

List of equipments for the department of Oncology

Sl. No.	Name of Equipments
1	HDR Brachytherapy system
2	C-Arm Image Intensifier
3	Pulse oxymeter
4	Infusion pump
5	Sryinge pump
6	Bi-phasic Defrbrillator
7	ECG machine
8	High End suction machine
9	Hand Disinfectant dispenser system
10	Hand instrument set with container
11	Body composition monitor
12	Vigilio monitor
13	ICU ventilators
14	Patient warmer
15	Flexible Bronchoscope Adult & Paediatric with camera
16	Intubating fibroscope adult & Paediatrics
17	Surgical equipment pandant with equipment
18	Centralised equipment control and management siwth with recording and archiving system
19	Flash sterilizer
20	Laryngoscope with all blades
21	Head light
22	Video assisted thorascopy surgery set
23	Laposcopic surgery set
24	Stapler (All sizes) and cartridges for open and lap surgery
25	Anaesthesia work station
26	ESS Generator
27	Advance Airway clearing system
28	Ultrasound system
29	ABG machine
30	IV Fluid / Blood warmer

ITEM NO. 1

**SPECIFICATIONS FOR A HIGH DOSE RATE REMOTE AFTERLOADING
BRACHYTHERAPY SYSTEM**

GENERAL SPECIFICATIONS:

- A high dose rate Remote Afterloading Brachytherapy system capable of Intracavitary, Intraluminal, Interstitial, Intraoperative, surface mould radiation therapy.
- The HDR system should be microprocessor based with PC control.
- The HDR system must be from a well established company with a documented history of reliability.
- The HDR system must have a symmetrical source & check cable drive.
- The HDR system manufacturer should have an ISO 9001 and FDA certification and must conform to EMC directives.
- The HDR system must have a "check" cable that automatically checks the operation of the complete system prior to treatment. The check cable must also be possible to use as a "Dummy" source to allow simulation of particular source locations.
- The system must be able to use needles upto 18 guage (1.3mm diameter)
- The system should be in use in renowned centres in India. The tender offer must be accompanied with letters of reference from atleast 10 existing users of the offered product in India.

Detailed Specification:

Treatment Unit - HDR

- (1) Treatment unit should be on wheels for easy mobility within the room.
- (2) Treatment unit should have a telescopic head to adjust for various heights.
- (3) Separate stepper motors to control the dummy check cable and Iridium Source cable.
- (4) A safe to contain the Iridium Source which complies with International safety regulations.
- (5) Multichannel indexer with a minimum of 24 channels having an automatic / optical verification of channel number and applicator connection.
- (6) The source must be retractable in the event of an emergency / power failure by following methods:
 - By an independent DC motor.
 - Manual source retraction through hand crank
- (7) Battery back up and a detailed circuit for checking the battery condition.

Control Unit:

- (1) Stand alone and independent PC based control unit with colour monitor, keyboard, mouse, printer (for hardcopy) Built in audio card, network card and a backup media.
- (2) Control unit should be of user friendly console and a graphical user interface and should contain an extensive reporting facility.
- (3) Control Unit software should run on Windows application.
- (4) Control Unit should have a self-testing feature including battery, indexer/RAM.
 - Control unit must allow storage of multiple standards and keep track of patients fractionated treatment.
 - Access must be limited to authorised users with Password protection.
 - The treatment times must be automatically corrected for the decay of the Iridium source.
 - Treatment length must cover at least 47cm with a step size of 1-10 mm .
 - There should atleast be 48 dwell position for the source in each channel.
 - Dwell times for each source step to be from 0.1 to 999.9 secs.
 - Display Window should show step position and corresponding dwell time to 0.1 sec.
 - Display of Total reference air Kerma and dose.
 - The control unit should contain:
 - An inbuilt protection circuit to prevent treatment without proper applicator connection and proper indexer locking.
 - Online extensive display of status codes with an indication of the action required.
 - Large patient database should be provided with a backup option to an external storage device.
 - Control unit should contain an built-in log book and all events should be recorded.
 - Add a line: "The dummy should check closed-end applicator connected prior to the source extension, as an additional safety measure

3D TREATMENT PLANNING SYSTEM

The HDR Brachytherapy system should have a separate 3D Treatment planning system compatible to it so that the planning can be transferred directly through network for execution to the independent HDR machine control computer linked to it.

The Radiotherapy treatment planning system should be fully computerised, integrated system having hardware and software to perform all kinds of 3D Brachytherapy planning calculations, isodose plotting and display of patient files, beam data acquisition and display and other related

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programme.

1. HARDWARE:

(a) Work Station:

The Treatment planning system should have a separate computer (in addition to the control of the HDR Brachytherapy machine) and should have a most modern graphics workstation with min 1GB of RAM memory and it should have a Hard disk with large storing capacity of 100 Giga Bytes or more of memory with Keyboard and mouse. The hardware should be upgradable.

(b) FLAT BED SCANNER:

The system should have a FLAT BED SCANNER .

(c) Display/Terminal:

The system should have atleast a 18" TFT LCD Screen with high resolution for good visualization.

(d) Printer/Plotter:

The system should have a fast multi-colour plotter to print out various datas and Isodose curves.

(e) Ports:

The system should have the 1 parallel, 2 serial and Ethernet port for networking.

(f) Operating System:

The Software should work on Windows operating system for ease of operation and comfort of the user.

2. SOFTWARE:

The system must provide software to perform the following function. The system should be able to do: -

a) 3D Brachytherapy software :

Brachytherapy software must be provided and should support all of the Brachytherapy treatment modalities including intracavitary, interstitial, intraluminal and surface mould techniques.

- All the reconstruction technique like:
 - Orthogonal
 - Semiorthogonal with reconstruction box
 - Variable angle
 - Isocentric must be available.
- CT Image based reconstruction.
- 3D Dose Calculation based on TG43
- Automatic Dose point placements, Basal Dose option.
- Automatic shielding for Applicator.

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- Advanced optimization using dose points like geometry based, full or polynomial optimization for irregular, regular large volume implants should be available in order to give dose conformity on implant volume and dose points.
- Optimization on dose points on target should be available.
- Fast and accurate dose calculation should take in to account for tissue absorption and scatter factor, source anisotropy and shielding must be available.
- Rapid reconstruction of catheter using tracking algorithm and indication of corresponding lines on the images should be present.
- For outpatient treatments, extremely accurate and dwell time optimization and dose calculation must be available.
- Necessary software to import Dicom RT structures sets and Images.
- A standard library of treatment must be present for easy retrieval for protocol patients.
- Wide range of dose volume histogram methods, Point dose option, Different planes view must be available.
- The supplied planning system should have all contouring, planning and plan evaluation tools to create 3D Image based Brachytherapy plans
- Mouse-based Dose shaper should be included in the offered package

Radiation Source and Transfer Mechanism:

- The source must be a single 10 Ci Ir-192 source with active length of less than 4mm.
- Each source should be usable for extended time of period without limitation on the cycles
- The source cable must be able to negotiate treatment curvature of 1 to 1.4 cm radius
- The source cable must be a multistrand .
- The source cable should move with an accuracy of ± 1 mm and must be controlled by step motors.
- The source drive out length from indexer should atleast be 1300 mm .
- The source transfer guarantee must be enhanced in such a way that each source must be utilized for an extended period of time.
- A package of 10 Iridium-192 radioactive sources for a period of five years depending on the source transfer guarantee specified by the manufacturer must be offered.

- Insurance and freight cost for both the onward and return of the used source. The **cost** of Clearance and transport of the sources and the re-export/ disposal of the decayed sources must be included in the offer .
- Monte-Carlo based software for Brachy planning by considering the inhomogeneities in tissues/ bones and applicators should be quoted

Applicators:

Applicators to be provided for

- Cervix
- Vaginal - Fletcher style
- Oesophagus
- Flexible Implants Nylon catheters complete set inclusive of 200 Flexible tubes.
- Rigid Needle Implants complete set inclusive of 30 numbers of rigid needles.
- Breast template set
- Bronchus
- Prostate

Treatment tubes to connect all Applicators should be of constant length to prevent stretching and slippage and also should be quick fit safety connections.

Both rigid and flexible type of implants along with necessary X-ray Catheters, transfer tube etc., to be provided.

Should be possible to cut the flexible implant tubes to the appropriate end length's, which would ensure patient comfort.

Quality Assurance Tools:

- Source position check device.
- Electrometer with welltype chamber

All necessary local supply items like

- UPS
- CCTV
- Gamma Zone Monitor
- Contamination Monitor

Etc., should be included in our offer

Warranty

HDR Brachytherapy system and Treatment Planning System and all its accessories should have a 5 years warranty.

Training:

Necessary training for two radiotherapist and one Physicist must be provided for two week at any existing user hospital.

Service Facilities:

Factory trained and BARC approved Service engineers / Application specialist should be available in India to look after the installation and maintenance of the systems.

AERB Type approval:

The HDR system offered must be type approved by AERB. A copy of the type approval from AERB must be enclosed with the offer. The HDR Brachytherapy system and 3D Treatment planning system should have FDA 510K approval.

Existing installation:

Offered HDR & TPS system must have a good number of installation references (atleast twenty existing users) in India. A copy of the users list in India must be enclosed.

The Vendor shall given minimum 5 years comprehensive onsite warranty for the entire brachy therapy system from the principles . Pro -Rated warranty is not acceptable .For the next five years after the expiry of warranty period only CMC (Comprehensive maintenance contract) with all spares ,accessories and labour charges will be acceptable . CMC offered by local agent is not acceptable .

During the warranty and CMC period the vendor shall give a uptime gurantee of minimum 95% based on 8 hours a day ,300 working days in a year basis . Penalty @2000.00 per day will be levied for shortfalling of 95% uptime guarantee . IF a machine lies non functional for a period of one week continuously the same penalty i.e Rs.2000 per day will be imposed even if 95 % uptime clause is met with . For each day downtime the warranty will be extended by equal number of days . Any call has to responded within two hours of information by phone /fax/mail. Remote diagnosis of system is must to reduce down time . Internet Board band connectivity for remote servicing shall be provided by the supplier .

The online UPS shall be provided for complete equipment . Backup time for the UPS must be 30-45 min.

The firm should quote for Source contract after 5 years for supply of 2 sources per annum.

ITEM NO 2

C-ARM IMAGE INTENSIFIER

1 Description of Function

- 1.1 Image Intensifier for Dynamic X-Ray based studies.

2 Operational Requirements

- 2.1 A mobile unit dedicated for Neurosurgical procedures is required

3 Technical Specifications

3.1 GENERATOR:

Self-contained, Monoblock / HF Generator with very high frequency of 15 kHz.

Apart from manual, automatic fluoroscopy, pulsed fluoroscopy and Boosted / Snapshot fluoroscopy facility should be there with choice of different time intervals between the pulses in pulsed fluoroscopy.

Rotating anode x-ray tube with high thermal capacity.

3.2 I.I.T.V. SYSTEM: LATEST HIGH RESOLUTION I.I.T.V SYSTEM

Field size : 9" (Triple Field)

Monitor:

Two 17" High definition monitors, 100 Hz System, Flicker Free with facility for continuous image (clock-wise) and image inversion (up/ down and left-right) mounted on mobile with castors and locks.

Automatic dose rate control facility.

3.3 MEMORY:

DIGITAL IMAGE PROCESSOR (should have the following functions)

Acquisition Rate Setting Range: User Selectable

Memory Hard Disk : 8 GB (10000 images) or more

Memory RAM : 48 MB (120 Frames) or higher

Functions:

- i) Road Mapping
- ii) Digital Subtraction

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- iii) Contrast Enhancement
- iv) Noise Reduction with recursive filter
- (v) Compatible with Fluoroscopy Navigation procedures

Post Processing Features:

- i) Digital Subtraction
- ii) Grey Scale Inversion
- iii) Patient Data Text Annotation

3.4 C-ARM MOVEMENTS:

The unit should have steerable wheels with locks.

Motorised vertical movement : At least 400 mm or more

Horizontal Movement : At least 250 mm or more

Orbital: At least 125 degrees

Swing: At least +8 degrees

Free space between X-ray tube & I.I. : At least 700 mm or more

Depth of C-Arm : At least 650 mm or more

Source to Image Distance : At least 900 mm or more

3.5 Motorised Remote Collimator IRIS TYPE and Parallel Shutters type. The Parallel shutter should be possible to Rotate Clockwise/ Anti Clockwise.

3.6 Footswitch with functional switches for Fluoroscopy, Pulsed Fluoroscopy and Snap Shot Fluoroscopy.

4 System Configuration Accessories, spares and consumables

4.1 System as specified

4.2 Accessories:

1. Lead Aprons 06

2. Thyroid Guards 06

3. PC with TFT Monitor with table and laser printer 01.

5. View Boxes – 02

6. TFT Monitor 02

7. C-Arm compatible table-Radiolucent

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5 Environmental factors

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

6 Power Supply

- 6.1 Power input to be 220-240VAC, 50Hz fitted with Indian plug
- 6.2 Resettable over current breaker shall be fitted for protection
- 6.3 UPS of suitable rating with voltage regulation, spike protection and maintenance free batteries for 60 minutes back up

7 Standards, Safety and Training

- 7.1 Should be FDA , CE,UL or BIS approved product
- 7.2 Manufacturer should be ISO certified for quality standards.
- 7.3 Electrical safety conforms to standards for electrical safety IEC 60601-1 General Requirements (OR EQUIVALENT international/national standard)
- 7.4 Should comply with AERB Guidelines for radiation leakage.
- 7.5 Comprehensive warranty for 5 years and CMC for 5 years.

8 Documentation

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- 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.
- 8.4 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.
- 8.5 Performance report in the last 5 years from major hospitals should be enclosed.

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ITEM NO 3

Pulse Oximeter

1 Description of Function

- 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

- 2.1 Suitable for all types of Patient range :Adult, pediatric, infant, and/or neonate

3 Technical Specifications

- 3.1 Display- LCD, Backlight illuminated
- 3.2 Parameters and waveform displayed- SpO2, pulse rate, system status, plethysmogram, menus for user settings
- 3.3 SPO2 range- 70-100 %
- 3.4 Accuracy of SPO2- 3%
- 3.5 Pulse rate range should be 30-240 bpm
- 3.6 Audiovisual Alarms- High/low SpO2 and pulse rate, sensor off, sensor failure, low battery.
- 3.7 Alarm override facility
- 3.8 Cable length should be minimum 1 metre
- 3.9 RS 232C Interface for datacommunication.
- 3.10 Integrated Printer
- 3.11 Battery back-up operating time 5 hours.

4 System Configuration Accessories, spares and consumables

- 4.1 System as specified-

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- 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

- 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

- 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

- 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

- 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

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ITEM NO 4**Infusion Pump**

Configuration, performance and technical characteristics
STRUCTURE:
Weight: approximately 2.5 kg
MECHANISM
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. Increment 0.01ml/h)
Time Mode: 00:01-99:59 hh:mm; step 1min;
Body Weight Mode: Weight : 0.1-300.0kg, step 0.1kg; Drug-Amount : 0.1-999.9, step 0.1, g/mg adjustable; Volume : 0.10-9999.99ml, step 0.01ml; Dose : 0.01-999.99, step 0.01, $\mu\text{g}/\text{kg}/\text{h}$, $\text{mg}/\text{kg}/\text{h}$, $\mu\text{g}/\text{kg}/\text{min.}$, $\text{mg}/\text{kg}/\text{min.}$ adjustable;
Ramp up/ down mode: VTBI : 0.10-9999.99ml Time range : 00:01-99:59 hh:mm
Sequential mode: VTBI : 0.10-9999.99ml, step 0.01ml/h; Rate : 0.10-2000ml/h; Time : 00:01-99:59 hh:mm, step 1min
Loading dose mode: Main parameter and first dose : VTBI : 0.10-9999.99ml, step 0.01ml/h; Rate : 0.10-2000ml/h; Time : 00:01-99:59 hh:mm, step 1min
Micro-infusion mode: VTBI : 0.10-1000.00ml, step 0.01ml/h, Rate : 0.10-100ml/h, step 0.01 ml/h;
Preset Volume(VTBI): 0.10-9999.99ml
Measure volumes in ml/hr

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Configuration, performance and technical characteristics
Delivery rate settings adjustable in 0.01ml/ 0.1ml/ 1ml increments
KVO Rate: 0.1-5.0ml/h adjustable, step 0.1ml/h
Purge is available with maximum rate at 2000ml/h
Bolus Rate: Manual bolus : 0.10-2000ml/h Automatic bolus : 0.10-2000ml/h
Preset bolus volume: Automatic : 0.10-2000ml/h
Self-test system;
Have anti-bolus system
Titration function: Available to change the delivery rate during infusion at minimum increment of 0.01ml/h
The bolus accumulation volume and bolus rate shall be displayed
Drug library with up to 2000 drugs , add or delete drugs available in user-defined drug list
Have up to 2000 history records, including information: infusion information, pump status, parameter changing, turn on/off, start/stop infusion, bolus, alarms, silence
History records data could be transmitted to PC
Have automatic bolus system, with bolus rate and preset volume adjustable
Start reminder function: remember last infusion configuration when power off
Delivery Accuracy: $\pm 3\%$
Mechanical Accuracy: $\pm 1\%$
Data transmission is available with multi-function interface
7 languages selectable: English, Spanish, French, Russian, Turkish, Chinese
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(± 75 mmHg)
Occlusion pressure unit: 4 units selectable(mmHg, kPa, psi, bar), automatically calculate and display the conversion in 4 units

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Configuration, performance and technical characteristics
Air Bubble alarm level: 1-6 levels adjustable; Minimum air bubble detection lowest to 20 ul; Accumulated 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: Rechargeable Lithium battery
Battery operating time: more than 9 hours @ 25ml/h
Battery charging time: less than 6 hours for 100%
SAFETY SPECIFICATION
Type of shock protection : Class I, Type CF, defibrillation-proof
Water-Proof Grade : IP23
CERTIFICATION:
CE & ISO
WARRANTY:
60 months
RELATED SERVICES INCLUDE:

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ITEM NO 5

Syringe Pump

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

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Configuration, performance and technical characteristics
Measure volumes in ml/hr
KVO Rate: 0.1-5.0ml/h adjustable, step 0.1ml/h
Purge is available 0.10-1500ml/h (depending on syringe size)
Bolus Rate: Manual bolus:0.10-1500ml/h (depending on syringe size) Automatic bolus:0.10-1500ml/h(depending on syringe size)
Preset bolus volume: Automatic 0.10-1500ml/h(depending on syringe size)
Self-test system;
Have anti-bolus system
Titration function: Available to change the delivery rate during infusion at minimum increment of 0.01ml/h
The bolus accumulation volume and bolus rate shall be displayed
Drug library with up to 2000 drugs , add or delete drugs available in user-defined drug list
Have up to 2000 history records, including information: infusion information, pump status, parameter changing, turn on/off, start/stop infusion, bolus, alarms, silence
History records data could be transmitted to PC
Have automatic bolus system, with bolus rate and preset volume adjustable
Start reminder function: remember last infusion configuration when power off
Delivery Accuracy: $\pm 2\%$
Mechanical Accuracy: $\pm 1\%$
Data transmission is available with multi-function interface
7 languages selectable: English, Spanish, French, Russian, Turkish, Chinese
ALARMS
Visual & audible alarm
3 levels alarm: High level: occlusion, battery empty, VTBI done, syringe empty, syringe disengaged, KVO finish, system error Middle level: reminder, battery low Low level: No battery inserted, syringe near empty, standby time expired
Occlusion alarm pressure: 11 levels: 150-975mmHg(± 75 mmHg)
Occlusion pressure unit: 4 units selectable(mmHg, kPa, psi, bar), automatically calculate and display the conversion in 4 units
Alarm sound 1-8 levels adjustable
Pre-alarms : 1-30 min. selectable injection finish,

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Configuration, performance and technical characteristics
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, syringe size, syringe brand, pressure limit, battery capacity,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 10 hours@5ml/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:

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ITEM NO 6

Tender Technical Specification of Automatic External Bi-Phasic Defibrillator

The Unit should be Compact, durable easy to use, lightweight and ergonomic design suitable for emergency use.

The Unit should be degree of protection against dust and water: IP34, ready to be used in different environments

The Unit should be Biphasic Technology, more effective with wide range of output energy (1~360J) suitable for different patients

The unit charging time should be ≤ 5 seconds to 200 Joules & ≤ 8 seconds to 360 Joules 1-2-3 step guidance for fast and safety defibrillation

The unit should be of 8.4" TFT large display (800x600) with up to 4 traces, easy to read more information

The unit should have plenty of monitoring choices: ECG, RESP, SpO2, NIBP, 2-Temp, 2-IBP, CO2, perfect for ambulance transfer

The unit should be capable enough to deliver 10 h' continuous monitoring, 200 shocks & 6 h' pacing and ECG monitoring with large power capacity with 2 Li-ion batteries

The unit should have Quick buttons for user to access common used functions

The unit should have External Defibrillator (AED) mode and pacing mode.

The unit must have manual defibrillator facility with Synchronous and Asynchronous mode; automatic the unit must have both adult and inbuilt pediatric uses in manual mode.

The unit should have powerful data storage, without concern about losing information

Easily output patient data through plug-and-play USB disk

The unit should have Centralized alarm and configuration settings

The unit should have inbuilt printer / Recorder.

The unit should be able to operate independently on battery or on AC mains in case of depleted / or on battery.

It should have optional facility for data storage for patient ECG & Events along with data card or equivalent for taking out data.

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ITEM NO 7

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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ITEM NO 8

HIGH END SUCTION MACHINE

1. Air flow rate of pump: 55 l/min
2. Maintenance free membrane pump
3. Regulated Vacuum with Max of: -98 kPa (-980 mbar / -735 mmHg)
4. Power consumption: approx. 100 W
5. Voltage: 230 V~ 50-60 Hz;
6. Noise level: 46 dB (A) @ 1 m (acc. to ISO 7779)
7. Operating time: Continuous operation
8. Ambient conditions during operation:
Temperature: 10 to 32 °C

Humidity: 20...80 % without condensation;
9. Approximate dimensions (H x W x D): 940 x 500 x 390 mm
10. Weight: Around 30-35 kg
11. Mobile system mounted on anti static 4 lockable castors
12. Standard rail holder for mounting accessories
13. Provision for **one 3 liter & one 5 liter jars** with changeover lever.
14. Classification: degree of protection: type BF; protection category: IPX1;
Protection class: I;
13. CE or EN certified product.

Accessories

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

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6	Hose support of stainless steel:	1 No
	Consumables	
1	DDS disposable bacterial filter/over-suction stop	100 nos
2	Autoclavable, silicone suction hose, Ø 6 mm, L = 2 m, (136 °C)	3 nos
3	Autoclavable, silicone suction hose, Ø 10 mm, L = 2 m, (136 °C)	3 nos

Note:

- Equipment with 5 years warranty and thereafter 5 years CMC will be taken for the purpose of price evaluation.
- The above Equipments are to be supplied with Suitable Compatible Cabinet /Furniture /Steel /Modular make for safe custody of the Equipment
- Should confirm to all international safety standards, turnkey installation and with warranty /CMC as indicated and which shall be considered for the evaluation of the price bids
- Tenderer's attention is drawn to GIT clause 18 and GIT sub-clause 11.1(c). The tenderer is to provide the required details, information, confirmations, etc. accordingly failing which it's tender is liable to be ignored.

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ITEM NO 9

TECHNICAL SPECIFICATIONS OF HAND DISINFECTANT DISPENSER SYSTEM

TOUCHLESS HAND DISINFECTANT DISPENSER SYSTEM.

AUTOMATIC SENSOR OPERATED.

DESIGNED FOR HIGH FREQUENCY USAGE.

DISPENSE ALCOHOL BASED DISINFECTANT SOLUTION IN SPRAY FORM.

SPRAY SHOULD COVER BOTH HANDS UNIFORMLY.

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

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

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

FRONT COVER EASILY REMOVABLE.

RECHARGEABLE BATTERY OPERATED – 12V , 7.2Ah

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

OPERATING VOLTAGE – 12VOLT

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

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

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

WALL MOUNTED. (MUST BE SUPPLIED WITH ANCHOR FASTENERS)

WEIGHT – 5 KG.

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

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ITEM NO 10

INSTRUMENT SETS FOR ONCOLOGY DEPARTMENT

A. SUPPLEMENT FOR THORACOTOMY		1 Set
RIB RASPATORY, DOYEN, L., ADULT, 17 CM		1
RIB RASPATORY, DOYEN, R., ADULT, 17 CM		1
RASPATORY, LAMBOTTE, 15 MM, 21.5 CM		1
RASPATORY, SEMB, NO. 2, 12 MM, 22 CM		1
RASPATORY, SEMB, NO. 3, 13 MM, 19 CM		1
BONE HOLD. FORCEPS, SEMB, CVD., 19.5 CM		1
BONE CUT. FORCEPS, RUSKIN, CVD., 18.5 CM		1
BONE RONGEUR, STILLE-RUSKIN, 23.5 CM		1
RIB SHEARS, BRUNNER, RIGHT HAND, 32 CM		1
RIB SPREADER, DE BAKEY, LARGE, COMPLETE		1
CONTAINER MS, 47X30X14 CM, HANDLE GREY		1
Tray 3/4, 410x255x73 mm		1
COLOR-TAG, RED		2
CODING LABEL, WITH TEXT, WITHOUT HOLE		2
 B. CUT DOWN SET		 2 Sets
FORCEPS, GROSS-MAIER, CVD., 26.5 CM		2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM		4
SCALPEL HANDLE, NO. 3, 12 CM		1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM		1
IRIS SCISSORS, SH/SH, STR., 11.5 CM		1
STRABISMUS SCISS., BL/BL, CVD., 11.5 CM		1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM		1
DRESSING FORCEPS, SEMKEN, 12.5 CM		1
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM		1
TISSUE FORCEPS, SEMKEN, 1X2 T., 12.5 CM		1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM		1
FORCEPS, MOSQUITO, 1X2 T., CVD., 12.5 CM		2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM		2
FORCEPS, PEAN, DELICATE, STR., 14.5 CM		2
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM		1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM		1
RETRACTOR, DELIC., BLUNT, 2-PR., 16.5 CM		2
HOKLET, DESMARRES, 12 MM, 16 CM		2
WOUNDSPREADER, ALM, SHARP, 4X4 T., 10 CM		1
NEEDLE CASE, ROUND, PERF., F. 55-309-65		1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L		1
CONTAINER MS, 30X30X14 CM, HANDLE GREY		1
Tray 1/2, 243x255x73 mm		1
COLOR-TAG, RED		2
CODING LABEL, WITH TEXT, WITHOUT HOLE		2
 C. SUTURE SET LARGE		 2 Sets
SCALPEL HANDLE, NO. 3, 12 CM		1

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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
CONTAINER MS, 30X30X14 CM, HANDLE GREY	1
Tray 1/2, 243x255x73 mm	1
COLOR-TAG, RED	2

D. SUTURE SET SMALL

2 Sets

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 MINISSET CONTAINER 310X189X90MM	1
TRAY, PERFORATED, 235X130X50MM	1
LOGISTIC FRAME, RED, F. CONTAINER	1
IDENTIFICATION LABEL, W. TEXT, W/O HOLE	1
IDENT. LABEL, MINISSET CONT., W. TEXT	1

E. SUTURE REMOVING SET

3 Sets

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
CONTAINER FOR STERILISATION	1

F. WOUND DRESSING SET LARGE

2 Sets

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

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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
CONTAINER MS, 30X30X14 CM, HANDLE GREY	1
Tray 1/2, 243x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

G. LAPAROTOMY SET

3 sets

SCALPEL HANDLE, NO. 4, 13.5 CM	1
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. 4L, LONG, 20.5 CM	1
SCALPEL HANDLE, NO. 3, 12 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 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, FINE, CVD., 28.5 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
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
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	1
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	6
FORCEPS, PEAN, DELICATE, STR., 14.5 CM	6
FORCEPS, MOSQUITO, 1X2 T., CVD., 12.5 CM	6
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	10
HAEM. FORCEPS, MOSQUITO, STR., 18.5 CM	2

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FORCEPS, MOSQUITO, 1X2 T., STR., 18.5 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 20.5 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 24 CM	2
FORCEPS, GROSS-MAIER, STR., 26.5 CM	4
PERITON. FORCEPS, MIKULICZ, HEAVY, 20 CM	6
DISS. FORCEPS, OVERHOLT, NO. 4, 22 CM	2
FORCEPS, OVERHOLT, FINE, CVD., 29.5 CM	2
DISS. FORCEPS, OVERHOLT, NO. 3, 27.5 CM	2
FORCEPS, MIXTER, ANG., LONGIT., 22.5 CM	2
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	2
TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM	2
TC-NEEDLEHOLDER, MASSON, 26.5 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	2
TC-NEEDLEHOLDER, DE BAKEY, 26.5 CM	2
RETRACTOR, ROUX, SET, NO. 1-3, 17 CM	1
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, LANGENBECK, 40X11 MM, 22 CM	2
RETRACT., KOCHER-LANG., 55X11 MM, 21.5CM	2
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
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
ATR. ORGAN SEIZING FORCEPS, 25 CM	2
ATR. TISSUE FORCEPS, ALLIS, 24.5 CM	2
BONE CURETTE, VOLKM., OVAL, NO. 0, 17 CM	1
GROOVED DIRECTOR, NELATON, CVD., 16 CM	1
PROBE, BUTTON END, Ø 1.5/1.5 MM, 20 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 12 CH	1
CONTAINER MS, 60X30X16 CM, HANDLE GREY	1
Tray DIN, 480x255x33 mm	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

H. SUPPLEMENT, GASTRO INTESTINAL

2 Sets

SCALPEL HANDLE, NO. 3L, LONG, 21.5 CM	1
SCALPEL HANDLE, NO. 4L, LONG, 20.5 CM	1
TC-DISSECTING SCISSORS, CVD., 26 CM	1
TC-DISS. SCISSORS, FINE, CVD., 28.5 CM	1
TC-SCISSORS, MAYO-STILLE, STR., 17 CM	1
DRESS. FORCEPS, ISOL., W/O CONN., 25 CM	1
ATR. FORCEPS, DE BAKEY, 2 MM, 25 CM	2
ATR. FORCEPS, DE BAKEY, 3.5 MM, 25 CM	2
ATR. FORCEPS, DE BAKEY, 3.5 MM, 30 CM	2
TC-NEEDLEHOLDER, DE BAKEY, 26.5 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 31 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 30 CM	1
RETRACTOR, FRITSCH, 45X75 MM, 25.5 CM	2

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RETRACTOR, MIKULICZ, 125X50 MM, 25 CM	2
RETRACTOR, MIKULICZ, 160X50 MM, 25 CM	1
ABDOM. SPATULA, HABERER, 37/45 MM, 30 CM	1
FORCEPS, KOCHER, 1X2 T., STR., 26 CM	2
FORCEPS, BENGOLEA, STR., 26 CM	2
ATR. ORGAN SEIZING FORCEPS, 25 CM	2
ATR. TISSUE FORCEPS, ALLIS, 20 CM	2
ATR. TISSUE FORCEPS, ALLIS, 24.5 CM	2
ATR. KIDNEY PEDI. FORCEPS, GUYON, 23 CM	1
ATR. BRONC. FCPS., LEES, CVD/ANG., 26 CM	1
ATR. INTEST. FCPS., KOCHER, CVD., 25 CM	2
ATR. INTEST. FCPS., KOCHER, STR., 25 CM	2
DISS. FORCEPS, ZENKER, SL. CVD., 29.5 CM	2
DISS. FORCEPS, ZENKER, ST. CVD., 28.5 CM	2
DISS. FORCEPS, OVERHOLT, NO. 4, 28 CM	2
GROOVED DIRECT., BRUNNER, PLASTIC, 18 CM	1
CONTAINER MS, 60X30X14 CM, HANDLE GREY	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

I. SUPPLEMENT FOR THYROID

2 Sets

ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 20 CM	2
RETRACTOR, ZENKER, ANG., 35X9 MM, 25 CM	1
RETRACT. ZENKER, ANG, 60X12 MM, 26.5 CM	1
RETRACTOR, ZENKER, ANG., 75X12 MM, 28 CM	1
DISS. FORCEPS, HEISS, SLIGHT CVD., 20 CM	1
DISS. FORCEPS, HEISS, STRONG CVD., 20 CM	1
DISS. FORCEPS, BABY-ADSON, CVD., 18 CM	1
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	1
FORCEPS, KOCHER, 1X2 T., STR., 14.5 CM	8
FORCEPS MICRO-MOSQUITO, CVD., 12 CM	8
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 18 CM	1
TC-DISS. SCISSORS, FINE, CVD., 20.5 CM	1
GROOVED DIRECTOR, KOENIG, NO. 1, 20 CM	1
GROOVED DIRECTOR, KOENIG, NO. 2, 20 CM	1
LIGATURE NEEDLE, DESCHAMPS, BLUNT, 21 CM	1
LIGATURE NEEDLE, DESCHAMPS, BLUNT, 21 CM	1
LIGATURE NEEDLE, STR., MALLEAB., 20 CM	1
SUCT. TUBE, YASARG., Ø 2.0 MM, WL:150 MM	1
SUCT. TUBE, YASARG., Ø 2.5 MM, WL:150 MM	1
CONTAINER MS, 47X30X14 CM, HANDLE GREY	1
Tray 3/4, 410x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

J. THORACOTOMY (LUNG) SET

2 SETS

FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	8
TOWEL FORCEPS F. PAPER DRAPES, 11.5 CM	6
SCALPEL HANDLE, NO. 3, 12 CM	2
SCALPEL HANDLE, NO. 4, 13.5 CM	1

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TC-DISSECTING SCISSORS, CVD., 11.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 20.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 18 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
SCISSORS, JAMESON, CVD., 15.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 14.5 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, MINI-ADSON, 12 CM	2
FORCEPS, MINI-ADSON, 1X2 T., 12 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 20 CM	2
ATR. FORCEPS, DE BAKEY, 1.5 MM, 16 CM	2
DRESSING FORCEPS, REES, ISOLATED, 20 CM	2
DRESSING FORCEPS, GERALD, STR., 17.5 CM	2
FORCEPS MICRO-MOSQUITO, CVD., 12 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 20.5 CM	2
FORCEPS, GROSS-MAIER, STR., 26.5 CM	2
PERITON. FORCEPS, BABY-MIKULICZ, 14.5 CM	4
DISS. FORCEPS, BABY-ADSON, CVD., 14.5 CM	1
DISS. FORCEPS, OVERHOLT, CVD., 13.5 CM	1
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	2
DISS. FORCEPS, GEMINI, STR. CVD., 13 CM	1
DISS. FORCEPS, GEMINI, STR. CVD., 18 CM	1
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	2
ATR. TISSUE FORCEPS, BABCOCK, 16 CM	2
ATR. TANGENTIAL FORCEPS, SATINSKY, 22 CM	2
ANASTOM. FORCEPS, COOLEY-DERRA, 17 CM	2
ATR. FORCEPS, DE BAKEY, CVD., 13 CM	2
ATR. FORCEPS, COOLEY, ANGLED, 14.5 CM	1
ATR. FORCEPS, COOLEY, CVD., 17 CM	1
TC-NEEDLEHOLDER, RYDER-VASCULAR, 15.5 CM	1
TC-NEEDLEHOLDER, MICROVASCULAR, 17.5 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 18.5 CM	1
TC-WIRE TWISTING FORCEPS, 15.5 CM	1
TC-SIDE NIPPER, W. TRANSM., 17.5 CM	1
HOOKLET, SHARP, 4-PR., 16.5 CM	2
HOOKLET, CUSHING, 10 MM, 20.5 CM	2
HOOKLET, DESMARRES, 8 MM, 16 CM	1
HOOKLET, DESMARRES, 12 MM, 16 CM	1
HOOKLET, DESMARRES, 14 MM, 16 CM	1
GRAEFE STRABISMUS HOOK FIG 2	1
HOOKLET, SENN-GREEN, 10X6 MM, 16 CM	2
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, SAUERBRUCH, 45X15 MM, 22.5 CM	2
RETRACTOR, CORYLLOS, 80X22 MM, 24 CM	2
LUNG SPATULA, ALLISON, 29.5 CM	1
SPATULA, MARTIN, MALLEAB., 13 MM, 20 CM	1
SPATULA, MARTIN, MALLEAB., 16 MM, 20 CM	1
STERNAL SPREADER, F. PREMATURE BABIES	1
RIB SPREADER, CASTANEDA, ALU, 110 MM	1

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RIB SHEARS, GIERTZ-STILLE, 24.5 CM	1
RIB RASPATORY, DOYEN, L., CHILD, 18 CM	1
RIB RASPATORY, DOYEN, R., CHILD, 18 CM	1
LAMBOTTE RASP. 5 MM WIDE 21,5 CM	1
RASPATORY, SEMB, NO. 1, 12 MM, 19 CM	1
RASPATORY, SEMB, NO. 3, 13 MM, 19 CM	1
BONE HOLD. FORCEPS, SEMB, CVD., 19.5 CM	1
BONE CUT. FORCEPS, RUSKIN, CVD., 18.5 CM	1
BONE RONGEUR, STILLE-RUSKIN, 23.5 CM	1
RIB CONTRACTOR, BAILEY, 15.5 CM	1
RIB CONTRACTOR, BAILEY, 20 CM	1
PERINEUM SCISS., BRAUN-STADLER, 22 CM	1
STERNAL CHISEL, LEBSCHKE, 24.5 CM	1
MALLET, VICKERS, 185 GR., NYLON, 19 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, CVD., KNIFE SHAPE, 12 CH	1
GUIDE NEEDLE, CVD., KNIFE SHAPE, 14 CH	1
GUIDE NEEDLE, CVD., KNIFE SHAPE, 16 CH	1
CONTAINER MS, 60X30X16 CM, HANDLE GREY	1
Tray DIN, 480x255x33 mm	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

K. TRACHEOTOMY SET

2 Sets

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	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 18 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM	2
FORCEPS, MOSQUITO, 1X2 T., CVD., 12.5 CM	4
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	4
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	2
FORCEPS, PEAN, DELICATE, STR., 14.5 CM	2
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	1
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
RETRACTOR, LANGENBECK, 30X14 MM, 22 CM	2
RETRACTOR, DOUBLE, ROUX, NO. 1, 14.5 CM	2
RETRACTOR, DELIC., SHARP, 1-PR., 16.5 CM	2
RETRACTOR, DELIC., SHARP, 4-PR., 16.5 CM	2
TRACHEAL DILATOR, LABORDE, 14 CM	1
WOUNDSREADER, SHARP, 3X4 T., 13.5 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 8 CH	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1

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CONTAINER MS, 30X30X14 CM, HANDLE GREY	1
Tray 1/2, 243x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

L. THORAX INSTRUMENTS SET

2 Sets

FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	10
TOWEL FORCEPS, TOHOKU, BLUNT, 10.5 CM	6
SCALPEL HANDLE, NO. 4, 13.5 CM	2
SCALPEL HANDLE, NO. 3L, LONG, 21.5 CM	1
TC-DISSECTING SCISSORS, CVD., 20.5 CM	1
TC-DISSECTING SCISSORS, CVD., 23 CM	1
TC-DISSECTING SCISSORS, CVD., 26 CM	1
TC-DISSECTING SCISSORS, CVD., 30 CM	1
TC-LIGATURE SCISSORS, CVD., SERR., 23 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
OPERATING SCISSORS, SH/BL, CVD., 14.5 CM	1
DRESSING FORCEPS, MEDIUM WIDE, 14.5 CM	1
TISSUE FORCEPS, 1X2 T., 14.5 CM	2
TISSUE FORCEPS, 1X2 T., 20.5 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
ATR. FORCEPS, DE BAKEY, 2 MM, 30 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 14.5 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 24 CM	2
FORCEPS, GROSS-MAIER, STR., 26.5 CM	2
PERITONEAL FORCEPS, MIKULICZ, 20.5 CM	4
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	1
DISS. FORCEPS, OVERHOLT, NO. 1, 20.5 CM	1
DISS. FORCEPS, OVERHOLT, NO. 4, 22 CM	1
DISSECT. FORCEPS, RUMEL, NO. 3, 23.5 CM	1
DISSECTING FORCEPS, RUMEL, NO. 4, 24 CM	1
DISS. FORCEPS, ZENKER, ST. CVD., 28.5 CM	1
DISS. FORCEPS, OVERHOLT, NO. 1, 27 CM	1
ATR. TANGENT. FORCEPS, SATINSKY, 26.5 CM	1
ATR. TANGENTIAL FORCEPS, SATINSKY, 22 CM	1
ATR. ANEURYSM FORCEPS, DE BAKEY, 31 CM	1
LIGATURE FCPS., DE BAKEY, S-SH., 24.5 CM	1
ATR. FORCEPS, POTTS, CVD., 26 CM	1
LIGATURE FORCEPS, DE BAKEY, S-SH, 27 CM	1
ATR. ORGAN SEIZING FORCEPS, 25 CM	1
ATR. TISSUE FORCEPS, ALLIS, 24.5 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 26.5 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 31 CM	1
TC-NEEDLEHOLDER, MASSON, 26.5 CM	1
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
RIB SPREADER, BURFORD, ALU, 300 MM	1
RIB CONTRACTOR, BAILEY-GIBBON, 20 CM	1
LUNG SPATULA, ALLISON, 33 CM	2

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STERNAL CHISEL, LEBSCHKE, 24.5 CM	1
MALLET, WILLIGER, 140 GR., 16.5 CM	1
RIB SHEARS, BRUNNER, RIGHT HAND, 32 CM	1
RIB RASPATORY, DOYEN, R., ADULT, 17 CM	1
RIB RASPATORY, DOYEN, L., ADULT, 17 CM	1
OSTEOTOME, MINI-LAMBOTTE, 15 MM, 17 CM	1
RASPATORY, SEMB, NO. 2, 12 MM, 22 CM	1
RASPATORY, SEMB, NO. 4, 13 MM, 22 CM	1
BONE HOLD. FORCEPS, SEMB, CVD., 19.5 CM	1
BONE CUTT. FORCEPS, LISTON, CVD., 22 CM	1
BONE RONGEUR, CVD., 22.5 CM	1
TC-SIDE NIPPER, W. TRANSM., 17.5 CM	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., LANCET SHAPE, 12 CH	1
GUIDE NEEDLE, ANG., LANCET SHAPE, 14 CH	1
GUIDE NEEDLE, ANG., LANCET SHAPE, 16 CH	1
CONTAINER MS, 60X30X16 CM, HANDLE GREY	1
Tray DIN, 480x255x33 mm	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

M. MAJOR BASIC SET

3 SETS

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. 4, 13.5 CM	2
SCALPEL HANDLE, NO. 3, 12 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 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-DISS. SCISSORS, CVD., SERR., 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
DRESSING FORCEPS, REES, ISOLATED, 20 CM	1
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	6
FORCEPS, PEAN, DELICATE, STR., 14.5 CM	6
FORCEPS, MOSQUITO, 1X2 T., CVD., 12.5 CM	6
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
HAEM. FORCEPS, MOSQUITO, STR., 18.5 CM	2
FORCEPS, MOSQUITO, 1X2 T., STR., 18.5 CM	2
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	6
DISS. FORCEPS, OVERHOLT, NO. 1, 20.5 CM	2
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	2

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DISS. FORCEPS, OVERHOLT, NO. 3, 21.5 CM	2
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	2
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	2
TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM	2
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	2
RETRACTOR, ROUX, SET, NO. 1-3, 17 CM	1
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, LANGENBECK, 40X11 MM, 22 CM	2
RETRACT., KOCHER-LANG., 55X11 MM, 21.5CM	2
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
RETRACTOR, DELIC., SHARP, 2-PR., 16.5 CM	2
HOOCKET, CUSHING, 10 MM, 20.5 CM	2
TENACULUM FORCEPS, CZERNY, 4X4 T., 21 CM	1
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	1
BONE CURETTE, VOLKM., OVAL, NO. 0, 17 CM	1
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 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
GUIDE NEEDLE, ANG., KNIFE SHAPE, 12 CH	1
CONTAINER MS, 60X30X16 CM, HANDLE GREY	1
Tray DIN, 480x255x33 mm	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

N. SUPPLEMENT FOR GALLBLADDER

2 Sets

SCALPEL HANDLE, NO. 3L, LONG, 21.5 CM	1
TC-DISSECTING SCISSORS, CVD., 26 CM	1
DRESS. FORCEPS, ISOL., W/O CONN., 25 CM	1
ATR. FORCEPS, DE BAKEY, 2 MM, 25 CM	2
ATR. FORCEPS, DE BAKEY, 3.5 MM, 25 CM	2
FORCEPS, BENGOLEA, STR., 26 CM	2
FORCEPS, BENGOLEA, CVD., 26 CM	1
FORCEPS, MIXTER, ANG., LONGIT., 22.5 CM	2
FORCEPS, MIXTER, ANG., LONGIT., 26 CM	2
TC-NEEDLEHOLDER, DE BAKEY, 26.5 CM	1
ATR. ORGAN SEIZING FORCEPS, 25 CM	2
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
TC-SCISSORS, DE BAKEY, 45°, 23 CM	1
VASCULAR SCISSORS, 45°, 16.5 CM	1
BILE DUCT DILATOR, BAKES, 3 MM, 32 CM	1
BILE DUCT DILATOR, BAKES, 4 MM, 32 CM	1
BILE DUCT DILATOR, BAKES, 5 MM, 32 CM	1
BILE DUCT DILATOR, BAKES, 6 MM, 32 CM	1
BILE DUCT DILATOR, BAKES, 7 MM, 32 CM	1
BILE DUCT DILATOR, BAKES, 8 MM, 32 CM	1
BILE DUCT DILATOR, BAKES, 9 MM, 32 CM	1

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BILE DUCT DILATOR, BAKES, 10 MM, 32 CM	1
GALLSTONE SCOOP, NO. 00, 3.4 MM, 32 CM	1
GALLSTONE SCOOP, NO. 0, 4.3 MM, 32 CM	1
GALLSTONE SCOOP, NO. 1, 5.5 MM, 32 CM	1
GALLSTONE SCOOP, NO. 2, 6.6 MM, 32 CM	1
GALLSTONE SCOOP, NO. 3, 8.0 MM, 32 CM	1
GALLSTONE SCOOP, NO. 4, 11 MM, 32 CM	1
GALLSTONE FORCEPS, DESJARDINS, NO. 1	1
GALLSTONE FORCEPS, DESJARDINS, NO. 2	1
GALLSTONE FORCEPS, DESJARDINS, NO. 1	1
CONTAINER MS, 60X30X14 CM, HANDLE GREY	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

O. MINOR BASIC 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	2
SCALPEL HANDLE, NO. 4, 13.5 CM	1
SCALPEL HANDLE, NO. 3, 12 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISSECTING SCISSORS, CVD., 17.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 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, 18 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM	2
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	4
FORCEPS, PEAN, DELICATE, STR., 14.5 CM	4
FORCEPS, MOSQUITO, 1X2 T., CVD., 12.5 CM	4
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	4
FORCEPS, KOCHER, 1X2 T., STR., 20.5 CM	2
FORCEPS, MIXTER-BABY, SL. CVD., 14 CM	1
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	1
HAEM. FORCEPS, MOSQUITO, CVD., 18 CM	2
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 18.5 CM	2
RETRACTOR, ROUX, SET, NO. 1-3, 17 CM	1
RETRACTOR, LANGENBECK, 30X11 MM, 22 CM	2
RETRACTOR, LANGENBECK, 40X11 MM, 22 CM	2
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
RETRACTOR, DELIC., SHARP, 2-PR., 16.5 CM	2
HOKKLET, CUSHING, 10 MM, 20.5 CM	2
ATR. TISSUE FORCEPS, ALLIS, 15.5 CM	1
BONE CURETTE, VOLKM., OVAL, NO. 0, 17 CM	1
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 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

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CONTAINER MS, 60X30X14 CM, HANDLE GREY	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

P. SUPPLEMENT SET FOR RECTUM

2 Sets

SCALPEL HANDLE, NO. 4L, LONG, 20.5 CM	1
TC-DISSECTING SCISSORS, CVD., 28.5 CM	1
DRESS. FORCEPS, ISOL., W/O CONN., 25 CM	1
ATR. FORCEPS, DE BAKEY, 2 MM, 30 CM	2
TISSUE FORCEPS, 1X2 T., SLIM, 30 CM	2
TC-NEEDLEHOLDER, DE BAKEY, 31 CM	2
RETRACTOR, MIKULICZ, 125X50 MM, 25 CM	2
PELVIS RETRACTOR, 180X60 MM, 23.5 CM	1
FORCEPS, OVERHOLT, FINE, CVD., 29.5 CM	2
DISS. FORCEPS, ZENKER, ST. CVD., 28.5 CM	2
DISS. FORCEPS, ZENKER, SL. CVD., 29.5 CM	2
ATR. RECTUM FORCEPS, HAYES, ANG., 28 CM	1
ATR. RECTUM FORCEPS, RESANO, 28 CM	1
ATR. TANGENT. FORCEPS, SATINSKY, 28.5 CM	1
ATR. FORCEPS, DE BAKEY, ANG., 26 CM	1
ATR. TISSUE FORCEPS, ALLIS, 24.5 CM	2
CONTAINER MS, 47X30X14 CM, HANDLE GREY	1
Tray 3/4, 410x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

Q. PULMONAL INSTRUMENTS

2 Sets

SATINSKY ATRAUMA FORCEPS	4
SATINSKY ATRAUMA FORCEPS	4
DE BAKEY ATR. ANAAST CLAMP	2
LAHEY CLAMP FORCEPS	2
SATINSKY ATRAUMA FORCEPS	1
SATINSKY ATRAUMA FORCEPS	1
POTTS ATRAUMA CLAMP	2
MIXTER HAEMOST FORCEPS FIG 2	1
MIXTER HAEMOST FORCEPS FIG 1	1
ORGAN SEIZING FCPS MEDIUM	4
DE BAKEY ATRAUMA FCPS 2,0MM	2
TC WANGENSTEEN NDLH SLEND	2
LEES ATRAUMA FORCEPS ANGLED	2
ALLISON LUNG SPATULA	1
SEMB BRONCHUS CLAMP FIG 2	1
ZENKER DISSECTING FCPS	2
ZENKER DISSECTING FCPS	2
SEMB BONE HOLDING FORCEPS	1
STILLE-LUER RONGEUR FORC CV	1
ZAUFAL-JANSEN RONGEUR FORC	1
STILLE LISTON BONE CUTT FORC	1

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BRUNNER RIB SHEARS LE HAND	1
CONTAINER MICROSTOP 60X30X14 CM	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITOUT HOLE	2

R. PULMONAL INSTRUMENTS

2 Sets

SATINSKY ATRAUMA FORCEPS	4
SATINSKY ATRAUMA FORCEPS	4
DE BAKEY ATR. ANAAST CLAMP	2
LAHEY CLAMP FORCEPS	2
SATINSKY ATRAUMA FORCEPS	1
SATINSKY ATRAUMA FORCEPS	1
POTTS ATRAUMA CLAMP	2
MIXTER HAEMOST FORCEPS FIG 2	1
MIXTER HAEMOST FORCEPS FIG 1	1
ORGAN SEIZING FCPS MEDIUM	4
DE BAKEY ATRAUMA FCPS 2,0MM	2
TC WANGENSTEEN NDLH SLEND	2
LEES ATRAUMA FORCEPS ANGLED	2
ALLISON LUNG SPATULA	1
SEMB BRONCHUS CLAMP FIG 2	1
ZENKER DISSECTING FCPS	2
ZENKER DISSECTING FCPS	2
SEMB BONE HOLDING FORCEPS	1
STILLE-LUER RONGEUR FORC CV	1
ZAUFAL-JANSEN RONGEUR FORC	1
STILLE LISTON BONE CUTT FORC	1
BRUNNER RIB SHEARS LE HAND	1
CONTAINER MICROSTOP 60X30X14 CM	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITOUT HOLE	2

S. BASIC NECK DISSECTION SET - 02 Sets

1.	Lengenbeck retractor (2 pair of different size)	4
2.	Sponge holder	2
3.	Catch Paw with right angle retractor, small size	4
4.	Czerney retractor	4
5.	Morris retractor	2
5.	Joll's retractor	2
6.	Periosteal elevator mediun size	2
7.	elevator, double-ended, length 20cm	1
8.	suction tube, with cut-off hole and stylet, luer, working length 11 cm, 9Fr	1
9.	suction tube, with cut -off hole and stylet , luer ,working length 11cm, 12 Fr	1
10.	suction tube ,with cut -off hole and stylet, luer, working length 11 cm, 15Fr	1

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11.	suction tube, with big holes, central hole diameter 4mm, side hole 2mm, length 29cm, standard	1
12.	retractor, length 17 cm, 1 prong, sharp	1
13.	retractor, length 17 cm, 2 prongs, sharp	1
14.	retractor, length 21 cm, 3 prongs sharp	1
15.	retractor, length 21 cm, 6 prongs, blunt	1
16.	Retractor, length 16 cm, 30mmx12mm, 4 prongs, blunt, curved backwards, for retraction of jugular viens during neck surgery	1
17.	tissue forcep, 1x2 teeth, length 14.5 cm, standard size	2
18.	tissue forceps, 1x2 teeth, length 18 cm, medium size	2
19.	tissue forceps, 1x2 teeth, length 14.5 cm, delicate	1
20.	tissue forceps, non-traumatic/plain, length 16 cm	2
21.	tissue forceps, non-traumatic/plain, length 18 cm	2
22.	tissue forceps, non-traumatic/plain, length 13 cm	2
23.	tissue forceps, serrated, length 13cm	2
24.	tissue forceps, serrated, length 16	2
25.	tissue forcep, serrated, length 18 cm	2
26.	tissue forceps, serrated, length 20cm, standard, 1x2 teeth, 3.5mm wide	1
27.	Vascular forcep, 16 cm length	2
28.	Vascular forcep, 18 cm length	2
29.	Dissecting forcep, 16 cm length single teathed	2
30.	Dissecting forcep, 18 cm length double teathed	2
31.	Dissecting forcep, 16 cm length, plain	1
32.	Dissecting forcep, 18 cm length, plain	1
33.	bipolar forceps, insulated tips curved, blunt, tips 1 mm, length 16 cm	1
34.	bipolar forceps, insulated, tips curved, blunt, tips 2 mm, length 19 cm	1
35.	bipolar forceps, insulated tips straight, blunt, tips 1 mm, length 16 cm	1
36.	bipolar forceps, insulated, tips straight, blunt, tips 2 mm, length 19 cm	1
37.	B.P handle No.3	3
38.	B.P handle No.7	2
39.	B.P handle No.4	2
40.	guide needle, angulated, with lancet tip, 10 Fr	1
41.	ligature needle, length 20 cm, blunt, curved to right	1
42.	ligature needle, length 20 cm, blunt, curved to left	1
43.	needle holder, tungsten carbide insert, length 13 cm	2
44.	needle holder, tungsten carbide insert, length 16 cm	2
45.	needle holder, tungsten carbide insert, length 18 cm	4
46.	needle holder, tungsten carbide insert, length 20cm	2
47.	mosquito artery forceps, straight, 13 cm (different size in tip)	6
48.	mosquito artery forceps, curve, 13 cm (different size)	8
49.	towel forceps, length 11 cm	12
50.	mediun Artery forcep, straight, length 15.5 cm (different tip in size)	6
51.	mediun Artery forcep, curve, length 15.5 cm (different tip in size)	8
52.	Artery forcep, curve, length 17 cm (different tip in size)	6
53.	Kelly/big Artery forcep, STRAIGHT	4
54.	Kelly/big Artery forcep, curve	4
55.	dissecting scissors, delicate tips curved, 15 cm	2
56.	scissors curved length 18 cm	2
57.	scissors curved length 16 cm	2
58.	scissors, curved, 10.5 cm	1
59.	scissors, delicate, 10.5 cm, curved	1
60.	scissors, curved, length 14.5 cm sharp	1

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61.	scissors straight, length 16 cm, blunt	2
62.	scissors straight, length 18 cm, blunt	2
63.	laryngectomy scissors, double-action, length 21.5cm	1
64.	right angle artery forceps 14 cm	2
65.	right angle artery forceps 16 cm	2
66.	Artery forcep 16cm, 60 degree curve for internal vien dissection	1
67.	Artery forceo 18 cm ,60 degree curve for internal vien dissection	1
68.	Vascular clamp for head and neck surgery	2
69.	Allis forceps (different size	10
70.	Babcock (different size)	10
71.	Kocher forcep, length 18cm, straight	4
72.	Kocher forcep,length 16 cm,straight	2
73.	skin hook	4
74.	Metzenbaum ,length 14 cm tungsten carbide inserts	2
75.	Metzenbaum ,length 16 cm tungsten carbide inserts	3
76.	Metzenbaum ,length 18 cm tungsten carbide inserts	5
77.	Gum elastic bougies for oesophageal and tracheal dilatation(different sizes of 6) 1 set.	
78.	Rigid oesophagoscopes(adult), 30 cms length, proximal illumination, 7.5mm inner diameter	1
79.	Rigid oesophagoscopes(adult), 30 cms length, proximal illumination, 5.5mm inner diameter—	1
80.	Rigid oesophagoscope (children) 18.5 cms length, proximal illumination, 4mm inner diameter	1
81.	Oesophagoscope foreign body grasping alligator forceps semiflexible, single action jaw, sheath diameter 1mm, working length 35 cms, spoon shaped	2
82.	Oesophagoscope biopsy forceps semiflexible, single action jaw, sheath diameter 1mm, working length 35 cms, width of jaw 1.2 mm	2
83.	Direct laryngoscope (D/L) biopsy forcep	3
84.	Prismatic light deflector (to be user in bronchoscope)	2
85.	Rigid broncoscope proximal illumination size 5.5mm	1
86.	Micro coronary scissors for nerve repair curved	2
87.	Micro Forceps with lock for nerve repair	2 (1 straight & 1 curved)
88.	.Micro Needle holder with lock (Barraquer)	2 (1 straight and 1 curved)
89.	Oesophagocropy suction tips with adaptor working length 35 cms 7 Fr	1
90.	Oesophagocropy suction tips with adaptor working length 20 cms 5 Fr.	1
91.	Bone nibbler , mediun size	2
92.	Intrument container for sterilization	2

T. ABDOMINAL RETRACTOR SET

2 Sets

COLLIN LOKT ABD RETR 80X60MM	1
EXCHANGEABLE BLADE 60X80 MM	1
RICARD SPREADER ONLY	1
EXCHANGEABLE BLADE 80X90MM	1
MIKULICZ ABDOM RETR 155X50MM	4
MIKULICZ ABDOM RETR 120X50MM	2
CCONTAINER FOR STERILIZATION	1

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U. SUPPLEMENT FOR DEEP RECTUM SURGERY**3 Sets**

TISSUE FORCEPS, ALLIS, 295MM	3
MUELLER REKTUM-ATRAUMA, S-FORM, 37CM	1
FORCEPS, DE BAKEY, 3,5MM, STR. 35CM	1
TC-NEEDLEHOLDER, MULLER 350MM	1
MÜLLER RECTAL SCISSOR 32,5CM	1
MULLER RETRACTOR 250X30MM/60MM	1
LLOYD DAVIS RECTAL OCCLUSION FORCEPS	1
DE BAKEY SUCTION TUBE D 3 MM, 275 MM	1
DISS. FORCEPS, ZENKER, SL. CVD., 29.5 CM	1
DISS. FORCEPS, ZENKER, ST. CVD., 28.5 CM	1
KERSTING SIGMOID ANASTOM.FCP, 31CM	1
WUNDHAKEN, 250X30/60MM	1
CONTAINER MS, 47X30X14 CM, HANDLE GREY	1
Tray 3/4, 410x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

V. RECTAL AND HAEMORRHOIDAL SET**2 Sets**

FORCEPS, GROSS-MAIER, CVD., 26.5 CM	2
TOWEL FORCEPS, BACKHAUS, SHARP, 11 CM	4
SCALPEL HANDLE, NO. 7, SOLID, 16 CM	1
TC-DISSECTING SCISSORS, CVD., 17.5 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
DRESSING FORCEPS, 18 CM	1
TISSUE FORCEPS, 1X2 T., 14.5 CM	1
FORCEPS, KOCHER, 1X2 T., STR., 14 CM	4
DISS. FORCEPS, OVERHOLT, NO. 1, 20.5 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 18.5 CM	1
SIMS RECTAL SPECULUM 80X20 MM	1
SPHINCTEROSCOPE, KELLY, 27X50 MM	1
HAEMORRHOIDAL-LIGATOR, RUDD, 27.5 CM	1
HAEMORRHOIDAL FORCEPS, MCGIVNEY, 19.5 CM	1
YEOMAN REKTAL BIOPSIEZANGE 42 CM	1
FISTULA PROBE, STR., 16.5 CM	1
FISTULA PROBE, SLIGHT CVD., 16.5 CM	1
FISTULA PROBE, 90° CVD., 16.5 CM	1
FISTULA PROBE, STRONG CVD., 16.5 CM	1
KIDNEY DISH, 250X140X40 MM	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
CONTAINER MS, 60X30X14 CM, HANDLE GREY	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

W. INCISION & DRAINAGE SET**2 Sets**

FORCEPS, GROSS-MAIER, CVD., 20.5 CM	1
SCALPEL HANDLE, NO. 3, 12 CM	1
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	1
DRESSING FORCEPS, MEDIUM WIDE, 14.5 CM	1

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TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
PROBE, BUTTON END, Ø 2.0/2.0 MM, 14.5 CM	1
BONE CUR., VOLKM., OVAL, NO. 000, 17 CM	1
BONE CURETTE, VOLKM., OVAL, NO. 0, 17 CM	1
TC-SCISSORS, LEXER, FINE, CVD., 16 CM	1
SCALPEL HANDLE, NO. 4, 13.5 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
KIDNEY DISH, 250X140X40 MM	1
CONTAINER MS, 30X30X14 CM, HANDLE GREY	1
Tray 1/2, 243x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

X. SUPPLEMENT MAMMA AMPUTATION

2 Sets

TENACULUM FORCEPS, BRAUN, 4X4 T., 16 CM	1
TENACULUM FORCEPS, CZERNY, 4X4 T., 21 CM	1
TC-DISSECTING SCISSORS, CVD., 26 CM	1
FORCEPS, KOCHER, 1X2 T., STR., 20.5 CM	2
HAEMOSTATIC FORCEPS, PEAN, CVD., 14 CM	8
DISS. FORCEPS, BABY-ADSON, CVD., 18 CM	1
RETRACTOR, KOCHER, SHARP, 6-PR., 22.5 CM	2
RETRACTOR, LANGENBECK, 60X20 MM, 21 CM	1
CONTAINER MS, 30X30X14 CM, HANDLE GREY	1
Tray 1/2, 243x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

Y. LYMPHADENECTOMY SET

2 Sets

FORCEPS, FOERSTER, SERR., STR., 25 CM	4
TOWEL FORCEPS, BACKHAUS, SHARP, 13 CM	8
SCALPEL HANDLE, NO. 3, 12 CM	1
SCALPEL HANDLE, NO. 4, 13.5 CM	1
SCALPEL HANDLE, NO. 3L, LONG, 21.5 CM	1
SCISSORS, MAYO, STR., 17 CM	1
SCISSORS, MAYO, CVD., 17 CM	1
DISSECTING SCISSORS, CVD., 18 CM	1
DISSECTING SCISSORS, CVD., 20.5 CM	1
SCISSORS, SIMS, BL/BL, CVD., 23 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
DRESSING FORCEPS, 14.5 CM	2
DRESSING FORCEPS, 20 CM	1
TISSUE FORCEPS, 1X2 T., 14.5 CM	2
TISSUE FORCEPS, 1X2 T., 20.5 CM	1
TISSUE FORCEPS, ALLIS, 5X6 T., 15.5 CM	6
TISSUE FORCEPS, BABCOCK, 16 CM	2
HAEM. FORCEPS, MOSQUITO, STR., 12.5 CM	10
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	10
FORCEPS, CRILE-RANKIN, STR., 16 CM	4
FORCEPS, CRILE-RANKIN, CVD., 16 CM	4
FORCEPS, KOCHER, 1X2 T., STR., 26 CM	2

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PARAMETRIUM CLAMP, BENT HEAVY, 26 CM	2
PARAMETRIUM CLAMP, ANGLED, 26 CM	2
DISS. FORCEPS, GEMINI, STR. CVD., 25 CM	1
PERITONEAL FORCEPS, MIKULICZ, 20.5 CM	4
RETRACTOR, FRITSCH, 45X75 MM, 25.5 CM	2
RETRACTOR, MIKULICZ, 125X50 MM, 25 CM	1
RETRACTOR, MIKULICZ, 160X50 MM, 25 CM	1
ABDOM. SPATULA, MALLEABLE, 40 MM, 33 CM	2
ABD. RETRACTOR, KIRSCHNER, CURVANG., CPL.	1
NEEDLEHOLDER, MAYO-HEGAR, 20.5 CM	1
NEEDLEHOLDER, MAYO-HEGAR, 24 CM	1
NEEDLEHOLDER, CRILE-WOOD, GROOVED, 15 CM	1
SUCTION TUBE, YANKAUER, COMPL., 31 CM	1
CONTAINER MS, 60X30X16 CM, HANDLE GREY	1
Tray DIN, 480x255x33 mm	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

Z. ABDOMINAL 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. 4, 13.5 CM	2
SCALPEL HANDLE, NO. 3L, LONG, 21.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 20.5 CM	1
TC-DISSECTING SCISSORS, CVD., 23 CM	1
TC-DISS. SCISSORS, CVD., SERR., 18 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
TC-UTERINE SCISSORS, SIMS, CVD., 23 CM	1
OPERATING SCISSORS, SH/BL, STR., 14.5 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
TISSUE FORCEPS, 1X2 T., 20.5 CM	2
TISSUE FORCEPS, 1X2 T., 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	1
FORCEPS, KOCHER, 1X2 T., STR., 14.5 CM	6
FORCEPS, PEAN, DELICATE, STR., 14.5 CM	6
FORCEPS, KOCHER, 1X2 T., STR., 20.5 CM	4
FORCEPS, KOCHER, 1X2 T., STR., 24 CM	2
FORCEPS, WERTHEIM, 1X2 T., CVD., 22.5 CM	4
PERITON. FORCEPS, MIKULICZ, HEAVY, 20 CM	6
FORCEPS, GROSS-MAIER, STR., 26.5 CM	4
TENAC. FCPS., SCHROEDER, 1X1 T., 25.5 CM	2
TENACULUM FORCEPS, STR., 2X2 T., 25 CM	1
FORCEPS, FOERSTER, SERR., STR., 25 CM	1
DISS. FORCEPS, OVERHOLT, NO. 3, 21.5 CM	2
DISS. FORCEPS, OVERHOLT, NO. 4, 22 CM	2

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TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM	1
TC-NEEDLEHOLDER, HEGAR, 20 CM	1
TC-NEEDLEHOLDER, HEGAR, 24 CM	1
RETRACTOR, ROUX, SET, NO. 1-3, 17 CM	1
RETR., VOLKMANN, SEMISH., 4-PR., 22.5 CM	2
RETRACTOR, KOCHER, 78X65 MM, 25 CM	1
RETRACTOR, MARTIN, 110X27 MM, 26.5 CM	1
RETRACTOR, FRITSCH, 45X75 MM, 25.5 CM	2
RETRACTOR, MIKULICZ, 125X50 MM, 25 CM	2
ABDOM. SPATULA, HABERER, 37/45 MM, 30 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
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 12 CH	1
CONTAINER MS, 60X30X16 CM, HANDLE GREY	1
Tray DIN, 480x255x33 mm	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

A.1. MAMMA BIOPSY SET

	2 Sets
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	1
SCALPEL HANDLE, NO. 4, 13.5 CM	1
TC-DISS. SCISSORS, FINE, CVD., 14.5 CM	1
TC-DISS. SCISS., TOENNIS, CVD., 17.5 CM	1
TC-SCISSORS, MAYO-LEXER, CVD., 16 CM	1
TISSUE FORCEPS, 1X2 T., SLIM, 14.5 CM	2
ATR. FORCEPS, DE BAKEY, 2 MM, 16 CM	2
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	4
FORCEPS, GROSS-MAIER, STR., 26.5 CM	2
TENACULUM FORCEPS, BRAUN, 4X4 T., 16 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM	1
RETRACTOR, DELIC., SHARP, 4-PR., 16.5 CM	2
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
CONTAINER MS, 30X30X14 CM, HANDLE GREY	1
Tray 1/2, 243x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

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A.2. SET FOR MAMMA TUMOR	2 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. 4, 13.5 CM	2
SCALPEL HANDLE, NO. 3, 12 CM	1
TC-DISS. SCISSORS, FINE, CVD., 18 CM	1
TC-DISS. SCISSORS, FINE, CVD., 20.5 CM	1
TC-DISS. SCISSORS, CVD., SERR., 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
DRESS. FORCEPS, ISOL., W/O CONN., 21 CM	1
HAEM. FORCEPS, MOSQUITO, CVD., 12 CM	6
FCPS., KOCHER-NIP. 1X2 T., STR., 16.5 CM	6
FORCEPS, GROSS-MAIER, STR., 26.5 CM	4
ATR. FCPS., DE BAKEY, ANG., 2 MM, 25 CM	2
DISS. FORCEPS, OVERHOLT, NO. 2, 20 CM	2
DISS. FORCEPS, OVERHOLT, NO. 3, 21.5 CM	2
DISS. FORCEPS, BABY-MIXTER, CVD., 18.5CM	2
GOIT. SEIZ. FCPS., LAHEY, 3X3 T, 15.5 CM	1
TENACULUM FORCEPS, CZERNY, 4X4 T., 21 CM	1
ATR. FORCEPS, LELAND-JONES, ANG., 19 CM	1
ANASTOM. FORCEPS, DERRA, NO. 3, 17.5 CM	1
TC-NEEDLEHOLDER, CRILE-WOOD, 15 CM	1
TC-NEEDLEHOLDER, MAYO-HEGAR, 20 CM	1
TC-NEEDLEHOLDER, DE BAKEY, 18 CM	1
RETRACTOR, ROUX, SET, NO. 1-3, 17 CM	1
RETR., VOLKMANN, SEMISH., 6-PR., 22.5 CM	2
RETRACT., KOCHER-LANG., 55X11 MM, 21.5CM	1
RETRACT., KOCHER-LANG., 80X16 MM, 21.5CM	1
RETR., BRUNNER, CVD., 120X25 MM, 25.5 CM	1
SPREADER, ADSON-ANDERSON, 4X4 T., 19 CM	1
MAMILLENCHNEIDER N. STEGMANN, D 33 MM	1
MAMILLENCHNEIDER N. STEGMANN, D 38 MM	1
MAMILLENCHNEIDER N. STEGMANN, D 42 MM	1
MAMILLENCHNEIDER N. STEGMANN, D 48 MM	1
RULER, 30 CM, MM & INCH	1
NEEDLE CASE, ROUND, PERF., F. 55-309-65	1
BOWL, METAL, H = 40, Ø 80 MM, 0.14 L	1
BOWL, METAL, H = 55, Ø 128 MM, 0.35 L	1
KIDNEY DISH, 250X140X40 MM	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 8 CH	1
GUIDE NEEDLE, ANG., KNIFE SHAPE, 10 CH	1
CONTAINER MS, 60X30X14 CM, HANDLE GREY	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2

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CODING LABEL, WITH TEXT, WITHOUT HOLE

2

A.3. LONG INSTRUMENTS (SPLEEN/LIVER)

2 Sets

TC METZENBAUM SCISSORS CVD	1
TC METZENBAUM-FINO SCISSORS BL-BL CVD	1
DRESSING FORCEPS	2
TISSUE FORCEPS 1X2 T	2
DE BAKEY ATR.FORC.1,5MM 24CM	2
ROCHESTER-PEAN HAEM FCPS CVD	2
OVERHOLT-GEISSENDOERFER FCPS	2
OVERHOLT-GEISSENDOERFER FCPS	2
ZENKER DISSECTING FCPS	2
SATINSKY ATRAUMA FORCEPS	1
SATINSKY ATRAUMA FORCEPS	1
HARKEN ATRAUMA FORCEPS	1
BRUNNER RETRACTOR 180X30 MM	1
DEAVER RETRACTOR 38MMX12"	1
DEAVER RETRACTOR 50MM X 12"	1
KELLY ABDOM RETRACT 190X38MM	1
ABDOMINAL SPATULA 50 MM	1
TC MAYO-HEGAR NEEDLEHOLDER	1
TC DE BAKEY NEEDLEHOLDER	1
BRUNNER LIGATURE NEEDLE FIG1	1
BRUNNER LIGATURE NEEDLE FIG2	1
BRUNNER LIGAT CONDUCTOR FIG1	1
BRUNNER LIGATURE NEEDLE FIG2	1
DESCHAMPS LIGAT.NEEDLE SHARP	1
DESCHAMPS LIGAT.NEEDLE BLUNT	1
KOENIG LIGAT.CONDUCT. 19,5CM	1
KOENIG LIGAT.CONDUCT. 19,5CM	1
CONTAINER MICROSTOP 60X30X14 CM	1
Tray DIN, 480x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITOUT HOLE	2

A.4. SUPPLEMENT EMERGENCY THORACOTOMY

2 sets

RASPATORY, SEDILLOT, CVD., 23 CM	1
RIB RASPATORY, DOYEN, L., ADULT, 17 CM	1
RIB RASPATORY, DOYEN, R., ADULT, 17 CM	1
RASPATORY, SEMB, NO. 2, 12 MM, 22 CM	1
RASPATORY, SEMB, NO. 5, 15 MM, 23 CM	1
BONE HOLDING FORCEPS, LANGENBECK, 21 CM	1
BONE RONGEUR, RUSKIN, CVD., 24 CM	1
RIB SHEARS, GIERTZ-STILLE, 24.5 CM	1
RIB CONTRACTOR/DISTRACT., SELLERS, 20 CM	1
LUNG SPATULA, ALLISON, 29.5 CM	1
ATR. ORGAN SEIZ. FCPS., SCHEIBE, 23 CM	2
CONTAINER MS, 30X30X14 CM, HANDLE GREY	1
Tray 1/2, 243x255x73 mm	1
COLOR-TAG, RED	2
CODING LABEL, WITH TEXT, WITHOUT HOLE	2

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The Instrument should be CE & FDA USA approved.

The Instrument and Container should be of the same parent company.

It should have reusable microbial barriers instead of disposable filters. The microbial barriers should be easy to remove and clean.

ITEM NO 11

BODY COMPOSITION MONITOR

Salient Features :

- It can circulate the entire body composition precisely.
- It can calculate the fat, lean mass tissue and exact dry weight.
- It is the first device that measures the individual overhydration, if any, which is clinically very significant.
- It improves management of hypertension and fluid status.
- It provides a basis for nutritional assessment.
- It determines "V" for dialysis dose prescription.
- It measures non-invasively, fast and easy.

Technical data

Key parameters	Unit
Overhydration (OH) (pre-/postdialytic)	[L]
Lean tissue index (LTI)	[kg/m ²]
Fat tissue index (FTI)	[kg/m ²]
Total body water (TBW) (Urea distribution volume V)	[L]
Extracellular water (ECW)	[L]
Intracellular water (ICW)	[L]
ECW / ICW	-
Lean tissue mass	[kg] and [%]
Fat mass	[kg]
Adipose tissue mass	[kg] and [%]
Body Cell Mass	[kg]

Technical specification:

Measurement time	approx. 2 min
Data output	LC-Display; integrated SmartCard writer
Measuring frequency range	50 discrete frequencies in the range from 5 – 1000 kHz
Battery	Lithium-Ion battery, capacity 5 hours
AC adapter	100 – 240 V AC; 50 – 60 Hz
Operating conditions	0° – 35°C, 30 – 70% humidity
Dimensions	16.9 x 11.2 x 27.2 cm (W x H x D), 2 kg (weight)
Languages	English, German
Medical product class	Ila

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ITEM NO 12

Vigileo Monitor Specification

- It should be able to give continuous Cardiac Output using any arterial line.
 - The Disposable Sensor should be able to give Continuous arterial pressure waveform when connected, on other bedside monitors with IBP modules.
 - No calibration should be required for getting CO started.
 - It should give Cardiac output update at least every 20 Seconds. With Provision for 5min Average.
 - Should be able to give Stroke Volume Variation and Stroke Volume
 - It should also give Continuous ScvO2.
 - It should be pole mountable, must have display capacity of at least 4trend lines and 4 numerical displays, optional physiology and physio-relationship screen, goal positioning screen.
 - It should have the ability to analyze patient's response to specific interventions as fluid challenge, various interventions. All these interventions should be time stamped and stored for retrospective analysis.
 - It should be able to give Continuous Systemic Vascular Resistance (on patient with a CVC line and pressure transducer); Stroke volume and Stroke Volume Variation too on continuous basis.
 - It must save data for at least 72 hours.
 - Must have screen shot and data download facility through any USB stick.
 - It should have a touch screen with active area of 10.4 inch.
 - It should be "future ready" to be able to give Transpulmonary Thermodilution measures (optional), parameters related to blood flow, organ function and fluid volume like Extra Vascular Lung Water Index (EVLWI), Global Ejection Fraction (GEF), Global End Diastolic Volume (GEDV), with some existing/forthcoming sensors.
 - One year comprehensive warranty and should provide technical support
 - Demonstration mandatory.
 - Operating manual should be supplied.
 - Must have FDA certificate.
- Disposables compatible with Equipment:-

No.	Description
1	Arterial Sensor based on APCO technique
2	Oximetry CVC Catheter 20 cm compatible with OM2E Optical Module of Equipment
3	Oximetry CVC Catheter 16 cm compatible with OM2E Optical Module of Equipment
4	Paediatric Oximetry Catheter
5	Trans-Pulmonary Sensor(VV) Femoral Artery Catheter, CVP Integrated Dome with Pressure and Temperature Manifold together in Single Pack
6	CVP transducer Compatible with Equipment with Two Blood Sampling sites with needless cannula with any syringe

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ITEM NO 13

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% O2, 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%

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	PEEP 0 to 50cmH2O Minute Volume Peak Inspiratory pressure Mean airway pressure total breathing rate Plateau pressure Tidal Volume
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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 Circuit obstructed user message technical alarm

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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:


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ITEM NO 14

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

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ITEM NO 15

Spec for Fibre-optic Bronchoscope for Adult and Paediatric with Camera System

S.no	TECHNICAL SPECIFICATION
1	<p>Flexible Fiber Optic Bronchoscope Adult size: 54x5.0 Broncho-Fiberscope for Adults Instrument Channel: 2.2-2.4 mm Direction of view: 0° Angle of view: 110° or more Working length: 54-60 cm O.D.: 5.2-5.5 mm Following accessories are included: Case, Biopsy Forceps, 1.7-1.8 mm, length 120 cm or more Grasping Forceps, 1.7-1.8 mm, 120 cm or more, Pressure Compensation Cap, Leakage Tester, Cleaning Brush, Mouth Piece, Rubber Lip Valve, dis-posable, package of 20, Cleaning Adapter for valve housing Suction Valve, dis-posable, package of 20</p>
2	<p>Flexible Fiber Optic Bronchoscope Pediatric, size: 54x 3.7 Pediatric Broncho-Fiberscope Instrument channel: 1.4-1.5 mm Direction of view: 0° Angle of view: 90° or more. Working length: 54-60 cm Diameter: 3.6-3.7 mm Following accessories are included: Case, Biopsy Forceps, 1 mm, length 110 cm or more, 1 Grasping Forceps, 1 mm, length 110 cm or more, Pressure Compensation Cap, Leakage Tester, Cleaning Brus, Mouth Piece, Rubber Lip Valve, dis-posable, package of 20, Cleaning Adapter for valve housing, Suction Valve, dis-posable, package of 20</p>
3	<p>Fiber Optic Light Cable Fiber Optic Light cable 3.5mm, length: 230cm</p>

SPECIFICATIONS OF ENDOVISION IMAGING SYSTEM

<p>. Full High Definition Three Chip Camera System with Camera head:</p> <ol style="list-style-type: none"> 1. Camera control unit with 3 chip HD camera head having HD CCD chip of same aspect ratio of 16:9 2. Pure Digital signal with high definition video(1920*1080 P) with aspect ratio 16:9 with DVI-D, RGB, S-VHS video output. 3. Integrated Flexible Scope filter 4. Progressive scan technology 	<p>01</p>
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<p>5. Brightness Control</p> <p>6. Aperture Control</p> <p>7. Automatic digital Image Enhancer</p> <p>8. Should have integrated optical zoom lens 14-30mm, to increase and decrease the size of image which should remain in focusing zone, without readjusting the focus.</p> <p>9. Should have Integrated Gain, shutter, Enhancement, white balance with brightness control.</p> <p>10. Should have peripheral control on CCU for</p> <p>11. Should have USB/Image Capture Module interface for direct storage of still & video sequences and to print the still images.</p> <p>12. The camera head should have integrated zoom and focus lens/rings to make it fully soakable.</p> <p>13. Should be IEC 601-1, CE according to MDD.</p>	
<p>Xenon Light Source:</p> <p>Xenon light source of 300 Watts</p> <p>Should be able to produce color temperature of 6000 K</p> <p>Should have continuous automatic and manual adjustment of light output.</p> <p>Should have standby mode and automatic recovery of last setting of intensity of light.</p> <p>Should have built in antifog pump.</p> <p>Should be able to display lamp life in digital form and should give visual indication for replacement of xenon lamp in case of lamp life of 500 Hrs is over.</p> <p>Should be certified IEC 601-1 and CE according to MDD.</p>	01
<p>Xenon spare lamp of 300 Watts suitable for Xenon light source</p>	02
<p>High Resolution HDVideo medical grade Monitor:</p> <p>26" High Definition Medical grade Monitor, resolution 1920 X 1200 with DVI, RGB, input,</p> <p>option for wall mounting and desktop in same unit. Should have same aspect ratio of 16:9 or 16:10 of the endoscopic HD camera system.</p> <p>Fast response time:(5-12ms)</p>	01

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<p>Number of colors:16.8 million</p> <p>Luminance: 400cd / m2. Contrast ratio: 1000:1</p> <p>Vertical/Horizontal Viewing Angle:178 degree</p>	
<p>Fiber Optic Light Cable:</p> <p>Fiber Optic light cable of actual bundle size: 4.5-4.8mm, length : 250cm.</p>	<p>02</p>
<p>Video Trolley:</p> <p>Suitable video trolley to be supplied for mounting equipments having minimum four self in addition to with one drawer, with antistatic wheel casters, front lockable, high grade of electrical insulation and earth protection. 5Ampere socket, 10Nos, inbuilt with trolley to connect all electronic devices. CO2 bottle stand should be integrated with trolley. Potential equalization connection to be provided at least 8 points.</p>	<p>01</p>
<p>Environmental factors</p> <ol style="list-style-type: none"> 1. Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC; EMC-directive. 2. The unit shall be capable of operating continuously in ambient temperature of 20-30 deg C and relative humidity of 15-90% 3. The unit shall be capable of being stored continuously in ambient temperature of 0-50deg C and relative humidity of 15-90% <p>Power Supply</p> <ol style="list-style-type: none"> 1. Power input to be 220-240VAC, 50Hz fitted with Indian plug 2. UPS of suitable rating with voltage regulation and spike protection for 60 minutes back up. <p>Standards, Safety and Training</p> <ol style="list-style-type: none"> 1. Should be FDA, CE, UL 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. 4. Shall be certified to be meeting safety standard IEC 60601-2-18 part 2 Particular requirements for the safety of endoscopic equipment. <p>Documentation</p>	<p>CERTIFIC ATE</p>

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<ol style="list-style-type: none">1. User/Technical/Maintenance manuals to be supplied in English.2. List of important spare parts and accessories with their part number and costing.3. Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point ,if not substantiated with authenticated catalogue/manual, will not be considered.4. Certificate of calibration and inspection.5. List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer documentation in service/technical manual6. Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.7. The manufacturer should have their own service centre and local engineer and should be verified by competent authority regarding these facilities.8. ALL ITEMS SHOULD BE FROM A SINGLE COMPANY FOR SYSTEM COMPATIBILITY	
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ITEM NO 16

INTUBATING FIBROSCOPE ADULT & PAEDIATRICS

Specification Adult Intubation Fibroscope :

Specification for intubation Fibroscope OD 5.2mm

Fiberscope for difficult intubation having OD ranging between 5mm and 5.5mm in order to be compatible for minimum ETT size 6 and above. With working length strictly not less than 65cm. up / down tip deflection should be same ranging between 135-150 degree. Scope should have length calculation marks preferably 5 cm each. Should have light source connection for LED operated light as well as via light cable for electricity operated light source. Total length should be ranging between 90cm- 100cm. it should have inbuilt suction port which can be attached to already available suction machine and should have a instrument port ranging between 2.5 - 3mm to use flexible forceps or for oxygenation. Scope should have very good image quality and can be attached through camera for visualizing on monitor. Scope should have 110 degree angle of view and 0 degree direction of view.

Scope should contain the following accessories :

6. ETT holder
7. cleaning brush
8. Suction adapters
9. leakage tester
10. bite block

Specification Pediatric Intubation Fibroscope :

Fiberscope containing separate light bundle for light and image to be used for intubation with OD 2.8mm and deflection of tip should 140 degree up as well as down, with integrated fibreoptic light transmission it should have the instrumentation channel of 1.2mm, with total length of scope between 95cm to 100cm and working length should be 65cm. Should be waterproof and fully immersible for cleaning and disinfection. It should take minimum of 3.5 size ETT. Angle of view should be 88 degree and direction 0 degree .

To be provided with following accessories:

Adaptor to hold the Endotracheal tube while intubation

Case for flexible scope

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Tester for checking the leakage

Pressure compensation cap

Disposable suction caps 20


Specification Pediatric Intubation Fibroscope :

Specification for intubation fibre scope OD 3.7mm

Fiberscope for difficult intubation having OD ranging between 3.6mm and 3.9mm in order to be compatible for minimum ETT size 4.5 till 7 with working length strictly not less than 65cm. up/down tip deflection should be same ranging 135-150 degree. Scope should have length calculation marks preferably 5cm each. Should have 90 degree angle of view with 0 degree light source connection for LED operated light as well as via light cable for electricity operated light source. Total length should be ranging between 90cm-100cm. it should have inbuilt suction port which can be attached to already available suction machine and should have a instrument port of 1.5mm to use flexible forceps or for oxygenation. Scope should have very good image quality and can be attached through camera for visualizing on monitor.

Scope should contain the following accessories :

1. ETT holder
2. cleaning brush
3. Suction adapters
4. leakage tester.
5. bite block


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ITEM NO 17

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 Vacuum

1x CO2

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

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

The Equipment should be having MDD & CE Certification

ENDOSCOPIC EQUIPMENT

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

3-CHIP FULL HD ENDOSCOPIC CAMERA

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

The camera should have the following features:

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- 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.
- 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:

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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

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

SUCTION/IRRIGATION UNIT

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

The Suction/Irrigation unit should have the following features:

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

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

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

Irrigation:

- Pressure:
 - HYS-Mode: 0-200 mmHg (26.6 kPa)
 - LAP-Mode: 0-400 mmHg (53.2 kPa)

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- Flow Rate:

- HYS-Mode: 0-500 ml/min

- LAP-Mode: 0-1000 ml/min

Suction Under-pressure:

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

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

Pressure indicator Bargraph Display and Digital Display

Flow indicator Bargraph Display and Digital Display

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

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

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

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

INSUFFLATOR UNIT

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

The CO₂ 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

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- *It can distinguish between two different supply modes: high pressure and low pressure.*

The CO₂ thermal-insuflator should have the following technical:

<i>Power supply voltage:</i>	<i>100-240 VAC</i>
<i>Power frequency:</i>	<i>50-60 Hz</i>
<i>Operating conditions:</i>	<i>+10°C to +40°C</i>
<i>Gas supply:</i>	
- <i>Pressure:</i>	<i>Min. 5 bar, max. 160 bar.</i>
- <i>Type:</i>	<i>CO₂ liquid, USP</i>
- <i>Fittings:</i>	<i>American-standard types</i>
<i>Gas outlet:</i>	
- <i>Pressure:</i>	<i>0-30 mmHg (0 -3990 Pa)</i>
- <i>Flow rate:</i>	<i>0-30 L/min</i>
<i>Pressure indicator</i>	<i>Bar Display and Digital Display</i>
<i>Flow indicator</i>	<i>Bar Display and Digital Display</i>
<i>Bottle pressure indicator</i>	<i>Bar Display</i>
<i>Heat Output Max</i>	<i>25 VA</i>
<i>Heating temperature</i>	<i>37°C, +10%-15%</i>

The CO₂ 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) CO₂ 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:

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

The light source should have the following technical specifications:

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

The light source should also comply with the following standards:

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

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

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

High End Diathermy

The unit should have the following features:

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

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- 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 WITH ARGON BEAM GAS)
 - MONOPOLAR COAGULATION MODES (Minimum 15 type)
 - BIPOLAR CUTTING MODE (Minimum 3 types)
 - BIPOLAR COAGULATION (Minimum 6 types)
 - SEAL SAFE MODE
 - ENDO SEAL MODE

The following accessories should be supplied with the unit:

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

Technical specifications of the Argon Plasma Coagulator

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

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ITEM NO. 18

CENTRALISED EQUIPMENT CONTROL MANAGEMENT SYSTEM
WITH RECORDING AND ARCHIVING SYSTEM

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

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

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

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

- A worktop
- A 19" Touch Screen

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

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

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

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

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

The display screens should also have the following optical specifications:

LCD Panel 26 inch (16:9 aspect ratio)

Screen Dimensions- 643mm (W) × 396 mm (H) × 87mm(D)

Number of pixels 2,073,600 pixels (1,920 × 1,080)

Viewing angle- Horizontal: 178 degrees, Vertical: 178 degrees (3D : TBD)

Contrast Contrast 1000:1

Luminance -350cd/m²

Reaction Time – 6-8ms

Display mode

Dual display mode

Triple display mode

PIP and POP mode

Mirror image mode

The display screens should comply the highest safety standards:

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

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

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

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

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

The display screens should also have the following optical specifications:

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

The display screens should comply the highest safety standards:

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

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

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

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

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

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

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

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

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

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

The display screens should also have the following optical specifications:

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

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

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

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

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

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

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

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

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

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


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

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

AUDIO VISUAL COMMUNICATION

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

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

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

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

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

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

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

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

Sources	Destinations
Wireless Microphone	Loudspeaker
Archiving System	Archiving System
Telephone	Telephone

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

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

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

B. ROOM CAMERA

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

VideoSignal PAL

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

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

C. BI-AMPLIFIED ACTIVE LOUDSPEAKER

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

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

The Loudspeaker shall have the following technical specifications:

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

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*acoustic output at 1 m on axis in
half space, averaged from 100 Hz
to 3 kHz*

*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.

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F. 1-WAY VIDEO 2-WAY AUDIO STREAMER

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

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

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

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

G. AUDITORIUM

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

OPTIONALLY

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

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

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ITEM NO 19

Technical Specifications

FLASH AUTOCLAVE

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

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ITEM NO 20

Specification Laryngoscope with Blades

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

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ITEM NO 21

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
- Continuous 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.

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ITEM NO 22**TECHNICAL SPECIFICATION OF VIDEO ASSISTED THORACOSCOPY SET**

SL. No.	Description :	Qty. :
1	Telescope 45°, enlarged view, diameter 5 mm, length 29 cm, autoclavable, fiber optic light transmission incorporated, color code: black	01
2	Trocar, with blunt tip, size 6 mm, length 6 cm, consisting of: Cannula, Trocar, only	01
3	Trocar, with blunt tip, flexible cannula, autoclavable, size 11 mm, working length 8.5 cm, color code: green consisting of: Cannula, Trocar only	03
4	Trocar, with blunt tip, flexible cannula, autoclavable, size 6 mm, working length 8.5 cm, color code: black, consisting of: Cannula, Trocar only	02
5	Parenchymal Forceps, dismantling, atraumatic, straight jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, with geometry, axial, with 4 locking positions, Outer Tube with Forceps Insert	01
6	Parenchymal Forceps, dismantling, atraumatic, double curved jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, with geometry, axial, with 4 locking positions, Outer Tube with Forceps Insert	01
7	Lung Forceps, dismantling, atraumatic, grasping at distal end, single curved jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, with geometry, axial, with 4 locking positions, Outer Tube with Forceps Insert	01
8	Lung Forceps, dismantling, atraumatic, curved jaws, fenestrated, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Handle, with hemostat style ratchet, axial, with 4 locking positions, Outer Tube with Forceps Insert	01
9	Lung Nodule Forceps, dismantling, atraumatic, fenestrated, curved jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Handle, with hemostat style ratchet, axial, with 4 locking positions Outer Tube with Forceps Insert	01
10	Parenchymal Forceps, dismantling, Parenchymal forceps, atraumatic, single curved jaws, Single action jaws, size 5 mm, length 28 cm, consisting of: Metal Handle, with 4 locking positions, Outer Tube with Forceps Insert for special use with linear staplers	01
11	Dissecting Forceps, dismantling, with connector pin for unipolar coagulation, curved jaws, double action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, insulated, axial, with 4 locking positions, Outer Sheath with Forceps Insert	01
12	Scissors, dismantling, with connector pin for unipolar coagulation, curved scissor blades, double action jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, insulated, axial, with 4 locking positions, Outer Sheath with Scissors Insert	01
13	Scissors, dismantling, with connector pin for unipolar coagulation, distally angled outer sheath, straight scissor blades, serrated, single action jaws, scissor blades open vertical to angulation, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, insulated, axial, with 4 locking positions, Outer Sheath with Scissors Insert	01

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14	Biopsy Forceps, dismantling, insulated, with connector pin for unipolar coagulation, distally angled outer sheath, single action jaws, jaws, size 5 mm, length 28 cm, consisting of: Metal Y-Handle, insulated, axial, with 4 locking positions, Outer Sheath with Forceps Insert	01
15	Grasping Forceps, dismantling, atraumatic, straight jaws, single action jaws, size 5 mm, length 28 cm, consisting of: Metal Handle, with hemostat style ratchet, axial, with 4 locking positions Outer Sheath with Forceps Insert	01
16	Suction-Coagulation Cannula, with connector pin for unipolar coagulation, distally angled sheath, size 5 mm, length 28 cm, for use with handle	01
17	Suction-Coagulation Cannula, with connector pin for bipolar coagulation, distally angled sheath, size 5 mm, length 28 cm, for use with handle	01
18	Handle with Trumpet Valve, for suction or irrigation, autoclavable, for use with coagulation suction tubes size 5 mm	01
19	Suction and Irrigation Tube, with lateral holes, distally angled sheath, size 5 mm, length 28 cm or use with Handles 30805, 37112 A and 37113 A	01
20	Suction and Irrigation Cannula, with lateral holes, distally angled sheath, size 10 mm, length 28 cm for use with handles	01
21	Two-way Stopcock, suitable for both irrigation and suction, for use with 5 mm Coagulation- and Dissection Electrodes with channel and Suction and Irrigation tubes, autoclavable	02
22	Coagulating and Dissecting Electrode, L-shaped, with connector pin for unipolar coagulation, distally angled sheath, size 5 mm, length 28 cm	01
23	Palpation Probe and Knot Tier, distally angled sheath, size 5mm, length 28 cm	01
24	Dismantling KOH needle holder, ergonomic pistol grip with disengageable ratchet, ratchet release on the left side, straight jaws, with tungsten carbide insert \varnothing 5 mm, length 33 cm consisting of: insert, outer tube, Handle	01

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ITEM NO 23**TECHNICAL SPECIFICATION OF LAPAROSCOPIC SURGERY**

SL. No.	Description :	Qty. :
1	Forward-Oblique Telescope 30°, enlarged view, diameter 10 mm, length 31 cm, autoclavable, fiber optic light transmission incorporated, color code: red	01
2	Telescope 45°, enlarged view, diameter 10 mm, length 31 cm, autoclavable, fiber optic light transmission incorporated, color code: black	01
3	Trocar only, with blunt tip, for use with trocars size 11 mm, length 10.5 cm.	01
4	Trocar, size 11 mm, color code: green, consisting of: Trocar only, with blunt tip, Cannula without valve, with HiCap-Connection for insufflation, length 10.5 cm, Multifunctional Valve, size 11 mm, Reducer 11 / 5 mm	01
5	Trocar, size 11 mm, color-code: green, consisting of: Trocar only, with pyramidal tip, Cannula with valve, with insufflation stop-cock, length 10.5 cm, Multifunctional Valve	06
6	Trocar, size 13mm, color code : black, consisting of: Trocar only, with blunt tip, cannula without valve, with insufflation stop-cock, length 11.5 cm, Multifunctional Valve, size 13 mm.	01
7	Reduction Sleeve, 11/5 mm	02
8	Reducer 11/5 mm	06
9	Double Reducer 13/10 mm and 13/5 mm	01
10	Needle Holder, jaws with tungsten carbide insert, conical and tapers jaws, size 10 mm, length 33 cm, axial ring handle with hemostat style ratchet	01
11	Needle Holder, jaws with tungsten carbide inserts, conical and tapered jaws, size 5 mm, length 33 cm, axial ring handle with hemostat style ratchet	02
12	Vascular Clamp, straight jaws, length of jaws 7 cm, straight sheath, with axial ring handle, ratchet with safety locking device, size 10 mm, length 30 cm	02
13	Vascular Cross Clamp, length of jaws 5 cm, straight sheath, size 10 mm, length 30 cm, with axial ring handle, ratchet with security locking device	03
14	Potts Scissors, 45° angled, pointed, size 10 mm, length 36 cm, consisting of: Metal Outer tube, Metal Handle, without ratchet, Scissors Insert	02
15	Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 43 cm, atraumatic, fenestrated, single action jaws, consisting of: Plastic Handle, without ratchet, Outer Tube, insulated Forceps insert.	01
16	Scissors, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, with serrated jaws, curved spoon blades, length of blades 17 mm, double action jaws, consisting of : Metal-Handle, insulated, without ratchet, Outer Tube, insulated Scissors Insert	02
17	Scissors, rotating, size 5 mm, length 43 cm, with serrated jaws, curved spoon blades, length of blades 17 mm, double action jaws, consisting of : Plastic Handle, without ratchet, Outer Tube, insulated Scissors Insert	01

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18	Dissecting and Grasping Forceps, rotating, dismantling, insulated, with connector pin for unipolar coagulation, with LUER-Lock connector for cleaning, double action jaws, long, size 5 mm, length 36 cm, consisting of: Plastic Handle, without ratchet Metal Outer Sheath, insulated, Forceps Insert	01
19	Grasping Forceps, rotating, dismantling, insulated, with connector pin for unipolar coagulation, single action jaws with especially fine serration, fenestrated, size 5 mm, length 36 cm, consisting of: Plastic Handle, without ratchet outer Sheath insulated Forceps Insert	03
20	Micro Knife, pointed, distendable, length 31 cm, size 5 mm.	01
21	Holding System, autoclavable, with fastener : Lock, consisting of: Socket, to clamp to the operating table, for use with European and United States standard rails, also suited for rails 25 x 10 up to 35 x 8 mm, with lateral clamping element for height adjustment of the articulated stand Articulated Stand, reinforced version, Straight, with one mechanical central clamp for all five joint functions, height 30 cm, operating range 37 cm, with fastener : Lock (female) Clamping jaw, universal, clamping range 0 up to 18 mm, with fastener : Lock (male)	01
22	Dismantling Fan Retractor, distendable, size 10 mm, length 36 cm.	01
23	Handle for suction and irrigation, Pistol handle grip, with clamping valve, Autoclavable, To be used with suction-and irrigation tubes size 5 and 10mm Consisting of: Pistol Handle Grip Mtp tubing set, sterile, for single use	01
24	Suction and Irrigation Cannula, with lateral holes, size 5 mm, length 36 cm, for use with suction and irrigation handles	01
25	Suction and Irrigation Cannula, size 5 mm, length 36 cm, for use with suction and irrigation handles	01

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ITEM NO 24

Linear Staplers (all sizes) for Open & lap surgery

1. Linear stapler 30mm with controlled tissue compression accommodates tissue between 1.0 mm – 2.5 mm, parallel jaw closure, longer staple legs, locking trigger in handle & remote retaining pin, heavy wire option.
2. Linear stapler 60mm with controlled tissue compression accommodates tissue between 1.5 mm – 2.5 mm, parallel jaw closure, longer staple legs, locking trigger in handle & remote retaining pin, heavy wire option.

Cartridge for Linear Staplers

1. Proximate linear stapler standard cartridge 30 mm with yellow (Heavy) reloads compatible with Linear Stapler 30 mm.
2. Proximate linear stapler standard cartridge 60 mm with yellow (Heavy) reloads compatible with Linear Stapler 60 mm.

Linear Cutters (all sizes) for Open & lap surgery

1. Reusable 55 mm linear cutter & stapler complete set with autoclavable Handle, Blue & Green reload, knife & no knife module.
2. Selectable staple height linear cutter 55 mm having 6 rows of staple line, having cartridge with selectable closed staple height of (1.5 mm/1.8 mm/ 2 mm) & integrated new knife blade. Linear cutter gives intermediate locking position for easy issue manipulation & two sided firing for easy handling, staple line of 61 mm & cut line of 58 mm.
3. Selectable staple height linear cutter 75 mm having 6 rows of staple line, having cartridge with selectable closed staple height of (1.5 mm/1.8 mm/ 2 mm) & integrated new knife blade. Linear cutter gives intermediate locking position for easy issue manipulation & two sided firing for easy handling, staple line of 81 mm & cut line of 78 mm.

Cartridge for Linear Cutters for Open Surgery

1. Universal linear cutter cartridge 55mm with option of closed staple height of 1.5 mm /1.8 mm/2 mm compatible with selectable staple height linear cutter 55 mm.
2. Universal linear cutter cartridge 75mm with option of closed staple height of 1.5 mm /1.8 mm/2 mm compatible with selectable staple height linear cutter 75 mm.

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Circular Staplers (All Sizes)

Proximate Intra – Luminal Staplers with Curved shaft anvil detachable

21 mm with Lumen Size 12.4 mm

25 mm with Lumen size 16.4 mm, 25 mm with lumen size 20.4.

33 mm Lumen size 24.4 diameter head.

With adjustable staple height (1.0 – 2.5 mm) for controlled tissue compression, longer staple leg 5.5 mm.

Non- slip griping surface.

Laposcopic Staplers

ECHELON 60 MM ENDOPATH CUTTER – STRAIGHT AND WITH ARTICULATION

ECHELON 45 MM ENDOPATH CUTTER – STRAIGHT AND WITH ARTICULATION

Cartridges for Lap. Staplers

60 MM BLUE CARTRIDGE FOR 60 MM STAPLER

60 MM GOLD CARTRIDGE FOR 60 MM STAPLER

60 MM GREEN CARTRIDGE FOR 60 MM STAPLER

60 MM WHITE CARTRIDGE FOR 60 MM STAPLER

45 MM BLUE CARTRIDGE FOR 45 MM STAPLER

45 MM GOLD CARTRIDGE FOR 45 MM STAPLER

45 MM GREEN CARTRIDGE FOR 45 MM STAPLER

45 MM WHITE CARTRIDGE FOR 45 MM STAPLER

Skin Stapler & Staple remover

1. Multi –directional disposable skin stapler with coated rectangular staples (Kryotex) having dimension of 6.9 mm x 3.9 mm with 35 numbers of staples with alignment indicator.
2. Squeeze Handle Staple extractor

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ITEM NO 25

Anaesthesia Workstation for Operation Theatre


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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 O ₂ 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.	<ol style="list-style-type: none">Mechanical colour coded flow-meters precisely calibrated 5 tube flow meters for oxygen and nitrous oxide and Air.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.Emergency oxygen flush that can deliver flows between 35-50 litres per minute. It should be protected from accidental activation as per ISO requirements
8.	Vaporizers : MAINTENANCE FREE with Delivery Range 0 - 6 % <ol style="list-style-type: none">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.With each work station temperature, pressure and flow compensated anesthetic agent specific vaporizers for Halothane, Sevoflurane and Isoflurane should be provided. Each machine must be capable of accommodating a Desflurane vaporizer. A total of 4 Desflurane vaporizers shall be provided in addition to the above.
9.	Breathing System : <ol style="list-style-type: none">Closed circle system with carbondioxide absorbent double canisters 2 Kgs. Should be part of machine. Machine with bi-stable bag vent switch. There should be <i>common gas outlet for using other type of breathing systems with this machine.</i>

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

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

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

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Item no 26

ULTRASONIC CUTTING AND COAGULATING DEVICE WITH ADVANCE BIPOLAR VESSEL SEALING SYSTEM

- System should have a universal connector to connect Ultrasonic energy and Advanced RF energy instruments.
- Ultrasonic and bipolar energy in the system must work separately and at no point in combination.
- System should have automatic instrument recognition.
- System should be CE approved.
- System should have a touch screen display for fast and setup, operation and on-screen diagnostics.
- System should have a high-resolution display with wide viewing angles.
- System should have the ability for software updates via USB memory stick.
- System should be a single generator that provides Ultrasonic energy and Advanced RF energy technology for soft tissue dissection and vessel sealing
- System should have a potential equalization terminal for compatibility with other medical systems requiring such connections
- System should conform to the following international standards EN (IEC) 60601-1, EN (IEC) 60601-1-2, EN (IEC) 60601-2-2, EN (IEC) 60601-1-8
- System should provide Class 1 protection against electric shock
- System should have a single footswitch for operating ultrasonic energy or advanced RF energy instruments
- System should have the ability to select handswitch or footswitch activation or both for Ultrasonic and advanced RF energy instruments and the ability to change selection during use
- System should have English language as default
- System should not have minimal lateral thermal spread more than 1 mm.
- System should not have an auto switch off mechanism.
- System should have standby mode to ensure safety.
- System should come equipped with system diagnostics and troubleshooting guide to pin point any problems in the systems.
- System should have onscreen warning display system for generator overheating, generator software upgrade, handpiece errors and instrument errors
- System should be able to power ultrasonic energy instruments with 55.5 KHz frequency and have the ability to power ultrasonic energy instruments in the frequency range of 30-80 KHz in future
- The hand piece for the system should come with an inbuilt transducer.
- System should be compatible for open surgery and for laparoscopic surgery.
- System should be compatible with both 5mm and 10mm instruments.
- System should have atleast 5 power settings levels with power level display for ultrasonic energy instruments.
- System should be able to power energy instruments with microprocessor controlled bipolar electrosurgical radiofrequency technology with a quasi-sinusoidal forced impedance output.

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- System should be equipped with smart advanced RF energy technology to measure the tissue impedance and control the power delivery.
- System should be equipped with advanced RF energy technology that can simultaneously seal and transect vessels up to and including 7mm, large tissue pedicles and vascular bundles.
- System should be equipped with advanced RF energy technology that provides temperature controlled energy delivery which should maintain tissue temperature approximately at 100 degree Celsius.
- System should have Advanced RF Energy hand instruments with a unique electrode configuration to minimize the lateral thermal spread.
- System should have Advanced RF Energy hand instruments with technology to deliver high compression uniformly across seal area.
- System should have Advanced RF Energy hand instruments that provide tissue / vessel seal strength to withstand bursting pressure of 7 times the systolic pressure.
- All hand probes for open and lap procedures should be able to simultaneously cut and coagulate tissues.
- System should be able to power advanced RF energy hand instruments of 5mm shaft diameter for both open & laparoscopic procedures with round trip (5mm tip width) in the following shaft lengths (14cm, 25cm , 35cm & 45cm) and should be both hand & foot activated.
- Systems should be able to power ultrasonic energy hand instruments of 5mm shaft diameter for both open & laparoscopic procedures with the following specifications

- System should comprise of the following Hardware:

- 1 Generator
- 2 Footswitch & Cable

Accessories:

- 1 Handpiece (Transducer)
- 2 Handpiece (Blue)
- 3 Generator Cart
- 4 Adaptors for ultrasonic
- 5 advanced RF energy instruments

Open Surgery Instruments (Ultrasonic cutting and coagulation device):

1. 9cm shaft, curved, tapered tip for precise dissection, seals 5 mm vessels, as well as lymphatic with 16 mm active blade & 240-degree activation, triggers support multiple hand positions.
2. 17cm shaft, curved, tapered tip for precise dissection, seals 5 mm vessels, as well as lymphatic with 16 mm active blade & 240-degree activation, triggers support multiple hand positions.
3. 5mm Hand Activated Curved Coagulating Shears capable of sealing blood vessels upto 5mm in diameter, 23 cm shaft length, ergonomic handle

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4. Curved Blade having telescoping shaft (10cm-14cm) with integrated hand activation control buttons.
5. Dissecting Hook having telescoping shaft (10cm-14cm) with integrated hand activation control buttons.

Open Surgery Instruments (Bipolar vessel sealing device):

1. Hand probes with 5mm shaft diameter, 14cm long with 5mm tip width.
2. Hand probes with 5mm shaft diameter, 25cm long with 5mm tip width.
3. Hand probe with, 22cm long shaft and 40mm jaw length

Laparoscopic Surgery Instruments (Ultrasonic cutting and coagulation device):


1. 5mm Lap Hand Activated Curved Coagulating Shears capable of sealing blood vessels upto 5mm in diameter, 36 cm shaft length, ergonomic handle.
2. 5mm Lap Hand Activated Curved Coagulating Shears capable of sealing blood vessels upto 5mm in diameter 45 cm shaft length, ergonomic handle.
- 3.
4. 5mm Lap Dissecting Hook, 32 cm long

Laparoscopic surgery instrument (Bipolar vessel sealing device):

1. Laparoscopic probe probes with 5mm shaft diameter, 35cm long with 5mm tip width.
 2. Laparoscopic probes with 5mm shaft diameter, 45cm long with 5mm tip width.
 3. Articulating Laparoscopic probe probes with 5mm shaft diameter, 35cm long with 5mm tip width, Probe should have ability to articulate 45- 50* both sides.
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Should have European CE and FDA approved.

Rates for all consumables items should be quoted separately in price price-bid.


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Item no 27

Advanced Airway Clearing System Tender Specification

Features/Application	Specification	
Air Pulse Generator		
Weight	17 lb (8 kg)	
Height	9.5" (24.1 cm)	
Width	13" (33 cm)	
Depth	9.5" (24.1 cm)	
Carry Handle	Integrated folding carry handle	
User controls	Push button controls	
Remote user controls	Wired remote control can pause or restart the air pulse generator	
User interface	Control panel with backlit screen	Shows software revision, total hours used, modes, system settings and system messages
Therapy interruption	Therapy incomplete reminder message displayed on screen when therapy interrupted	
User instruction language	User instructions available in the following languages on screen: English English/US Spanish English/German English/French English/International Spanish English/Dutch English/Swedish English/Italian English/InternationalPortuguese	
Voltage	Multi voltage 100-230 volts 50—60 hz	
Air Hoses	2 air hoses facilitate uniform air distribution throughout the garment	
Electrical lead	Electrical lead with country specific plug electrical connection available	
Therapy Settings		
Oscillation frequency range	5-20 hz adjustable by increments of 1	
Pressure range	1-10 adjustable by increments of 1	
Timer settings	1-60 minutes adjustable in increments of 1 minute	
Soft Start	Gentle start, builds up to selected frequency and pressure within 20 seconds	
Custom options and settings:		

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Normal mode	Frequency and pressure delivered at one selected setting for the duration of the therapy session unless manually adjusted	
Programme mode	Programme A and B modes, allow programming of up to 8 programmable points each with it's own combination of frequency, pressure and time. Settings automatically change as selected during the therapy session.	
Cough Pause	Programmable Cough Pause allows the frequency and duration of the pause to be customised for the patient. Message appears on screen reminding the patient to cough Garment deflates to allow patient to cough easily and re-inflates automatically when cough pause ended.	
Ramp Mode	Eases the patient from a lower to a higher setting during a limited part of the therapy session, helping acclimatise the patient to the therapy. Ramp mode can be altered for each patient	
Custom default settings	Allows the facility to set the default settings for the modes of operation. These settings will be the initial settings for all users.	
Wheeled Stand		
Casters	4 locking casters	
Storage	Wire Storage basket for easy cleaning	
Gas assisted Height Adjustment	Wheeled stand adjustable height range of 29"-39" (73.6cm – 99.1cm) Stand weight = 32lb (14.5kg) Foot pedal activated height adjustment	
Garment		
Garment options	Choice of 5 garment styles but Disposable wrap and/or disposable full garment recommended for hospital use	
Disposable wrap	6 sizes covering 19 inch (48cm) to 75 inch (191cm) chest size	

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	Xs, S, M, L, XL, XXL	
Disposable full garments	6 sizes covering 23 inch (58cm) to 52inch (132cm) chest size Child M, Child L, Adult XS, Adult S, Adult M, Adult L Garment deflate when therapy is paused	
Colour coded Garment	Each size garment colour coded for easy size recognition	
	Garment material - Polyurethane-coated nylon	
	Latex free	
Hoses		
	Disposable hoses with universal connectors	
Regulatory Spec	IEC 60601-1(ed.3) CAN/CSA C22.2 No. 601.1 ISO13485 Directive 93/42/EEC - Class IIa	
Warranty	2 years	
Service	Annual routine preventative maintenance required	

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ITEM NO 28

<p>Ultrasound Machine :</p> <p>The system should be latest fully Digital Color Doppler Ultrasound System and can be used for application like Abdominal, Obs. / Gynae, Small Parts, Endocavillary, Pediatric & Vascular applications.</p> <p>The system should have following essential features :</p> <ol style="list-style-type: none">1. The system should have the following image modes, 2D, M Mode, PW, Tissue Harmonic Mode, Color Doppler, Power Doppler Mode.2. The system should have minimum 1500 or more digital processing channels and 256 or more grey shades.3. The system should have a very high dynamic range of 170 dB or more and should independently selectable in B & M mode.4. The system should have a very high frame rate and B mode and color mode. Maximum frame rate should be greater than 350 fps for B-mode and color mode.5. The system should be able to support all type of transducers (Convex, Endocavillary, Linear, Phased Array and Intra Operative Transducers). Frequency range of all transducers should be 2 – 14 Mhz.6. The system should have Advanced measurement packages for all applications.7. The system should have an integrated high resolution TFT / LCD of 15 inches or more with facility of tilt and swivel facility along with convenient grip.8. The system should have minimum three active universal ports & two parking ports, Active ports can be directly selectable from the control panel.9. The system should have scanning depth in the range of 2 – 28 cms.10. The system should have a very high capacity of Hard Disc Drive min 80 GB or 1000 images for storage of images.11. The system should have inbuilt CD / DVD RAW and USB ports for image export.12. The system should have zoom facility both in real time and frozen image and it should be minimum 6 times or more in both real time & frozen modes.13. The system should have minimum 6 steps transmitting focusing (transmit focal zones) & adjustable gain should be available upto 100 dB for B-mode and M-mode.14. The system should have Directional Power Doppler in define the low blood flow directions.15. The system should have HD Flow / Advanced Dynamic Flow to acquire the blood flow with directions in the deeper region at a very high frame

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ITEM NO 29

SPECIFICATION FOR AUTOMATED BLOOD GAS ANALYZER WITH ELECTROLYTES

Specification for Automated Blood Analyzer with Electrolytes :

- The analyzer should be able to measure Blood gas (pH, pO_2 , pCO_2) and electrolytes (Na^+ , K^+ , Ca^{++} , Cl^-)
- Sampling : By automated probe aspiration through syringe & capillary.
- The instrument should be operated with multiple test cartridge / cassettes.
- The cartridge / cassettes should have variable pack sizes from minimum of 25 tests to 300 tests.
- Analyzer should have minimum on board test capacity of 25 test to maximum 300 tests.
- The cartridge / cassettes should have a minimum of 60 days on –board stability.
- The system should be small and portable and easy to carry.
- Should be operational on power and on battery.
- Analyzer should have automated entry and logging of consumables.
- Analyzer should have a start –up time should be 8 ~ 10 minutes.
- Analyzer should have large touch screen facility and optional for key board operation.
- Analyzer should not use any Gas bottle / tanks / cylinders/ for calibration.
- Analyzer should not use any conventional electrodes / conventional individual sensors/ Foil pack reagents for Measurement of parameters.
- Analyzer should have onboard printer.
- Analyzer should have data back up facility option with USB ports.
- Analyzer should be able to measure all parameters with 60 ~ 75 microL.
- Sample measurement time : max 60 seconds and sample to sample cycle time max 120 seconds.
- Analyzer should have integrated barcode reader to support sample identification .
- The analyzer should perform samples like : whole blood and other fluids.
- Analyzer should have on screen display of Levy – Jennings plot.
- Analyzer should detect air-in sample.

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ITEM NO 30

IV FLUID /BLOOD (TRANSFUSION) WARMER SYSTEM:

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

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