	1
SCISSORS, IRIS 115mm straight	1
DEVINE UROLOGICAL SCISSORS, curved chisel ended blades180mm	1
PYRA- MAYO UROLOGICAL SCISSORS, 200mm	1
THOMSON WALKER BLADDER SCISSORS, 200mm	1
MAYO HARRINGTON DISSECTING SCISSORS, 230mm	1
SCISSORS, IRIS 115mm curved	1
TC-DISS. SCISSORS, FINE, CVD., 18 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 20.5 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 20 CM	2
DISSECTING FORCEPS,ADLERKREUTZ200MM	2
RUSSIAN DISSECTING FORCEPS,160MM	2
RUSSIAN DISSECTING FORCEPS,200MM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM	1
HOOKLET, SHARP, 2-PR., 16.5 CM	2
HOOKLET, DESMARRES, 8 MM, 16 CM	2
HOOKLET, DESMARRES, 12 MM, 16 CM	2
RETRACTOR, KOCHER, 61X25 MM, 23 CM	2
SKIN HOOKLET, GILLIES, NO. 1, 18 CM	2
NERVE HOOK, CUSHING, NO. 1, 19 CM	1
ANASTOM. FORCEPS, DERRA, NO. 3, 17.5 CM	1
URETHRAL BOUGIE, V. BUREN, 10 CH, 27 CM	1
URETHRAL BOUGIE, V. BUREN, 14 CH, 27 CM	1
URETHRAL BOUGIE, V. BUREN, 18 CH, 27 CM	1
URETHRAL BOUGIE, V. BUREN, 22 CH, 27 CM	1
URETHRAL BOUGIE, V. BUREN, 26 CH, 27 CM	1
CLUTTON'S URETHRAL DILATOR SET OF 12-260mm	3
PAEDIATRIC URETHRAL DILATOR SET OF 7-218mm	1
TURNER WARWICK RING RETRACTOR	2
HEGRORES STAFF (SEMI-CIRCULAR BOUGIE)	2
SCOTTS RETRACTOR	1
TOT NEEDLE SET	1
TURNER WARWICK RETROGRADE BOUGIE 180mm	3
KILNER'S SKIN HOOK 185	4
KILNER ALAE SKIN RETRACTOR 180mm	4
GILLIES SKIN HOOK 185	4
HAJEK CHEEK RETRACTOR 165mm	2
CZERNY'S RETRACTOR 175mm	2
GROOVED DIRECTOR, NELATON, CVD., 16 CM	1
PROBE, BUTTON END, Ø 1.5/1.5 MM, 14.5 CM	1
PROBE, BOWMAN, CYLINDR., NS, NO. 00/0	1

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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
YAUNKER'S SUCTION TUBE	3
AMERICAN PATTERN SUCTION TIP WITH STILLETTE	2
FERGUSSON SUCTION TIP WITH STILLETTE	2
DOYEN'S MOUTH GAG	1
VAGINAL RETRACTOR, DOYEN, 66X47 MM	1
VAGINAL RETRACTOR, DOYEN, 78X47 MM	1
VAGINAL RETRACTOR, BREISKY, 130X30 MM	1
VAGINAL RETRACTOR, BREISKY, 130X40 MM	1
VAGINAL RETRACT., DOYEN, 70X30 MM, 25 CM	2
VAGINAL SPECULUM, KRISTELLER, SET, NO. 3	1
BONE RONGEUR, RUSKIN, CVD., 19 CM	1
BONE RONGEUR, RUSKIN, CVD., 24 CM	1
BONE RONGEUR, CVD., 22.5 CM	1
BONE CUT. FORCEPS, RUSKIN, CVD., 18.5 CM	1
BONE CUTT. FORCEPS, STILLE-LISTON, 28 CM	1
ELEVATOR, LANGENBECK, 10 MM, 19.5 CM	1
ELEVATOR, MARTIN-LANGENB., 7 MM, 17 CM	1
RASPATORY, LAMBOTTE, 15 MM, 21.5 CM	1
RASPATORY, LAMBOTTE, 10 MM, 21.5 CM	1
RASPATORY, LAMBOTTE, 20 MM, 21.5 CM	1
BONE FILE, FLAT, 20 MM, 22 CM	1
OSTEOTOME, LEXER, 10 MM, 22 CM	1
OSTEOTOME, LEXER, 15 MM, 22 CM	1
OSTEOTOME, LEXER, 25 MM, 22 CM	1
GOUGE, LEXER, 10 MM, 22 CM	1
GOUGE, LEXER, 15 MM, 22 CM	1
GOUGE, LEXER, 25 MM, 22 CM	1
OSTEOTOME, LAMBOTTE, 50 MM, 24 CM	1
MALLET, RELPASE FREE, 620 GR., 26.5 CM	1
VAGINAL SPECULUM, KRISTELLER, SET, NO. 2	1
DINGMAN'S MOUTH GAG WITH 3 BLADES	1
skin grafting Measure board	1
HUMBYS SKIN GRAFTING KNIVES 300mm	1

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SUPPLEMENT MICRO URETHRAL	1 Set
SCALPEL HANDLE F. MICROBLADE, 13.5 CM	1
MICRO SCISSORS, BAYON., CVD., 20 CM	1
YASARGIL FCPS., BAJO., TIPS 0,9MM, 22CM	1
TISSUE FORCEPS, BAYON., 1X2 T., 18.5 CM	1
DRESSING FORCEPS, POTTS-SMITH, 21 CM	2
MICRO NEEDLEHOLDER, BAYON., CVD., 23 CM	1
JACOBSON TWIN PROBE, 18,5CM	1
YASARGIL SUTURE GUIDE/PROBE, CVD, 18,5CM	1

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GENITAL SET	1 Set
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	6
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	4
SCALPEL HANDLE, NO. 3, 12 CM	1
SCALPEL HANDLE, NO. 4, 13.5 CM	1
IRIS SCISSORS, SH/SH, CVD., 11.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 18 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 20.5 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 20 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	4
FORCEPS, MOSQUITO, 1X2 T., CVD., 12.5 CM	6
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 20.5 CM	2
FORCEPS, GROSS-MAIER, STR., 26.5 CM	2
PERITON. FORCEPS, MIKULICZ, HEAVY, 20 CM	4
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	1
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	1
DISS. FORCEPS, OVERHOLT, NO. 3, 21.5 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM	2
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	1
RETRACTOR, ROUX, SET, NO. 1-3, 17 CM	2
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
RETRACTOR, MIKULICZ, 90X35 MM, 25 CM	2
RETRACTOR, MARTIN, 110X27 MM, 26.5 CM	1
RETRACTOR, KADER, 30 MM WIDE, 28 CM	1
WOUNDSPREADER, SHARP, 3X4 T., 16 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	2
GROOVED DIRECTOR, NELATON, CVD., 16 CM	1
PROBE, BUTTON END, Ø 1.5/1.5 MM, 14.5 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 90 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 120 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1

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PHIMOSIS SET	1 Set
FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	2
SCALPEL HANDLE, NO. 3, 12 CM	2
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
DISSECTING SCISSORS, KILNER, CVD., 15 CM	1
IRIS SCISSORS, SH/SH, CVD., 11.5 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	8
FORCEPS, MOSQUITO, 1X2 T., STR., 12.5 CM	4
FORCEPS, PEAN, DELICATE, STR., 14.5 CM	2
PROBE, BOWMAN, BUTTON, NS, NO. 7/8	1
GROOVED DIRECTOR, DOYEN, CVD., 14.5 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1

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SUTURE SET LARGE	1 Set
SCALPEL HANDLE, NO. 3, 12 CM	1
DRESSING FORCEPS, MEDIUM WIDE, 14.5 CM	1
TISSUE FORCEPS, 1X2 T., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	1
FORCEPS MICRO-MOSQUITO, CVD., 12 CM	4
FORCEPS, GROSS-MAIER, CVD., 20.5 CM	1
RETRACTOR, DELIC., SHARP, 2-PR., 16.5 CM	2
SPREADER, WULLST., SHARP, 3X3 T., 13 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-SCISSORS, LEXER, FINE, CVD., 16 CM	1
STRABISMUS SCISS., BL/BL, CVD., 11.5 CM	1
OPERATING SCISSORS, SH/BL, CVD., 16.5 CM	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 18.5 CM	1
SUTURE SET SMALL	1 Set
SCALPEL HANDLE, NO. 3, 12 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
DRESSING FORCEPS, MEDIUM WIDE, 14.5 CM	1
FORCEPS MICRO-MOSQUITO, CVD., 12 CM	2
FORCEPS, GROSS-MAIER, CVD., 20.5 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
BOWL, METAL, H = 19, Ø 40 MM, 0.02 L	1
OPERATING SCISSORS, SH/BL, CVD., 14.5 CM	1
TC-DISSECTING SCISSORS, CVD., 14.5 CM	1
MICROSTOP MINISET CONTAINER 310X189X90MM	1
TRAY, PERFORATED, 235X130X50MM	1
LOGISTIC FRAME, RED, F. CONTAINER	1
IDENTIFICATION LABEL, W. TEXT, W/O HOLE	1
IDENT. LABLE, MINISET CONT., W. TEXT	1

SUTURE REMOVING SET	1 Set
KIDNEY DISH, 250X140X40 MM	1
OPERATING SCISSORS, SH/BL, CVD., 14.5 CM	1
DRESSING FORCEPS, MEDIUM WIDE, 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	1
IRIS SCISSORS, SH/SH, STR., 11.5 CM	1

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WOUND DRESSING SET LARGE	1 Set
TAMPON FORCEPS, ULRICH, STR., 27 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	6
SCALPEL HANDLE, NO. 4, 13.5 CM	2
HAEM. FORCEPS, MOSQUITO, STR., 12.5 CM	4
FORCEPS, MOSQUITO, 1X2 T., STR., 12.5 CM	4
HAEMOSTATIC FORCEPS, PEAN, STR., 14.5 CM	4
DISS. FORCEPS, MIXTER-BABY, CVD., 13 CM	2
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	4
RETRACTOR, DOUBLE, ROUX, NO. 1, 14.5 CM	2
RETRACTOR, DOUBLE, ROUX, NO. 2, 16 CM	2
RETRACTOR, DOUBLE, ROUX, NO. 3, 17 CM	2
RETRACTOR, LANGENBECK, 30X14 MM, 22 CM	2
RETRACTOR, VOLKMANN, SH., 4-PR., 22.5 CM	2
RETR., VOLKMANN, SEMISH., 6-PR., 22.5 CM	2
DRESSING FORCEPS, MEDIUM WIDE, 14.5 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
FORCEPS, POTTS-SMITH, 1X2 T., 18 CM	2
TC-DISS. SCISS., TOENNIS, CVD., 17.5 CM	1
STRABISMUS SCISS., BL/BL, CVD., 11.5 CM	1
TC-SCISSORS, LEXER, FINE, CVD., 16 CM	2
RASPATORY, FARABEUF, STR., 15.5 CM	1
BONE CURETTE, VOLKM., OVAL, NO. 1, 17 CM	1
BONE RONGEUR, ZAUFAL-JANSEN, 18 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM	1
PROBE, BUTTON END, Ø 2.0/2.0 MM, 20 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
KIDNEY DISH, 250X140X40 MM	1

WOUND DRESSING SET SMALL	1 Set
SCALPEL HANDLE, NO. 3, 12 CM	1
OPERATING SCISSORS, SH/BL, CVD., 14.5 CM	1
DISSECT. SCISSORS, BL/BL, CVD., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	1
DRESSING FORCEPS, DELICATE, 14.5 CM	1
SPLINTER FORCEPS, FEILCHENFELD, 9 CM	1
TOWEL FORCEPS, TOHOKU, BLUNT, 10.5 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	2
FORCEPS, PEAN, DELICATE, CVD., 16.5 CM	1
FORCEPS, KOCHER, 1X2 T., CVD., 16 CM	1
FORCEPS, GROSS-MAIER, STR., 22.5 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
RETRACTOR, DELIC., SHARP, 2-PR., 16.5 CM	2
WOUNDSPREADER, BLUNT, 3X4 T., 13.5 CM	1
A-V SHUNT SET	1
MAIER POLYPUS FORCEPS, WITH RATCHET, CVD	2
BACKHAUS TOWEL HOLDING FORCEPS, 110MM,	4
TOWEL CLAMP, 115 MM LENGTH	2
SCALPEL HANDLE, NO. 3	2
DISSECT.SCISS.,METZENBAUM,145MM,CVD.DURO	1
SCISSORS, DELICATE, STRAIGHT, 95 MM	1
IRIS AND LIG. SCISS., ANGL.TO SIDE,110MM	1
DISSECT. SCISSORS, JAMESON-WERBER,130MM	1
OP. SCISSORS, STR., BL/SH, 145 MM, S	1
TISSUE FORCEPS, AM. PATT., 1X2 T., 145MM	2
NON-TRAUMATIC VESSEL FORCEPS 150 MM	2
ATR.-FORCEPS "ULTRA-LIGHT", STR.,150MM	1
IRIS DISS. FORCEPS, STR., 100MM	2
MICRO-HALSTED HEMOST.FORC., CVD., 125 MM	4
HALSTED MOSQUITO FORCEPS, STRAIGHT,125MM	2
PEAN ARTERY FORCEPS, STRAIGHT, 130 MM	2
MICRO-ADSON HEMOSTATIC FORCEPS, 140 MM	1
BABY-MIXTER FORCEPS, 140 MM	1
MINI BULLDOG CLAMP,STRAIGHT, 35 MM LONG	2
MINI BULLDOG CLAMP,CURVED, 45 MM LONG	2
MUELLER VESSEL CLIP, FOR VEIN, STRAIGHT	2
MUELLER VESSEL CLIP FOR VEIN, CURVED	2
MICRO NEEDLE HOLDER, CURVED, 160 MM	1
DUROGRIP-NEEDLEHOLDER,RYDER,135MM,DELIC.	1
DUROGRIP CRILE NEEDLE HOLDER, 150 MM	1
RETRACTOR, FINE PATTERN, 2 BLUNT PRONG	2
DESMARRES, LID RETRACTOR	2
WEITLANER RETRACTOR,2X3 TEETH,SEMI SHARP	1
LABORATORY DISH, 0.16 L	1
LABORATORY DISH, 0.4 L	1
KIDNEY TRAY, 250 MM	1

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MAJOR BASIC SET FOR CHILDREN	1
MAIER POLYPUS FORCEPS, WITH RATCHET, CVD	2
BACKHAUS TOWEL HOLDING FORCEPS, 110MM,	4
TOWEL CLAMP, 115 MM LENGTH	4
SCALPEL HANDLE, NO. 3	2
DISSECTING SCISSORS,CVD 115MM,DUROTIP	1
DISSECT.SCISS.,METZENBAUM,145MM,CVD.DURO	1
JAMISON SCISSORS, SLIGHTLY CVD	1
LIGATURE SCISS ORS, CVD., 145 MM	1
OP. SCISSORS, STR., BL/SH, 145 MM, S	1
DISSECTING FORCEPS, SLEND. PATT., 145 MM	1
TISSUE FORCEPS, AM. PATT., 1X2 T., 145MM	2
NON-TRAUMATIC VESSEL FORCEPS 150 MM	2
ADSON FORCEPS, 1X2 TEETH, 120 MM	2
ADSON FORCEPS, FINE SERRATED JAWS, 120MM	2
HALSTED MOSQUITO FORCEPS, CURVED, 125MM	6
BABYCRILE ARTERY FORCEPS, CURVED, 140 MM	6
KOCHER FORCEPS, STR., 1X2 TEETH, 140MM	2
POLYPUS A. SPONGE A.DRESSING FORC.,175MM	2
MIKULICZ PERITONEUM FORCEPS, 140 MM	4
MICRO-ADSON HEMOSTATIC FORCEPS, 140 MM	2
BABY-MIXTER FORCEPS, 140 MM	2
BABY-MIXTER ARTERY FORCEPS,180MM	2
NEEDLEHOLDER, CONVERSE 130 MM	1
CRILE NEEDLE HOLDER, 150 MM	1
HEGAR-MAYO NEEDLE HOLDER, 150MM	1
LANGENBECK-GREEN RETRACTOR,6X16MM,DELIC.	2
LANGENBECK RETRACTOR, 28X10MM, 210MM	2
LANGENBECK RETRACTOR, 40X10MM, 210MM	2
DESMARRES, LID RETRACTOR	2
BABY-ROUX RETRACTOR, 135MM	2
ROUX RETRATOR, SMALL	2
FRITSCH ABDOMINAL RETRACTOR, 40 MM WIDE	2
RETRACTOR, FINE PATTERN, 2 SHARP PRONGS	2
VOLKMANN RETRACTOR, SEMI-SHARP,4-PRONGED	2
SPATULA, MALLEABLE, 200 X 17 MM	1
ADSON-BABY RETRACTOR, W JOINT, 140 MM	1
BABY-BALFOUR ABDOMINAL RETRACTOR	1
BABY-FINOCHIETTO RIB SPREADER	1
BABY-ALLIS INTESTINAL FORCEPS, 130 MM	1
NON-TRAUM.HOLDING FORC.,ALLIS,155 MM	1
BABY-KOCHER INT.CLAMP, CUR., 130 MM	2
NON-TRAUM.INTEST.CLAMP,DOYEN,CVD.170 MM	2
BABY-DERRA FORCEPS, MEDIUM PATTERN,170MM	2
VOLKMANN SPOON, SHARP, SIZE 000	1
PROBE, DOUBLE ENDED, 145 MM, DIAM. 1,0MM	1
BOWMAN LACHRYMAL PROBE, 0,7/0,8 MM	1
KIDNEY TRAY, 250 MM	1
REDON SPIKE,CHAR.10,SLIG.CVD.,TRIANG.TIP	1
REDON SPIKE,CHAR.12,SLIG.CVD.,TRIANG.TIP	1

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BOWL, METAL, H = 30, Ø 61 MM, 0.07 L	1

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LAPAROTOMY SET	3 Sets
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
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
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, BALFOUR, LATERAL BLADE58mM, CENTRE BLADE 45X80mm	2
RETRACTOR, BALFOUR, LATERAL BLADE 90mm, CENTRE BLADE 80X80mm	2
BABY BALFOUR, LATERAL BLADE 27mm, CENTRE BLADE 21X24mm	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

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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
DOYEN'S RETRACTOR 230mm, 30X40mm	2
DOYEN'S RETRACTOR 230mm, 65X85mm	2
MORRIS RETRACTOR 230mm, 30X40mm	2
MORRIS RETRACTOR 230mm, 65X65mm	2
KELLY'S RETRACTOR 260mm, 55mm	2
DEAVER'S RETRACTOR ADULT 300mm	2
DEAVER'S RETRACTOR CHILD 215mm	2
KELLY'S RETRACTOR 260mm, 55mm	2
CZERNY'S RETRACTOR 175mm	2
LANGENBECK RETRACTOR 215mm, 65X25mm	2
GRAEME RECTA- SPECULUM WITH OBLIQUE ENDS 65X18MM	1
LANGENBECK RETRACTOR 215mm, 65X25mm	2

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SPECIFICATIONS FOR SURGICAL INSTRUMENTS **• All the instruments should e made of high grade stainless steel. The quality of steel should comply with the DIN standards.** **• It should be of high quality and precision.** **• It should be light weight, strong and durable.** **• It should be non-magnetic.** **• All instruments should be autoclavable.** **• The manufacturer should have a direct repair facility available in India.** **• All instruments should be autoclavable at a minimum of 134deg.** **•** **• The Instruments should be CE and FDA certified.** **• For special instruments in which both CE and FDA certification is not available either CE or FDA certification alone may be considered.** **• Copies of CE and FDA certification must be provided.** **• All instrument set should be suuplied with their container preferably with tray and silicon mat.**	

(17) **Technical Specification of Hot & Cold sterilizer**

General Specification **Hot and Cold Water Sterilizer** electrically operated double tanks each ofatleast 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.
Electrical & other details The Heating Load in Hot Boiler and Cold Boiler should be atleast 6 KW each. i.e. Total Load is 12 KW. The Sterilizer will be made of atleast **SS AISI 316 Steel** with the thickness of 1.5mm i.e. 16 gauge **Electrical Load :** 12 KW in 3 phases, 440 volts, AC Supply
Boiler items at a minimum should have : a) 1 no. Safety Valve b) 1 no. Water Filter made of Stainless Steel 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.
Certification
IS-3829 marked. Company should have ISO 9001-2008, ISO 13485-2003 and CE certified.
Manufacturing Experience
Company should have manufacturing experience more than 10years.

All instruments must be CE/ FDA certified whereever applicable

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(13)

CENTRAL CONTROL MANAGEMENT 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 HD FLAT MEDICAL GRADE LED SCREEN (Desktop Mounted) The surgical display screens shall be medical grade 26" FULL HD (1080P) LED Medical Grade Screens with the following video inputs:

- *DVI-D (digital)*
- *SDI (digital)*
- *VGA, RGBS*
- *S-Video*
- *Composite*
- *SOG input*

The display screens should also have the following optical specifications:

Viewable area (diagonal)	*25.5"*
Resolution	*1920 x 1200*
Brightness	*500 cd/m²*
Image Contrast Ratio	*800:1*
Colour Scale	*100%*
Viewing angle (H & V)	*178°*
Simultaneous colours	*16.8 million*
Dot pitch	*0.287*
Response time	*5-12 ms*
Glass technology Dual	*IPS*
Technology foundation	*Active matrix*

The display screens should comply the highest safety standards:

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

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- *Front sealed, anti-glare overlay guarantees the highest level of defence against liquid ingress.*
- *Membrane style buttons and a non dimpled enclosure ensure foreign matter will not accumulate into voids and possibly spread contaminants.*

D. 26" FULL HD FLAT MEDICAL GRADE LED SCREEN (Spring arm mounted) The surgical display screens shall be medical grade 26" FULL HD (1080P) LED Medical Grade Screens with the following video inputs:

- *DVI-D (digital)*
- *SDI (digital)*
- *VGA, RGBS*
- *S-Video*
- *Composite*
- *SOG input*

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Colour Scale	*100%*
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- *Membrane style buttons and a non dimpled enclosure ensure foreign matter will not accumulate into voids and possibly spread contaminants.*

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.

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F. **Atleast 40'' Medical Grade HD FLAT SCREEN (Wall mounted)** At least 40" Large Screen shall be mounted on a selected wall within the OR. This screen shall provide a large viewing area especially when having teleconferencing.

G. **CENTRAL CONTROL UNIT** - The main purpose for the implementation of the Integrated OR is theability 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 <u>exact replica</u> 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.

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 <u>SINGLE</u> 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.

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- 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

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.

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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:

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...

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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*
Effective Pixels	*768 (H), 492 (V), 752 (H) X 585 (V)*
Horizontal Resolution	*460 TV lines 450 TV lines*
Vertical Resolution	*350 TV lines 400 TV lines*
Lens	*×12 Power Zoom, f=5.4 to 64.8 mm, F1.8 to F2.7*
Angle of View (H)	*4.3 to 48.8 degrees*
Minimum Illumination	*7 lx (F1.8)*

Illumination Range	*7 to 100,000 lx*
Auto Exposure	*Auto Iris, AGC*
Shutter Speed	*1/60 to 1/10,000*
Gain	*Auto/Manual*
White Balance	*ATW / One Push Hold, Indoor Preset, Outdoor Preset*
S / N Ratio	*>48 dB*
Pan / Tilt	*Horizontal ±100° (Max speed 80° sec),*
	Vertical ±25° (Max speed 50° / sec)
Video Output	*RCA pin jack*
S Video Output	*4 pin mini DIN*
Audio Output	*RCA pin jack*
Control Terminal	*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:

Input Signal	*Analog*
Maximum short time sine wave acoustic output at 1 m on axis in half space, averaged from 100 Hz to 3 kHz	*≥ 100 dB SPL*
Maximum peak acoustic output per pair with music material	*≥ 108 dB SPL @ 1m*
Drivers	
Bass	*5"*
Treble	*3/4" metal dome*
Crossover frequencies	*3 kHz*

Free Field Frequency Response	*58 Hz - 20 kHz (± 2 dB)*
Amplifier power	
Bass	*40 W*
Treble	*40 W*

D. WIRELESS HEADMIC

The Integrated Communication System shall be provided with a Wireless Headmic to enable the user to initiate telephone calls, videoconference sessions, recording audio comments on the archiving system, etc...

The Wireless Headmic shall be based a high-quality state-of-the-art RF transmission with a high level of operational reliability and ease of use.

The Headmic Transmitter and Receiver shall permit wireless transmission based on the use of:

- further optimized PLL synthesizer and microprocessor technology,
- the HDXnoise reduction system,
- the pilot tone squelch control,
- the true diversity technology (rack-mount receiver only),
  and the scan function for scanning the channel banks for free channels.

E. TELEPHONE MODULE

An analogue Telephone module shall be connected to the system and shall allow the surgeon or his assistant to affect telephone calls from the Touch Screen or the Nurse Station.

The system should also supply the ability to store telephone numbers for quick dialling via the Touch Screen located in the sterile field or via the Nurse Station outside the sterile field.

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.

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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 instruments must be CE/ FDA certified whereever applicable

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(14) TECHNICAL SPECIFICATION OF MINI NEPHROSCOPE SET

SPECIFICATION FOR MINI and Micro NEPHROSCOPE SET

Miniature Nephroscope 12°, with angled eyepiece, 11/12 Fr., length 22 cm, autoclavable, one working channel 6.7 Fr. for instruments up to 5 Fr., fiber optic light transmission incorporated. Following accessories should be included: Insertion Aid, Instrument Port with Sealing System and Quick Release Lock, Seal, LUER-Lock Tube Connector, male, LUER-Lock Tube Connector, Tray for storage and cleaning
3-4.3 Fr Micronephroscope with outer sheath compatible with a laser source , with standard accessories
One Set Dilator, Channel for guide wires, for use with Operating sheath of 15 / 18 Fr.
One Set Dilator, Channel for guide wires and distal curved channel for deflection of guide wires, for use with Operating sheath 16,5 / 19,5 Fr.
One Set Dilator, Channel for guide wires and distal curved channel for deflection of guide wires, for use with Operating sheat 21 / 24 Fr.
Operating Sheath, 15 / 18 Fr., for continous irrigation and suction
Operating Sheath, 16,5 / 19,5 Fr., for continous irrigation and suction
Operatng Sheath, 21 / 24 Fr., for continous irrigation and suction
Grasping Forceps for Foreign Bodies, 5 Fr., double action jaws, flexible, length 40 cm

All instruments must be CE/ FDA certified whereever applicable

(15) TECHNICAL SPECIFICATIONS OF HEADLIGHT

Comfort emphasized strap design
- Luminous intensity: max. 200,000 lx
- Color temperature: 5,000 K
- Battery service life: min. 6.5 hrs
- Charging time: 6 hrs
- Change batteries with speed, ease and without powering off
- Rapid USB charging from wall adapter or PC
- Integrated battery status indicators
- Continous digital dimming
- Total weight: max. 315 g
- Plug adapter options: EU, US, UK or AU
- Should be provided with 03 nos magnifying of different magnifications loops which can be fitted on to the headlight.

The set should be consisting of: headlight, carrying case with shoulder strap, USB charging cable, PSU incl. adapter for EU, US, UK, AU and 2 rechargeable lithium-ion batteries, 03 nos magnifying loops.

All instruments must be CE/ FDA certified whereever applicable

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(16) **Technical specifications Nephroscope**

a) Wide angle straight forward Rigid nephroscope , with continuous flow operating sheath capability 17 Fr

b) Wide angle straight forward Rigid nephroscope with angled eyepeice , with continuous flow operating sheath capability 20.5 Fr

c) Wide angle straight forward Rigid nephroscope with parallel eyepeice , with continuous flow operating sheath capability 22 Fr.

d) Wide angle straight forward Rigid nephroscope with parallel eyepeice , with continuous flow operating sheath capability 24 Fr

(Individual Prices of Scope to be quoted)

1. Lens-6° or 12° lens
2. The eye piece should be compatible with any standard endovision camera head.
3. Accessories- standard
4. Grasping forceps- Biprong , Triprong, alligator and peanut - 4 pieces each
5. Biopsy forceps
6. Endopyelotomy knife
7. Scissors
8. Sickle knife
9. Suction tube
10. Hollow obturator and fascial dilator (Preferably Amplatz)

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11. Initial puncture needle – 2 part and 3 part
12. Storage & transportation tray
13. Alken cannula
14. Metal Alken dilator set with central rod
15. Amplatz sheath (Full set)- 5 set
16. Fascial dilator set -20 pcs
17. Balloon fascial PCNL track dilator -2 set

All instruments must be CE/ FDA certified whereever applicable

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(17) **TECHNICAL SPECIFICATION OF SUCTION IRRIGATION SET FOR UROLOGY**

- Urology set for suction, Power supply: 100-240 VAC, 50/60 Hz, consisting of: Suction Apparatus, Mains cord, Suction bottle, 0,5 ltr, sterilisierbar, bottle cap, for suction bottle ,Silicone-tubing set for suction, for use with suction bottle, autoclaveable, bottle stand for suction bottle, Connecting cord, lenght 100 cm, Connecting Cable System requirements for use with SCB-PC: SCB-R-UI-software-release V03.20.00.xx or higher
- Silicone Tubing Set, for suction, sterilizable, for use with Suction Bottle
- One-Pedal Footswitch, digital, two-stage
- Connection Cable (Transducer/Generator)
- Ultrasonic Lithotripsy Probe, with ossillating tip and suction channel, ø 3.5 mm, length 40 cm

All instruments must be CE/ FDA certified whereever applicable

(18) **Technical Specifications for High-End Extra Corporeal Shock Wave Lithotripter : (ESWL Set)**

General Aspects:

The Lithotripter will be used predominantly for urological lithotripsy and endourological procedures .

The Lithotripter should cover the following range of application:

Extracorporeal shock wave lithotripsy in urology (ESWL):
- Urinary stones (kidney-, ureter-, urinary-bladder stones)

Urological X-ray and ultrasound diagnostics:
- Fluoroscopy
- Radiography (KUB 14x17 inch)
- Stand-alone ultrasound diagnostics

The lithotripter should fulfil the following clinical requirements:

- Stone localisation with X-ray and/or ultrasound according to the clinical requirements
- Medium and high shock wave energy for the entire range of urinary and biliary ESWL
- Shock wave application of the right & left kidney & ureter .
- The system should automatically move the stone into the shock wave focus.
- The lithotriper should preferably be capable of endourological procedures such as placing stents, URS & PCN as well as other urological diagnostic procedures
- Published results (independent) should be included showing stone-free rates of above 90% for all positions in urinary tract

The lithotripter should fulfil the following technical specifications and requirements:

Patient positioning table:

Patient table concept:	- integrated patient table to be used for shock wave application as well as for endourological procedures, X-ray and ultrasound diagnostics
Patient table:	- motorised movements in X-Y-Z directions preferably with floating table-top for fast and radiation-dose saving patient positioning - Trendelenberg movement -Adjustable foot rest
Endourology:	- table accessories for endourological procedures such as URS & PCNL

Shock wave system:

Shock wave concept:	- Electromagnetic shock wave source of

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	cylindrical design with ellipsoid reflector with wide energy range and minimal side effects, reduced noise and extended life-time of shock wave source
Aperture Angle	- Dual Focus option
Shock Wave Diameter	- Minimum 70^0 or more - Min 20 cm or more
Shock wave pressure range:	- preferably from approx. 10 MPa up to 150 MPa for wide range of clinical applications
Shock wave energy flux density:	- preferably from 0.42 mJ/mm² up to 3.65 mJ/mm² for all present and future clinical shock wave applications
Shock wave treatment depth:	- minimum 165 mm necessary for ureteric stones and obese patients
Shock wave source diameter:	- larger diameter (min. 200 mm) preferred in order to reduce energy density per cm² (and therefore reduced pain) at skin level

Imaging system:

Dual imaging concept:	- integrated X-ray and ultrasound imaging system for stone localisation, patient positioning and real-time treatment control
Primary imaging system:	- X-ray (preferably in-line fluoroscopy)
Diagnostic X-ray features:	- fluoroscopy for urological diagnostics
Optional imaging system:	- Ultrasound (preferably in-line ultrasound)
Diagnostic ultrasound features:	- Stand-alone ultrasound diagnostic with additional transducers including transrectal scanners

X-Ray System:

C-Arm for under table X-Ray tube and over table Image Intensifier with motorized iso – centric movement.

X-ray generator:	- Output : minimum 7.5 kW - Fluoroscopy Exposure Voltage: 40 kV – 120 kV - Fluoroscopy current: minimum 0.25 – 4.0 mA - High level Fluoroscopy: minimum 8 mA - Pulsed fluoroscopy function: 3 – 12 Pulses/sec
X-ray tube:	- Dual focus X-ray tube: 0.3 mm and 0.6 mm - Monobloc thermal capacity: minimum 600 kJ (810,000 HU) - Collimator: Iris and wedge shutter
Image intensifier:	- High line image intensifier 23 cm (23/17/14 cm)
CCD-Camera based system:	- Image matrix: 1024 x 1024 pixel - Standard image memory: Minimum: Last image hold (LIH)
Monitors:	- Minimum of 2 x 17" LCD monitors

Remote Control System:

Remote Control Option:	- Minimum 2 x 17" LCD monitors.

Ultrasound system:

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Concept:	- In-line, real-time through the shockwave source imaging
Ultrasound:	- B&W imaging
Imaging modes:	- B-Mode, M-Mode
Image display:	- min. of 12 inch monitor
In-Line transducer:	- 3.5 MHz convex transducer
Additional transducer(s):	- option for connection of additional (hand held) transducers

Image Transfer, Storage & Processing Requirements:

Image Processing System:	- Stand alone PC based system capable of acquiring, storing and printing Ultrasound and X-Ray images, approx. 150,000 images Dicom 3.0 connectivity (Store, Print, Query/ Retrieve & Worklist Options available)

Patient Data Management Requirements:

Patient Management System:	- PC based system with software capable of archiving, processing and statistical analysis of treatment data

All instruments must be CE/ FDA certified whereever applicable

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(19) **Specification for Bipolar TURP Set:**

It should consist of the following:

1. Telescope 30 Degree ,diameter 4mm,autoclavable, fiber optic light transmission incoprporated.
2. Working Element,Bipolar , Cutting by means of spring,movable thumb support and in rest position the electrode remain inside the resectoscope sheath.
3. Resectoscope sheath,26Fr,including connecting tubing for in and outflow, oblique beak,rotatable inner tube with ceramic insulation .
4. obturator for use with resectoscope sheath.
5. Cutting loop,bipolar,24 Fr
6. Cutting loop,bipolar , small,24 Fr.
7. Resection in saline solution.
8. The direct current should return via the electrode to prevent a current flow via the sheath.

to ensure a high deep coagulation effect during cutting.

Specification for Bipolar Resectoscope set:

- Resection in saline solution
- It should have one 30 degree and one 12 degree telescope, 4mm, autoclavable.
- Cutting loop, bipolar, 24 Fr, to be used with both 30 degree as well as 12 degree telescopes.
- Cutting loop, bipolar, 24 Fr, small, to be used with both 30 degree as well as 12 degree telescopes.
- Resectoscope sheath, 26 Fr, oblique beak, rotatable inner tube with ceramic insulation.
- Obturator for use with sheath.
- Working Element, bipolar, cutting by means of spring, movable thumb support, in rest position the electrode is inside the sheath.

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- Compatible HF cord.

Specification for High Frequency surgery units for bipolar resection should have following features:

a. Degree of coagulation can be reselected in several steps.

b. It should have the soft, standard and forced coagulation.

c. Auto start function: manual adjustment of operating time limit for bipolar coagulation.

d. Voltage regulated cutting

e. Service port for software updates

f. Automatic activation of coagulation current as soon as coagulation electrode touches tissue with both branches.

g. Activation of HF functions possible via footswitch or manual control switch.

h. Bipolar application with NaCl irrigation solution.

i. Connecting sockets for unipolar and bipolar application can be selected according to individual requirements.

j. Convenient use Touch Screen.

k. Switchover function enables switching between two modes within a user programme via a footswitch from the sterile area.

l. Interdisciplinary use

m. Spray coagulation

n. Arc-controlled cutting,unipoar

o. Maximum Bipolar saline coagulation at 200watt, bipolar saline cut -100 watt, bipolar saline –c-cut at 300 watt.

p. Unipolar maximum at 300watt where standard coagulation at 200 watt, forced coagulation at 120 watt, spray coagulation at 120 watt.

q. LF/HF leakage current monitor

r. Neutral Electrode safety system

All instruments must be CE/ FDA certified whereever applicable

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(20)

Specification for Flexible Cysto-Nephro-Fibroscope

It should consist of the following:

1. To be used for both office and outpatients clinic.
2. Allows endoscopic monitoring and therapy with pneumatic and laser energy source .
3. Large angle of view and deflectable distal tip for better orientation upto 110 degree.
4. Deflection of distal tip : upward-210 degree and downward- 140 degree.
5. Instrument channel 7 Fr.
6. Waterproof,fully immersible for cleaning and disinfection.
7. Sterilizable via EtO and FO gas,Steris and Sterrad.
8. Direction of view should be 0 degree.
9. Working length 37 cm with distal tip diameter of 15.5 Fr.
10. Folowing accessories are to be included: Case for fiberscope, grasping forcep 5 Fr for small fragments,single action jaws,Biopsy forcep 5Fr with single action jaws length 73cm, Pressure compensation Cap for ventilation during gas sterilization, Leakage tester with bulb and manometer,Cleaning brush 6Fr flexible long for instrument channel.,LUER-adapter,with seal.
11. stone basket 5Fr length 60 cm consisiting of 3-ring Handle ,basket,coil.
12. Coagulating Electrode 4Fr length 73 cm.

All instruments must be CE/ FDA certified whereever applicable

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(21)

SPECIFICATION OF HOLMIUM YAG LASER WITH MORCELLATOR, MORCOSCOPE, RESECTOSCOPE & FLEXIBLE URS FOR UROLOGY

1. The equipment should be Compact Holmium YAG Laser with minimum power setting equal or comparable to 100 watt Holmium laser

2. The equipment should have atleast one Laser Head

3. The equipment should have atleast one flash Lamp.

4. The equipment should have atleast one set of mirrors.

5. The equipment & fiber should have a narrow angle of divergence (Numeric Aperture).

6. The equipment should have an integrated facility be used for the following procedure like-

BPH, stones, bladder neck incision, strictures, Tumors, endo pyelotomy, etc.

7. The equipment should have emergency Switch to shut off operation completely.

8. The equipment should come with reusable vaporization fiber.

9. The equipment should have a facility doing LITT- Laser Induced thermo therapy (to make coagulated Zones in each lobe of prostate) with special fiber for treating high-risk patient and younger patient

10. The equipment should have a facility doing Holep, Holrop, Holvop of BPH with reusable fibres.

11. The equipment should be Air cooled.

12. It should be possible to use BPH fibre for other application like stone fragmentation,

Prostate enucleation, prostate Vapo-resection, prostate LITT, bladder neck incision,

Strictures, Tumors, endo pyelotomy etc.

13 . laser should be compatible with both rigid and flexible instruments .

13. The equipment should have the following technical specification.

a) Wavelengths : 2.1µm

b) Laser Power : atleast50W

c) Max. Laser energy : 0.5-4.5J at tissue level

d) Repetition rate : 5-25Hz

e) Operation modes : Preprogrammed for Litho, LITT, and Ablation modes.

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f) Aiming Beam : 532nm, <1 mW, adjustable, for better contrast at tissue Level

g) Equipment must offer adjustable pulse width between 200-700 µsec beside adjustable repetition

rate and energy.

h) Power required : 230 VAC with 16 Amps at Single phases

i) should have preset memories

j)should have internal cooling system

K) should be user friendly

L)-Electrical requirement – 220-240 v A.C 50Hz 30 A

14. Following accessories Should be supplied along with equipment

Fibre:-

a) Fiber 230 / 365 / 600 microns - 06 Nos.

b) Vaporization fibre 800 micron (Reusable) - 1 No.

c) Fibre for LITT (Laser Induced Thermo Therapy) - 1 No.

Accessories:-

Goggles - 2no.

Diamond Cutter - 1no.

Stripper/clipper - 1no.

Manual

15. A) ROTATION-MORCELLATOR

i. Power control generator including footswitch, 50/60hz, 100-240 v.a.c.

ii. Power stick m 4, motorized handpiece with connecting cable, max rotational speed 6000 rpm.

iii. Rotation morcellator re usable, diameter 4.75 mm, working length 350mm comprising outer and inner

blade (2no.)

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IV. Suction pump piranha for continuous aspiration of irrigation fluid and enucleated tissue

B) LASER MORCESCOPE

i. Panoview plus operating telescope for morcescope angle of view 12 degree, parallel eyepiece,

capacity 5mm for auxiliary instruments up to 4.8 mm diameter, panoview plus rod lens system

automatic valve on the working channel, continuous irrigation through continuous irrigation sheath

26.5 fr.

C) LASER RESECTOSCOPE

I. Panoview plus telescope, new generation with fixed eyepiece, dia 4mm 30 degree angle of view,

autoclavable.

II. Outer continuous irrigation sheath "e-line," 26fr., oval, by marberger, with automatic locking

mechanism and oblique distal tip

III. Inner continuous irrigation sheath "e-line," 24 fr., oval, by marberger, with automatic locking

mechanism, rotatable irrigation ring, oblique distal tip with ceramic insulation

IV. Visual obturator 24 fr.

V. Laser working element with probe guide channel for laser treatment in the lower urinary tract, laser

probes can be secured by locking mechanism

VI. Guide tube for laser fibre, capacity 600 micron

VII. Guide tube for laser fibre, capacity 365 micron

d) **FLEXIBLE URETEROSCOPE** with standard accessories for RIRS

16. The Laser equipment should be from a standard manufacturer preferably from European/US country

17. The company should have exclusive dealership rights of Laser in India.

18. The Laser equipment must have ISO,CE & FDA standard certificates.

19. The company should have service backup with trained engineer in the region.

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20. The company should have supplied more than 50-60 laser equipments in India.

21. The company should have at least 8-10 years service experience of Holmium YAG Laser.

. ***All instruments must be CE/ FDA certified whereever applicable***

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22 SPECIFICATION OF FLEXIBLE URS
Uretero-Reno Fiberscope with contrapositive deflection mechanism, steerable, deflection of distal tip of atleast 270°/270°, direction of view 0°, angle of view of atleast 88°, working channel inner diameter 3.6 Fr., sheath size 7.5 Fr., working length of atleast 67 cm Following accessories should be included: Carrying Case, Leakage Tester, with bulb and manometer, Cleaning Brush, flexible, for working channel diameter 1.2 - 1.8 mm, length 150 cm, LUER-Adaptor, with seal
-
Grasping Forceps, 3 Fr., double action jaws, flexible, length 100 cm
Biopsy Forceps, 3 Fr., double action jaws, flexible, length 100 cm
Stone Basket, sterile, disposable, 2.5 Fr., length 120 cm
Coagulating Electrode, 3 Fr., unipolar, length 110 cm
Guide Wire, 3 Fr., with ball end, sterile, package of 10
Sealing for instrument ports
Cleaning adapter for instrument ports
It should adhere to sterilization method with ETO, Steris & Sterrad. And have standard accessories

All instruments must be CE/ FDA certified whereever applicable

Yes
Ideally

Following compatible accessories should be supplied with instrument-Grasping forceps, biopsy forceps, and case for the instrument, Pressure compensation cap, and leakage tester and cleaning brush.

Specifications for Pneumatic Intracorporeal lithotripter

(23)

1. Should have US FDA approval and CE certificate; certificates should be enclosed with the tender.
2. Should have a proven Performance record (including satisfactory performance and service) certificates from at least five teaching institutes.
3. Should have an installation base of a minimum of 10 nos in last three years.
4. Should submit at least five clinical papers from leading urologists to support the efficacy

An Intracorporeal Lithotripter.

- A single foot pedal for controlled delivery of energy.
- Should have diff probe sizes for Ballistic energy.
- Facility to connect the unit to hospital compressed air supply if desired.
- Should be able to withstand pressures from 3.5 to 5 Bar
- Facility to connect to the hospital vacuum supply for suction of stone fragments.
- Facility to collect the stone fragments during PCNL.
- Probes for various applications and scopes
- Ballistic probes: 0.8, 1, 1.6, 2 mm probes
- Optionally Flexible ballistic probe for use in ureter and renal pelvis through flexible scopes can be chosen.

Pneumatic (ballistic) energy unit:

- Repetition rate from 1 to 12 Hz.
- Hand pieces should be compatible for gas, glutaraldehyde sterilization or for autoclaving.
- Selection facility for the frequency setting.

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- Should be supplied with a medical compressor.
- Should be able to integrate the suction and ballistic facility for PCNL.
- ***All instruments must be CE/ FDA certified whereever applicable***

(24) **1.Specification for URS set 8 Fr**

1. Uretero-Renoscope, 8 Fr/9.8Fr., 12°, one-step, conical, 8-13.5 Fr., length 43 cm, autoclavable, with angled eyepiece, fiber optic light transmission incorporated, 2 lateral irrigation ports and 1 working channel 5 Fr. for instruments upto 5 Fr., sealing and tray for cleaning, sterilization and storage.
2. Distal chip diameter of 8Fr.
3. Detachable instrument port with sealing system and quick release lock, one instrument channel.
4. Distal end of sheath atraumatically shaped with rounded tip.
5. Grasping Forceps for stone fragments, double action jaws, 4 Fr., rigid, length 60 cm- 2 pcs
6. Grasping Forceps for large stone fragments, double action jaws, 5 Fr., rigid, length 60 cm. - 2 pcs
7. Grasping Forceps for large stone fragments, Triprong jaws, 4 Fr., rigid, length 60 cm. - 2 pcs
8. Grasping Forceps for large stone fragments, Triprong jaws, 5 Fr., rigid, length 60 cm. - 2 pcs

9. Detachable Instrument Port with sealing system and quick release lock, 2 channels, for use with uretero-renoscopes
10. Stone therapy with laser, ultrasound, electro hydraulic or ballistic lithotripsy

_ Rigid auxiliary instruments can be used through the straight instrument channel.Use of flexible auxiliary instruments or two different instruments such as laser fiber or electro hydraulic probe and stone extractor to stabile and retrieve the concrement

Accessories:

Handle.....1

Guide for Lithocast hand piece.....1

Membrane seal (pack of 10).....1

Membrane retainer, standard.....1

Membrane retainer with Luer.....1

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(25) **2.Specification for URS set 6Fr**

1. Uretero-Renoscope,6/7.5Fr., 12°, one-step, conical, 8-13.5 Fr., length 43 cm, autoclavable, with angled eyepiece, fiber optic light transmission incorporated, 2 lateral irrigation ports and 1 working channel 3Fr. for instruments upto 3 Fr., sealing and tray for cleaning, sterilization and storage.
2. Distal chip diameter of 6Fr.
3. Detachable instrument port with sealing system and quick release lock, one instrument channel.
4. Distal end of sheath atraumatically shaped with rounded tip.
5. Grasping Forceps for stone fragments, double action jaws, 3Fr., rigid, length 60 cm- 2 pcs
6. Grasping Forceps for stone fragments, Triprong jaws, 3 Fr., rigid, length 60 cm. - 2 pcs
7. Detachable Instrument Port with sealing system and quick release lock, 2 channels, for use with uretero-renoscopes
8. Stone therapy with laser, ultrasound, electro hydraulic or ballistic lithotripsy

_ Rigid auxiliary instruments can be used through the straight instrument channel.Use of flexible auxiliary instruments or two different instruments such as laser fiber or electro hydraulic probe and stone extractor to stabile and retrieve the concrement

Accessories:

Handle.....1

Guide for Lithocast hand piece.....1

Membrane seal (pack of 10).....1

Membrane retainer, standard.....1

Membrane retainer with Luer.....1

All instruments must be CE/ FDA certified whereever applicable

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(76) **Specification for Adult Cystoscope & Resectoscope, Cystolitholithotripsy and urethrotome**

The set should include the following:

1. Straight Forward 0 degree HD Telescope,diameter 4mm,Autoclavable,Length30cm,fiber optic light transmission incorporated.
2. Forward oblique 30 degree HDTelescope,diameter 4mm,Autoclavable,Length30cm,fiber optic light transmission incorporated.
3. Forward oblique 70degree HDTelescope,diameter 4mm,Autoclavable,Length30cm,fiber optic light transmission incorporated.
4. Forward oblique 120 degree HDTelescope,diameter 4mm,Autoclavable,Length30cm,fiber optic light transmission incorporated.
5. Cystoscope-Urethroscope Sheath,17Fr, 19FR,22Fr & 25Fr each with obturator and 2 LUER-lock connectors
6. Telescope bridge,with 1 lockable channel
7. Telescope bridge,with 2 lockable channel
8. Catheter deflecting mechanism with 2 lockable channels,with quick control.
9. Optical Grasping forcep,double action jaws for stent removal.
10. Forcep for removal of foreign bodies of 5Fr,7Fr & 9Fr each with double action jaws,flexible,length 40cm.
11. Biopsy Forcep 5Fr, 7F & 9 Fr, each with double action jaws,flexible,length 40cm
12. Scissors of 5Fr, 7F & 9 Fr,each with Single action jaws,flexible,length 40cm

13Resectoscope Set 26 fr should have Sheath with LUER-Lock stopcock,including connecting tubing for in & outflow, oblique beak,rotating inner sheath with ceramic insulation .standard oburator & Visual obturator each with channel for flexible instruments.Working element (passive type)where cutting by means of a spring,the thumb support is movable and in rest position the electrode is inside the resectoscope sheath.High frequency cords(Monopolar).Protection tube for sterilization and storage of electrodes. Electrodes-Vaporisation electrode, Knife electrode,Needle electrode,Barrel electrodes , Loop electrode, Ball electrode, – 4 each.

13. Resectoscope Set 24 Fr should have Sheath with LUER-Lock stopcock,including connecting tubing for in & outflow, oblique beak,rotating inner sheath with ceramic insulation .standard oburator & Visual obturator each with channel for flexible

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instruments.Working element (passive type)where cutting by means of a spring,the thumb support is movable and in rest position the electrode is inside the resectoscope sheath.High frequency cords(Monopolar).Protection tube for sterilization and storage of electrodes. Electrodes- Vaporisation electrode, Knife electrode,Needle electrode,Barrel electrodes , Loop electrode, Ball electrode, – 4 each.

14. Sachse Urethrotome set – should have sheath,21 Fr with channel . working element .Obturator for urethrotome sheath.Telescope Bridege for use with urethrotome sheath with 5 Fr channel for instruments.Supplementary Sheath,side open for introduction of ballon catheter,to slip on urethrotome sheath. Cold Knife , straight x 10no.Cold Knife half round x 10 no.
15. Mouermeyer stone punch -Punch-Working Element, Punch Sheath, with Central Valve, including connecting tubes for in- and outflow, 25 Fr., straight beak, with obturator. Insert Tube, with channel for flexible instruments, 7 Fr., with atraumatic beak for urethroscopy
16. Ellik evacuator
17. Toomey Glass syringe 50ml and 100 ml
18. OTIS KNIFE .Should be supplied with dilation unit. Should be supplied with knife .Should be supplied with head part – Conical , Flat and Ball shaped x 1 each

All instruments must be CE/ FDA certified whereever applicable

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(27) **Technical Specification for Integrated Bipolar and Ultrasonic Coagulation & Cutting Unit**

The Unit should have following features :

- Synergistic of Ultrasonic energy combined with Bipolar HF energy
- Rapid Dissection and Reliable Hemostasis up to 7mm Vessels in a Single Instrument
- Dedicated cart for transportation and storage
- Instrument recognition and automatic application of default settings for ease of use.
- Provision for Automatic mist and smoke evacuation to maintain a clear laparoscopic view reducing delays associated with compromised visualization when combined with Co2 Gas Insufflator
- HF Unit should have operational compatibility for all Lap / Gyn / Uro / GI / Open Surgery and should have minimum 16 Monopolar & Bipolar modes to cover all OR requirements, boot time not more than 6 Sec, 4000 times feedback control cycle per second.
- LCD and Touch Screen user Interface
- HF unit should have Fast Spark Monitor ensures smooth and reproducible cutting in varying tissue (e.g., muscle & fat)
- HF unit should have Automatic Saline Detection mode for Urology application
- HF & US device should have CF type Protection against electric shock
- Device should have dedicated Seal and & Seal & Cut mode by hand activation without exchanging the instruments.
- Device should have best in class versatility, upto and including 7 mm

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vessel sealing capability, Fast cutting speed, Fine and easy dissection.

Hemostatic seal mode, Optimised grasping etc for getting less

instrument usage & exchange, Uninterrupted operation flow and reduced

OR time.

- Device should be supplied with following instrumentations :

1) Ultrasonic Generator with Foot Switch

2) Advanced HF Generator with Foot Switch

3) Transportation Cart

4) Communication Cables

5) Autoclavable Transducer with cable (2 pcs)

6) Hand piece probes for lap (10 pcs)

All instruments must be CE/ FDA certified whereever applicable

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(28) **TECHNICAL SPECIFICATION OF LAP UROLOGY SET**

Sl. No.	Description	Qty
1	Forward-Oblique HD Telescope 30° and 0°, enlarged view, diameter 10 mm, length 31 cm, autoclavable. fiber optic light transmission incorporated. Color code: red	1
2	Forward-Oblique HDTelescope 30° and 0°, enlarged view, diameter 5 mm, length 29 cm, autoclavable, fiber optic light transmission incorporated, color code: red	1
3	EndoTip Cannula, size 6 mm, Color code: black, consisting of: Multifunctional Valve, Cannula with thread, with rotational insufflation stopcock, length 10.5 cm	1
4	EndoTip Cannula, size 11 mm, consisiting of: Multifunctional Valve ,Cannula with thread, with rotational insufflation stopcock, length 10.5 cm	1
5	Trocar, size 13 mm, color code: black, consisting of: Trocar only, with pyramidal tip, Cannula without valve, with insufflation stop- cock, length 11.5 cm, Multifunctional Valve, size 13 mm	1
6	Double Reducer 13/10 mm and 13/5 mm	1
7	Reducer 11/5 mm	1
8	Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, "Tiger-jaw", 2 x 4 teeth, single action jaws, consisting of: Plastic Handle, with ratchet, Outer Tube, insulated, Forceps Insert	1
9	Dissecting and Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, double action jaws, consisting of: Plastic Handle, without ratchet ,Outer Tube, insulated ,Forceps Insert	1
10	Dissecting and Grasping Forceps, rotating, with connector pin for unipolar coagu- lation, size 5 mm, length 36 cm, right angled, double action jaws, consisting of: Plastic Handle, without ratchet , Outer Tube, insulated, Forceps Insert	1
11	Dissecting Forceps, rotating, right angled, size 10mm length 36 cm, double action jaws, consisting of: Metal Handle, with hemostat style ratchet, Outer Tube, insert ,Forceps Insert	1
12	Dissecting and Grasping Foeceps, rotating, long, size 10 mm, length 36 cm, double acton jaws, consisting of: Metal Handle, without rachet ,Outer Tube, insulated, Forceps Insert	1
13	Dissecting and Grasping Forceps, rotating, size 10 mm, length 36 cm atraumatic, double action jaws, double action jaws, length of jaws 40 mm, for organs, consisting of: Metal Handle, without ratchet, Outer Tube, insulated, Forceps Insert	1

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14	Scissors, rotating, with connector pin for unipolar coagulation, size 5 mm, lenght 36 cm, blades curved, double action jaws, length of blades 12 mm, consisting of: Insulated Handle, without ratchet, Outer Tube, insulated, Insert	1
15	Scissors Insert, Scissors, curved, length of blades 12 mm, double action jaws, size 5 mm, length 36 cm	1
16	Dissecting and Grasping Forceps, rotational, with connector pin for bipolar coagulation, size 5 mm, length 36 cm, , especially suitable for dissection, double-action jaws, consisting of: Ring Handle, Outer Sheath, Forceps Insert	1
17	Bipolar High Frequency Cord with 2 x 4 mm banana-plug to Coagulator, length 300 cm	
18	Surgical Sponge Holder, for atraumatic dissection of tissue layers, size 5 mm, length 30 cm, consisting of: Handle, Outer Sheath, insulated, Sponge Holder Insert	1
19	Suction and Irrigation Tube, anti-reflex surface with two-way stopcock, for single hand control, size 5 mm, length 36 cm	1
20	Needle Holder, straight jaws, axial ring handle with ratchet, size 5 mm, length 33 cm, for use with suture material 2/0-4/0, needle size RB (Ethicon)	1
21	Needle Holder, convex/ concave, slim jaws, curved left,axial ring handle with ratchet, size 5 mm, length 33 cm, for use with suture material 3/0, needle size RB-1 (Ethicon)	1
22	Transurethral Bougie, 18 Fr., with working channel 9 Fr., for anastomosis during laparoscopic prostatectomy	1
23	Laparoscopic Clamp, long version, length of jaws 10 cm, depth oj jaws 2.5 cm, straight sheath, size 10 mm, length 30 cm, with axial ring handle, ratchet with security locking device	1
24	Heamolock Clip Applicator - **LARGE**	2
25	Heamolock Clip Applicator - **EXTRA LARGE**	2
26	Haemolock Polymer Clips - **LARGE SIZE**	1
27	Haemolock Polymer Clips - **EXTRA LARGE SIZE**	1
28	**Self-righting reusable needle holder** conducting auto-correction for needle holding angles 5mm diameter with palm type handle (for laparoscopic surgery.	1
29	**ENDOPOUCH RETRIEVER SPEC BAG**-Endopouch specimen bag 4"X6" with retriever handle.	1

All instruments must be CE/ FDA certified whereever applicable

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(29) **Specifications for combined Ultrasound and Pneumatic Intracorporeal lithotripter**

1. Should have US FDA approval and CE certificate; certificates should be enclosed with the tender.
2. Should have a proven Performance record (including satisfactory performance and service) certificates from at least five teaching institutes.
3. Should have an installation base of a minimum of 10 nos in last three years.
4. Should submit at least five clinical papers from leading urologists to support the efficacy

An Intracorporeal Lithotripter.

- **Should have Ballistic and Ultrasound energies to be used simultaneously.**
- A single foot pedal to operate both or one energy.
- Separate Hand pieces for Ballistic and Ultrasound Device
- Separate Probes for Ballistic and Ultrasound Devices
- Facility to integrate both probes when using both the energies simultaneously to fragment large and hard stones.
- Should be able to use the energies independently also.
- Facility to connect the unit to hospital compressed air supply.
- Should be able to withstand pressures from 3.5 to 5 Bar
- Facility to connect to the hospital vacuum supply for suction of stone fragments.
- Facility to collect the stone fragments.
- Probes for various applications and scopes
- Ballistic probes: 0.8, 1, 1.6, 2 mm probes
- Flexible ballistic probe for use in ureter and renal pelvis through flexible scopes.
- Dual function Ultrasound Probes: 3.5 and 4 mm probes. For fragmentation and suction. Probes should have holes in the distal tip to prevent mucosal suction into the probe. Conical tip to prevent entry of larger fragments.
- Should supply the guidance adapters for the Ureteroscopes like Storz, Wolf, and Olympus.

Ultrasound Unit:

- Approx 24kHz frequency
- Axial transmission of ultrasound waves
- Digital regulation of resonance frequency circuit to detect and compensate any change in the resonance frequency by temperature shift or mechanical pressure.
- Power display in percentage 10 to 100 percent
- Impulse ration (duty cycle) from 10% to 100 %
- Ultrasound usage time display.

Pneumatic (ballistic) energy unit:

- Power display from 10 to 100 percent
- Repetition rate from 1 to 12 Hz.
- Display of number of impulses.
- Hand pieces should be compatible for gas, glutaraldehyde sterilization or for autoclaving.
- System should have Selection switch for Ballistic or Ultrasound Mode.

All instruments must be CE/ FDA certified whereever applicable

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(30) **SPECIFICATIONS OF URODYNAMIC SYSTEMS**

- Six or more Channel microprocessor based Urodynamic Equipment with Integrated PC
- Facility to conduct Uroflowmetry, Cystometry, Pressure Flow Study, EMG, & UPP etc.
- For Uroflowmetry system must have accurate spinning disk flow/ weight based transducer.
- The equipment should have atleast 4 pressure channels, 1EMG channel and 1Flow channel.
- The equipment should have long life pressure transducer and has to supply at least 3 nos with the equipment along with the cable
- The system should have H2O Pump for water cystometry with adjustable infusion rate of 2 to 10ml/min (increment of 1ml/min) 10 to 100ml/min (increment of 5 ml/min)
- Preset Index Programme should be shown on screen for easy selection of tests.
- The equipment should have easy to use screen monitor
- UPP puller along with stand.
- Facility of fully automatic comprehensive patient filing and report generation software with editing /post processing mode should he provided in the system.
- It should also be able to provide graphical representation of relation between detruser pressure and urinary flow rate.
- The system should have inbuilt audible EMG and inbuilt speaker for audible EMG (Raw & Average) to ensure proper placement of electrode.
- Custom built imported trolley
- Equipment should have advanced integrated PC configuration with 19" high resolution monitor, 2GBRAM, minimum 500GB Hard Disk, CD / RW, Color Laser printer and UPS.
- The system should have Wide range of electrodes should be offered to conduct comprehensive pelvic floor EMG:-
- Needle Electrodes - 2 nos.
- Surface Electrodes - 1Pkt.
- Ground Electrode - 1 nos.
- Rectal Catheter (Feeding tube) - 10 nos
- 2 Lumen Catheter for Cystomerty & UPP 8F - 10 nos.
- T-Piece - 4nos.

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- 3 way stop cock – 4nos.
- Disposable Domes for Medex- 4nos.
- Extension Set (Manometer Line) - 4nos.
- Hush yoke cable 1.5 mtr. 1no.
- EMG Cable 1no.
- Surface electrode cable 1no.
- Infusion sets 25nos.
- Optional PQ Plot study
- Optional Stress Profile study.
- Optional Video Urodynamic with the facility of image processing & Cine loops, Synchronization and superimposition of Video images over traces & vice versa should be possible, Invert of color in the images should be possible so that Radiographic images can be taken out i.e. image with black background & with white features.
- The equipment must have ISO / CE approval.
- Equipment should from a standard manufacturer
- The dealer should have exclusive dealership rights in India
- The dealer should have service backup with trained engineer in the region.
- The dealer should have supplied at least 40-50 urodynamics systems in India.
- The dealer should have at least 10 years service experience of urodynamics.

All instruments must be CE/ FDA certified whereever applicable

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(31) **Uroflowmeter- TECHNICAL SPECS**

- **Fully Automatic with auto start & Stop.** Measurement duration : atleast 180 seconds.
- Modes of measurements: Auto mode & Hesitancy Mode
- Successive test can be taken without the need to, empty the jar after every test.
- Nomograms in output report.
- It should calculate following parameters:-
    - Voiding time
    - Flow time/ Delay time
    - Time to max. flow
    - Max. flow rate
    - Avg. flow rate
    - Voiding volume
- It should have an accuracy of ± 3% throughout the scale
- The equipment should have self test/calibration facility.
- Retention of Last test even if power fails.
- The printer should be built in for automatic print out after the test is complete along with patient identification and test result
- Multiple prints, of the same test possible.
- LCD display for Compact Uroflowmeter
- Portable, reliable , economical and Compact in size
- WEIGHT BASE/rotating disc based UROLFLOW DEVICES
- Should comply to CE/ FDA standard

Standard Accessories :

Weight /rotating disc transducer assembly (01)

Urine collection beaker- 2000ml– (01)

Micturation chair – (01)

Funnel – (01)

Mains cable – (01)

Printer – (01)

- Printer cable – (01)

All instruments must be CE/ FDA certified whereever applicable

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(32) **Specification for Pediatric Cystoscope,Resectoscope& Urethrotome set**

The set should include the following:

1. Straight Forward 0 & 30 degree Telescope,diameter 1.9mm/2.1mm,Autoclavable,Length18cm,fiber optic light transmission incorporated.
2. Cystoscope-Urethroscope Sheath,9.5Fr,length 14cm with instrument channel 4Fr with obturator and 2 LUER-lock connectors.
3. Cystoscope-Urethroscope Sheath,11Fr,length 14cm with instrument channel 5Fr with obturator and 2 LUER-lock connectors
4. grasping forcep,3Fr, double action jaws,flexible,length 28cm
5. Biopsy forcep,3Fr,double action jaws,flexible,length 28cm
6. Ball electrode,3Fr,length 53 cm
7. needle electrode,3Fr. Length 53 cm.
8. Resectoscope Sheath ,including connecting tubing for inflow,11Fr and obturator.
9. Urethrotome Sheath,10Fr,with obturator
10. Telescope bridge,with 1 lockable channel to be used with resectoscope sheath.
11. Telescope Bridge to be used with Urethrotome sheath.
12. Working element where cutting by means of a spring,the thumb support is movable and in rest position the electrode is inside the resectoscope sheath.
13. cutting loop,angled
14. coagulating electrode angled,blunt
15. coagulating electrode,hook shaped,ball end.
16. coagulating electrode,without ball end.
17. coagulating electrode,angled,pointed.
18. Cold knife,straight
19. Cold knife,round
20. High frequency cords(Monopolar)
21. Protection tube for sterilization and storage of electrodes.

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All instruments must be CE/ FDA certified whereever applicable

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Equipment Specifications for

C-Arm Image Intensifier(Multispeciality)

1 Description of Function

1.1	Image Intensifier for Dynamic X-Ray based studies in operation room, radiology etc.

2 Operational Requirements

2.1	Must be for universal use in Radiology and other services. The fluoroscopy, pulsed fluoroscopy and digital radiography operating modes are to be supported. The C-arm should have on line digital subtraction for use in vascular intervention with Roadmap. The C-arm should be of compact, lightweight design. Must be equipped with a 23 cm image intensifier. (should seek a large option if available) The camera system should be based on CCD technology with a digital imaging system for fluoroscopy and radiography, and Two nos. 17 inch TFT monitors should be provided. Local archiving of single images and scenes for over 10,000 imagers is required. Must be possible to connect the system to a network via an integrated DICOM 3.0 interface. The C-arm should have motorized vertical movement. Please mention the details of orbital movements, swivel and angular movements. The larger range of movements are preferred. The C-am should be fitted with Laser devices for proper radiation free positioning.

3 Technical Specifications

3.1	Technical Specifications C-Arm 1. General- a) Motorized Vertical travel : MINIMUM 500 mm or more b) Privotal rotation : =/- 12.5 deg. Or more c) Orbital rotation : = 90 deg. – minimum 30 deg. Or better d) Depth/Radius of C-arm : 660 mm or better e) SID : 950 mm or more f) Horizontal travel : 220 mm or better g) Free space between II & X-ray tube : MINIMUM 740 mm or more h) Rotation of C-arm : +/- 270 deg. Or more i) Total WIDTH of C-arm : MAXIMUM 800 mm or less 2) Image Intensifier a).Atleast triple field 9"/6"/4" input dia offering resolution (Minimum 64lp/cm or better for 4" input) & contrast ratio (25:1 or better) 3) TV Camera Ultra Compact CCD camera with high No of pixels (> 450000) and video band width (atleast 20 MHz of better) along with 2 Nos. 17" 625 lines 100 Hz flicker free TV monitors with facility to rotate the image continuously.

4.)Direct Radiography

Radiography should be possible on a cassette to be fitted in a holder for 10X 12 inches cassette. The unit should be complete with one such holder and 1 No. cassettes including high speed intensifying screens.

5.)X- ray generator

High frequency (25- 40 KHz or more) 3.5 to 5.0 KW or even better X-ray generator with high capacity rotating anode X-ray tube of dual foci of 0.3 and o.6 mm (200 KHU) or better.

6.)a.Fluoroscopy output : 40-120 KV in IKV steps
b)mA output : MINIMUM Up to 8. mA or better
c) Snapshort : MINIMUM Up to 12.0 mA or better

d) Pulsed fluoroscopy rate selectable:- 1 image per second to 1 image per 5 second or better

e) Automatic dose rate regulation with KV & mV control
Time totalizer for fluoroscopy with facility to alarm after every 5 minutes of fluoroscopy

7.)a)Radiography output : 40-120 KV in 1 KV steps
-b) mA range : Up to 250 mAs or better
-c) mA max : Up to 90 mA or better

8.Image Memory

At least 1 (LIH) + minimum 20,000 frames dynamijkc digital memory on Hard Disk with 576 X 576 matrix or better,. There should be facility to insert patient name through alphanumeric key board. They system must be upgradable to functions of performing REAL TIME digital subtraction angiograpny wiyth acquisition up to 6 frames/sec. or better and Road –mapping functions etc. at any later date for peripheral angiography.

9.Essential Accessories

The complete functional system must be quoted with DUAL CHANNEL Laser LIGHT SOURCE ON, X-RAY TUBE UNIT for making a cross to reduce the X-ray dose, Built in DODE AREA PRODUCT meter for disply of X-ray dose, light weight lead aprons (6) required CVT and thermal imaging film printer with 12 film rolls.
CD/DVD Writer

4	System Configuration Accessories, spares and consumables	
4.1	4.1C-Arm Main Frame 01 4.2 Table 01 4.3 X-Ray Generator 01 4.4 X-Ray Tube 01 4.5 Image Intensifier &Imaging Chain 01 4.6 3D Rotational Angiography 01 4.7 Data Management Capabilities-01 4.8 Integrated Digital Archieving on CD/DVD 4.9 Lead Aprons 06 4.10 Thyroid Guards 06 4.11 PC with TFT Monitor with table and laser printer 01. 4.12 View Boxes – 02	

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	4.13 TFT Monitor 02
4.2	All the accessories in essential accessories.

5 Environmental factors

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

6 Power Supply

6.1	Power input :220-240V/ 50 Hz AC Single phase or 380-400V AC 50 Hz Three phase fitted with appropriate Indian plugs and sockets.
6.2	Appropriate Servo Voltage Stabiliser/ CVT to be provided with the unit. Also spell out the power requirements for the unit

7 Standards, Safety and Training

7.1	1. Company/ supplier Should have a CE, FDA approved ceritfication Should be BEE/NATIONAL GOVT. AGENCY FOR MEDICAL ELECTRICAL EQUIPMENT or BIS approved product. 2. Manufacturer should have ISO certification for quality standards. 3. Comprehensive training for lab staff and support services till familiarity with the system on site. 4. Comprehensive warranty for 2 years and 5 years AMC after warranty.
7.2	Equipment should be type approved by AERB
7.3	Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450

8 Documentation

8.1	1. User/Technical/Maintenance manuals to be supplied in English. 2. Certificate of calibration and inspection. 3. List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer service/ maintenance manual. 4. List of important spare parts and accessories with their part number and costing. 5. Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of clerarlyt spelt out. 6. Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number with authenticated catalogue/manual,without which it will not be considered.

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1. Description of Function:

COLOUR DOPPLER SYSTEM WITH ADVANCED 2D facility.

2. Operational Requirements:

2.1 Latest generation Electronic Phased array Colour Doppler system with Minimum 1200 Electronic

independent channels, and desirably 4000 Electronic independent channels. System should be

DICOM ready and capable of being interfaced with HIS/RIS/PACS.

2.2 Should be field up gradable to next generation system on site. All new software should be

upgraded free of cost for at least 3 years

2.3 Frequency compounding or better technology for better resolution and penetration.

3. Technical Specifications:

3.1 Latest generation Electronic Phased array Colour Doppler system with Minimum 1200 Electronic

independent channels, and desirably 4000 Electronic independent channels

3.2 256 gray shades for sharp contrast resolutions

3.3 Radiology, OB & GY, Urology, TRUS, Probes to be supplied which should be latest generation wide band transducers.

3.4 Harmonic Imaging- System should have Harmonics on all the probes following modes in harmonic with separate setting for it

3.5 Trapezoidal Image on B / Colour.

3.6 Automated Gain control for additional level of flexibility to image quality control.

3.7 Real time high frequency 2D for higher resolution and low frequency Doppler for higher sensitivity in all probes..

3.8 Frame rate should be 1000 FPS or more

3.10 High-definition acoustic zoom for enlarging sections of 2D and Colour flow images with moreacoustic information for greater clarity and detail while maintaining an optimal frame rate.

3.10 Modes –2D, M-Mode, Steerable PW/CW Doppler, Colour Doppler, and High Definition Colour flow with Colour power angio imaging. Triplex

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mode for simultaneous 2D,Duplex, and Colour Doppler, Colour Power Angio, Directional power angio.

3.11 Monitor should be 17" or more, high-resolution Colour Monitor.

Tilt and Swivel monitor should be able to view in all angles and all light conditions.

3.12 Colour Flow Imaging for

a) Increased lateral & spatial resolution.

b) Detection of even subtle areas of turbulence, displaying a more physiological blood flow appearance without loss of frame rate.

c) Colour flow with capability of automatically picking up Colour flow as a function of focal depth

3.13 Tissue Colourization (B-Colour) for improved contrast resolution

3.14 Application software for Adv Urological and Peripheral Vascular (All

application package should be built into the system)

3.15 Cine loop memory- more than 1000 frames.

a. High Frame rate review for better clarity of playback images study in slow motion.

b. Quad loop with memory for pre and post image comparison of any procedure.

c. Memory- 256 frames or more in quad loop. M Mode & Doppler Scroll Memory-40

seconds or more.

d. Frame grabber facility for post analysis.

3.16 Various maps for pre and post processing.

3.17 Minimum 80 GB hard drive for image storage and retrieval.(Standard with system)

3.18 Three or more transducer ports.

3.19 Facility for high definition digital acquisition, review and editing of complete patient studies.

3.20 PC based Peripheral system comprising of dedicated computer at least 80- 100 GB storage space (Hard disc) with 1 GB RAM or more with a Microprocessor speed of more than 3.00 GHz, frame grabber incorporated with DVD writer and a high quality Colour Laser printer. CD/DVD produced should be playable on any system.

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4. System Configuration Accessories, spares and consumables:

4.1 Colour Doppler System with all application packages for serial studies with High frame ratereview with a special urology applications. Harmonic imaging capability in all modes. Digital Storage and Retrieval.

4.2 Convex probe 2 – 5 MHz with Biopsy kit – 01.

4.3 Linear probe 5 – 12 MHz. – 01, with biopsy kit

4.4 Endo cavity for TV & TR applications 5-8MHz - 01. with dual biopsy kit

4.5 B/W thermal printer of latest model.

4.8 Colour laser printer for direct printing of images from the system (with CE or FDA mark) –min

dpi of 1200.

4.9 DVD/CD Recorder with DICOM media transfer.

4.10 Spcifications of Abdominal,Small parts and vascular ultrasound are listed in the following tables

TABLE 1.GENERAL ABDOMINAL ULTRASOUND

SPECIFICATIONS MINIMUM /DESIRABLE

B- MODE

TRANSDUCERS- Curve linear array(CLA), Phase CLA, PA CLA, PA

Frequency Range(MHz) 2-5 2-10

Penetration 15 18-30

SPECTRAL DOPPLER AND FLOW IMAGING CLA, PA CLA, PA

Frequency Range 2-5/ 2-10

Calculation of Waveform indices Auto and manual Auto and Manual

Range of gate registration(mm) <1

Penetration (cm.) 15- 30

TABLE 2.SPECIFICATION FOR SMALL PARTS ULTRASOUND,VASCULAR

ULTRASOUND

SPECIFICATIONS MINIMUM/ DESIRABLE

DYNAMIC IMAGING

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TRANSDUCERS- Linear array(LA) desirable matrix1x1.5

Frequency Range (MHz) 7-12; desirable 5-15

Penetration(cm.) 6-10 8-15

SPECTRAL DOPPLER AND FLOW IMAGING

Frequency Range(MHz) 7-10 /5-15

Penetration(cm.) 6-8 /6-10

Range of gate registration <1

TABLSE 3. SPECIFICATION FOR ENOCAVITY (TV/ TR) ULTRASOUND,

SPECIFICATIONS MINIMUM /DESIRABLE

DYNAMIC IMAGING

TRANSDUCERS- biplanar

Frequency Range (MHz) 5-8 /5-9

Penetration(cm.) 6-10/ 8-15

SPECTRAL DOPPLER AND FLOW IMAGING

Frequency Range(MHz) 5-8 /5-9

Penetration(cm.) 6-8 /6-10

BIOPSY TRUS GUIDED

6. Power Supply:

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

6.2 Resettable overcurrent breaker shall be fitted for protection.

6.3 Suitable Servo controlled Stabilizer/CVT

6.4 Online UPS of suitable rating with voltage regulation and spike protection for 30

minutes back up.

7. Standards, Safety and Training:

7.1 Should be FDA or CE approved product

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

7.3 The product shall comply to IEC 60601-2-37 ed1: Medical Electrical Equipment - Part 2-37:

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Particular Requirements for the Safety of Ultrasonic Medical Diagnostic and Monitoring Equipment

7.4 Type of protection against electric shocks – Class I Degree of protection against electric shocks

for ultrasound probes Type "BF" For ECG electrodes Type 'CF"

7.5 Manufacturer/Supplier should have ISO certification for quality standards.

8. Documentation:

8.1 User manual in English.

8.2 Service manual in English.

8.3 List of important spare parts and accessories with their part number and costing available in stock

with the supplier.

9. Maintainance and Serviceability

9.1 Remote Service Network Connectivity

9.2 Optional Service agreement

9.3 Online phone Support

9.4 Clinical application support

All instruments must be CE/ FDA certified whereever applicable

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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 X40 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 Vaccum

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.*
- *The camera's CCDs should have a 16:9 aspect ratio with an acquisition resolution of 1920 x 1080 progressive scanning.*

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- *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.

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

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Accordingto 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 m/min*
  - *LAP-Mode: 0-1000 ml/min*

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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_2 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_2 thermal-insuflator 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_2 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_2 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_2 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.*
- *Touch controls and digital displays ensure safe and precise adjustment of the set values.*

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- *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*

Accordingto Medical Device Directive (MDD) the light sourceshouldbelongto Class II a andbearthe CE mark in accordancewith 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.
- 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 WITHARGON 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 SAAFE 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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Anaesthesia Workstation for Operation Theatre

Sl. No.	Description
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 ≥ 100 lb / 45 Kg. Folding side shelf with weight limit > 20 Kg. / 50 lb.
3.	Each Anaesthesia workstation MUST 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 O2 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).
	Gas Flow Management :
7.	a. Electronic color coded flow-meters precisely calibrated 6 tube flow meters for oxygen and nitrous oxide and Air. b. Electronic/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. c. Emergency oxygen flush that can deliver flows between 25-75 litres per minute
8.	**Vaporizers - Cassette/ Injecteble/ Selectatec Tec Type : MAINTENANCE FREE with Delivery Range 0 – 6 %** 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. b. With each work station temperature, pressure and flow compensated anesthetic agent specific vaporizers for Sevoflurane and Isoflurane should be provided. Each machine must be capable of accommodating a Desflurane vaporizer.
9.	**Breathing System (Autoclavable) :** Warmed Breathing System (35º C) virtually eliminates internal condensation Closed circle system with carbon dioxide absorbent Single canisters of 1.5 Kgs. Should be part of machine. Machine with bi-stable bag vent switch. There should be 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 Three drawers – both loackable.
10.	**Specifications for AnaesthesiaVentilators : 220 – 240 volts**
	The anaesthesia machine should have integrated Anaesthesia Ventilator System that should have at least VCV with Tidal Volume Compensation, PCV with Volume Guarantee , SIMV+PSV and Pressure Support mode with adjustable breath rate, tidal volume and I:E ratio and apnea backup. The ventilator display should be multicolored 15 inch Touch Screen & Touch pad , Low circuit volume, with tidal volume compensation (for compression losses within absorber and bellows assembly).
11.	Ventilator bellows should be integrally mounted to the breathing system and ascending type. Bellows assembly should be autoclavable.
12.	Anaesthesia ventilator should have following adjustable parameters : a. Tidal volume range of 20 ml to 1500 ml. b. Respiratory rate range 4 to 100 breaths per minute. c. I:E ration range 4:1 to 1:8 d. Inspired airway pressure range is 10 to 50 cm of water. e. Patient Mode : Adult, Pediatric and Neonate. f. PEEP adjustable 0-30 cm of H2O g. High peak inspiratory flow 120 – 150 LPM. h. Pressure Support 3-50 cm of H2O i. Pressure limit-10 -100 cm of H2O j. Capable of minimum flow techniques. k. It should have a Bain Circuit / Module.

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