

Requirement and Specifications

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Category 2

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Category 4

SN.	REQUIREMENT	QUANTITY
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Technical specification (Category 1)

Technical Specifications mentioned below are of minimum parameter, products offered must meet these or exceed all requirements herein.

1. Operation Theater Light - Double Dome

EQUIPMENT: OPERATION THEATER LIGHT/DOUBLE DOME

GENERAL SPECIFICATION

- The Lights should have LED light engines in which the mixing of the various LED lights should take place inside the engines itself which should prevent the casting of color shadows.
- The light should be a ceiling type double dome model.
- Should be LCD based microprocessor control with touch screen technology.
- Shall have Control panels on the light assembly as well as away from it for adjustment of light intensity, illuminated area and for switching on and off, focusing etc.
- Intensity at 1-meter distance 1,50,000 to 1,60,000 lux for major dome.
- Should have variable Color Temperature: 3500-5500 K.
- Homogenous luminous field with lowest possible amount of shadow.
- The contrast between the lighted area and the surrounding should not cause stress to the surgeon's eye.
- Depth of illumination should be 100-140cms.
- Illuminated field diameter should be approx. 20-30 CMS.
- Color rendering index (CRI) should be 93 – 98.
- Height adjustment more than 1 meter.
- LED life span 50000 or more Hrs.
- Should have feature of automatic focus.
- Light field adjustment by sterilizable handles (2 sets).
- The light head should be so constructed as to provide optimum conditions for laminar flow.
- Light head made of durable polycarbonate /aluminum and having one sterilizable handle.
- Light head having smooth and clean surfaces that are easy and safely to clean.
- User selectable intensity variation with digital display from 30 to 100% in 6 or more steps.
- It should have a back light or ENDO mode to allow appropriate visibility of the screen.
- No heat emission through IR radiation.
- The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%

POWER SUPPLY REQUIREMENT

- Power input to be 220-240 VAC, 50Hz fitted with UK Plug.

SAFETY STANDARD AND TRAINING

- IP rating IP64
- The LED OT Lights should be having US-FDA / European CE certification.
- The equipment should be designed to comply with existing international standards in terms of safety and performance i.e., ISO9001/ISO 13485, IEC60601 and UL Standard.
- Having EMI/EMC testing EN60601-1-2-2001-electromagnetic compatibility
- Comprehensive training for Operator and Services Support for In- House Biomedical Engineer.
- Availability Spare parts and all other accessories must be for 10 years.

Note: All relevant document should be submitted in technical bid

DOCUMENTATION

- Certificate of calibration and inspection.
- List of important spare parts and accessories with part number and costing.
- Detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided.
- Shall submit an authorization letter from the manufacturer.

ADDITIONAL CONDITIONS

- A written commitment of maintenance during and after the warranty period.
- Manufacturer/Supplier should install and successfully run and demonstrate the instrument.
- The unit should be supplied with a minimum warranty of 2 years from the date of completion of satisfactory installation. The warranty must cover each and every part of the product.



2. Surgical Suction Unit-Dual Jar

EQUIPMENT: SURGICAL SUCTION UNIT

GENERAL SPECIFICATION

SCOPE OF EQUIPMENT: Electric suction units are medical devices used in wards, theaters, and other fields for aspirating human fluids from the mouth, the airways and from operation sites by sucking the material through a cannula into a collection jar. Mobile electric suction units offer a convenient alternative to central vacuum systems.

- Mode of operation: Intermittent & continuous
- Pump – Oil free Twin headed Piston pump and maintenance-free.
- Motor – thermally protected.
- Suction Bottle Capacity - 2 x 2000 ml minimum (with safety valve)
- Suction Jar- Autoclavable.
- Air flow: 60-90LPM
- Gauge - 0 to 760 mm Hg
- Vacuum pressure range 670 - 680 mm Hg
- Should have facility to adjust suction pressure.
- A suction tube of at least 1.5 meters should be included.
- The suction tube shall be autoclavable at 121°C.
- The unit shall be equipped with a foot switch for control of the suction.
- Should have a noiseless Operation: less than 40db with vacuum gauge.
- Should provide filter to absorb moisture and water particles entering into the rotor.
- Filter – Bacterial/Hydrophobic filter -autoclavable/ reusable/disposable
- Should have a safety valve to prevent entry of fluids into machine in case the suction jar fills up.
- Should be well-designed and have a clear dashboard to store accessories.
- Shall have On and off switch with light indicator.
- Should be movable on Four wheels with antistatic castors having safety breaks.
- Warranty- 24 months from date of installation.

STANDARD ACCESSORIES

- Reusable/autoclavable Liquid collection jar with overflow valve- 2x2000ml
- Hydrophobic or bacterial filter (Reusable/disposable)-10No's
- Silicon Tube with length of 150cm.



SAFETY STANDARD AND TRAINING

- Electrical safety Compliance with IEC 60601-1, IEC 60601-1-2
- ISO 10079-1:2015 Medical suction equipment -- Part 1: Electrically powered suction equipment.

DOCUMENTATION

- Certificate of calibration and inspection.
- Detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided.



Technical specification (Category 2)

Technical Specifications mentioned below are of minimum parameter, products offered must meet these or exceed all requirements herein.

3. Pulse Oximeter with Adult probe

EQUIPMENT: HANDHELD PULSE OXIMETER WITH ADULT PROBE



Figure :01

TECHNICAL SPECIFICATION

- The model should be hand-held, sturdy and compact, can be used at the place of delivery and at bed-side.
- Should be resistant to motion artefact.
- Should be able to pick up signals reliably even in low perfusion states.
- Should have clinically proven track record to work during motion and in low perfusion states.
- Compatible with reusable and disposable probes.
- Should be working with rechargeable battery and charger should be supplied with the machine.
- Should supply with standard Reusable flexible adult probe.
- The unit shall be capable of being measured spot and continuous measurement.

Oxygen saturation:

- ❖ Range: 1-100%
- ❖ Resolution: 1%



- ❖ Accuracy: ± 3 at 70-100% range
- ❖ Averaging time: selectable (2-16 seconds or slow to fast)

Pulse rate:

- ❖ Waveform: Plethysmography: waveform or bar form
- ❖ Range: 40-230 bpm
- ❖ Resolution: 1 bpm
- ❖ Accuracy: $\pm 3 - 5$ bpm
 - Should have Perfusion Index display.
 - Should be defibrillator proof.

Display should be:

- ❖ Bright LED display with contrast adjustability
- ❖ Shows saturation, pulse rate, status of battery charging, sensor off

Type of alarm:

- ❖ Both visual and audible
- ❖ Volume adjustable
- ❖ High SpO₂: range 70-99%
- ❖ Low SpO₂: range 70-99%
- ❖ High pulse rate: 40-230 bpm
- ❖ Low pulse rate: 40-230 bpm
- ❖ System alarms for probe failure
- ❖ system failure, low battery
- ❖ Alarm override facility should be present

SAFETY STANDARD AND TRAINING

- Electrical safety Compliance with IEC 60601-1, IEC 60601-1-2
- Insulation should be Protection Class II approved.
- Should be ISO and European CE certified.
- Onsite physical demonstration/training of the equipment to all the end users with all the requested facilities will be mandatory.

DOCUMENTATION

- Detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided.
- Certificate of calibration and inspection from factory.

Note: The above given figure:01 is only for product identification.



TECHNICAL DATA

Capacity	360kg/800Ibs.
Accuracy	50g/0.1lbs.
Power supply	Main /Rechargeable battery
Dimensions (W x H x D)	920 x 1120 x 1150mm 36,2 x 44,1 x 45,3 inches
Display Type	LCD
Connectivity	Yes
Classification	Class -III
Mobility	Transport castors
Net weight	40kg max.

DOCUMENTATION

- Should be a CE / FDA Approved product and should have ISO standards
- Certificate of calibration and inspection.
- Detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided.

Note: The above given figure:01 is only for product identification.



6. Infant Weighing Scale

EQUIPMENT: INFANT WEIGHING SCALE

GENERAL SPECIFICATION

- It should be a digital electronic scale.
- Should have capacity weighing range of 0 - 20 kg/44lbs with an accuracy of ± 5 gm
- Weighing unit: Standard display in grams
- Pan material: Fiber resistant plastic (pipe coated)
- Display: Bright LED or LCD display for easy viewing
- Should have the following functions TARE, Auto-HOLD and Automatic switch-off, kg/lbs. Switch-over
- Should be light weight and has a handle for easy transportation
- Should be operated by battery or power supply.
- Battery backup: At least 3 hours
- Should have a measuring rod and a detachable head positioner
- Should be supplied with detachable Baby Measuring Rod with measuring range: 35 – 80 cm with graduation of 1 mm
- The unit should be supplied with a minimum warranty of 1 years after successful installation.

SAFETY STANDARD AND TRAINING

- Electrical safety Compliance with IEC 60601-1, IEC 60601-1-2
- Internally powered equipment.
- Insulation should be Protection Class II approved.
- Should be ISO and European CE certified.

DOCUMENTATION

- Certificate of calibration and inspection.
- Detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided.



7. Digital Weighing Scale-Adult

EQUIPMENT: DIGITAL WEIGHING SCALE-ADULT



Figure:01

- The Electronic Adult Weighing Scale should incorporate the following features for user-friendly convenience.
 - a) Digital LCD display
 - b) TARE facility with zero function.
 - c) HOLD function to lock the weight.
 - d) Tap-on automatic switch-on, Automatic switch-off
 - e) kg/lbs. switch-over
 - f) Battery Powered.
- Capacity minimum: 150kg/330lbs
- Graduation (g): 100 g / 0,2lbs
- Approximate dimensions (W x H x D) /: 316 x 37 x 326 mm
12,4 x 1,5 x 12,8 inch.
- Should have large leveling base on the bottom of the scale for safe placement.
- Should be light weight and has a handle for easy transportation.
- Power supply: Battery
- The unit should be supplied with a minimum warranty of 2 years after successful installation.

DOCUMENTATION

- Should be a CE / FDA Approved product and should have ISO standards
- Certificate of calibration and inspection.
- Detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided.

Note: The above given figure:01 is only for product identification.

Technical specification (Category 3)

Technical Specifications mentioned below are of minimum parameter, products offered must meet these or exceed all requirements herein.

9. Handheld slit lamp

EQUIPMENT: HANDHELD SLIT LAMP

Purpose of Equipment:

The Portable Slit lamp is a lightweight, single hand operated slit lamp. Functions as a desktop slit lamp but should be ideal for pediatrics, adult, carry-out or mobile hospital.



Figure:01

TECHNICAL SPECIFICATION

Microscope	
Total magnifications	10x & 16x
Objective Lens Working Distance	10x(100mm)/16x(80mm)
Eyepiece Dioptic Adjustment Range	+/- 7D or better
Slit Angle	+/- 60°
Illumination	
Slit width	0-11 mm or better
Slit length	0-11 mm or better
Filters	Heat absorbing, cobalt blue, green, Red free.
The illumination must be white.	
Light source	LED- High luminance
Luminance	1000 Lux

Charger & Battery Requirement

- 1) Li-ion battery 7.4 V/68Ah or suitable battery for the equipment.
- 2) Operation time: 2 hours or more (full charge at max luminosity)
- 3) Input voltage: AC 100-240v 50 -60 Hz
- 4) Output voltage: DC 12V/500mAh or suitable voltage for the equipment battery.

Standard Accessories

- 1) Carrying case-1pc.
- 2) Battery - 1pc (or) more
- 3) Battery charger- 1
- 4) Forehead support – 1 pc
- 5) Eyepiece: 16x and 10x (1 Each)

DOCUMENTATION

- Detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided.

Note: The above given figure:01 is only for product identification.



TECHNICAL SPECIFICATION

Monitor	
Display Type	3 Inch LCD
Minimum Resolution Ratio	640X480(RGB)
Viewing angle	>60°
Display up &down rotation angle	0° to 270°
Power consumption	<2W
Camera	
Illuminance	>150 lux
Minimum Resolution ratio	1280X720px
Image & Video features	
Image/video function	Required
Output	USB output for storage of Video/Image
Storage	Micro SD card/8GB
Video/photo play back	Required
Energy Source	
Battery Type	Rechargeable Li-ion battery
Minimum capacity	1350mAh
Backup time	140minutes
Charging Time	Less than 150 minutes

ACCESSORIES

1. Reusable Miller blades of size 0,1
2. Reusable Macintosh blades of all sizes.
3. Carrying case.
4. Spare lamp if required.

→ **Disposable blade** should supply 50nos. of blades compatible for both adult and pediatric along with each unit.



DOCUMENTATION

- Detailed service manual and operation manual should be provided by the supplier or manufacturer.
- Original catalogue with detailed literature should be provided.

Note: The above given figure:01 is only for product identification.



Technical specification (Category 4)

Technical Specifications mentioned below are of minimum parameter, products offered must meet these or exceed all requirements herein.

11. Color doppler ultrasound system

EQUIPMENT: COLOUR DOPPLER ULTRASOUND SYSTEM

TECHNICAL SPECIFICATION

- It should be robust state of art, fully digital high end latest Color Doppler Ultrasound System with an advanced architecture, capable of precision beam forming, capable of performing imaging applications in Abdominal, OB/GYN, Fetal Heart, Musculoskeletal, Small parts, Urology, Breast, Cardiac, Liver, Pediatric studies etc.
- System should have the latest Beam forming technology to ensure no compromise between Temporal and Spatial resolution.
- System processing channels must be more than 6,500,000.
- The system should perform 5000 frames/sec. or more Also, system should support transducers of frequency range from 1-20Mhz.
- High-definition acoustic zoom for enlarging sections of 2D and color flow images with more acoustic information for greater clarity and detail while maintaining an optimal frame rate.
- System should have 256 gray shades.
- System should have 4 universal active probe ports.
- System with Digital TGC control is preferred.
- System should have Dynamic range 320 dB or more.
- System should have intuitive user interface to complete exams with fewer keystrokes.
- System can have personalized setup tool to customize user and patient protocol.
- System should incorporate facility for high resolution 2D, M-mode, PW, Color Flow Imaging, Color Power Angio imaging, Power Pulse Inversion Harmonics, Directional Color Power Angio imaging modes, Elastography and Comprehensive 4D Packages.
- The system shall have combined or multi-imaging mode capability.

The system shall also support the following:

Panoramic real time Compound Imaging, Full Spectrum Imaging, Tissue Harmonic Imaging, Trapezoidal Imaging, Quad Imaging, Dual Imaging in Horizontal Split, 2D/C Live Imaging, Automatic PW Doppler Adjustment and Auto 2D Adjustment.



- System should have feature to Volume shade imaging for skin tones and shading to improve visualization of 3D/4D with variable light source time.
- System should have fully digital real time Multi recording with live voice annotation recording in DVD.
- System should have scan depth of 2 to 40 cm or more. Please specify through data sheet.
- System should have facility for real time or frozen, pan or point zoom.
- System should have cine loop review minimum 64,000 frames and Loop Review for 98,000 Lines. Please specify through data sheet.
- System should have panoramic extended field of view.
- System should have Fetoscopy view technology that displays detailed volume rendering, enabling users to easily identify subtle anatomical structures with change in position of light source. Anatomies look realistic when viewed in color.
- System should have a function for non-invasive assessment of the stiffness of tissue/lesions in various applications.
- System should have function to visualize microcirculatory blood flow.
- System should have a function to auto measure fetal growth parameters while executing exam including 2D NT
- System shall be able to upgrade for automatic tool to derive 9 planes of fetal heart with color from one volume sweep. Documentary proof to provide with datasheet.
- System should have automatic tool for deriving 9 planes for Fetal Central Nervous System.
- System Should have Auto measurement for Fetal Biometry (BPD, HC, AC & FL)
- System should have Advanced Image Processing algorithm to analyze between targets and artifacts so as to sharpen target anatomy, reduce the sparkle & artifacts to improve image quality.
- It should have extensive software and automatic and user programmable calculation package for gray scale, color Doppler, 3D and 4D applications.
- System should be capable to do Contrast Enhanced Ultrasonography.
- Should have Facility to Side-by-side comparison of previous ultrasound and other modality exams during live scanning.
- System should have at least 23” or more flat panel Monitor (preferably LED), should be able to view in all angles and all light conditions.
- System should have more than 12” wide tilting touch screen control which allows to rotate and zoom while reviewing the 3D image.
- Console height should be adjustable for user’s comfort.
- System must contain inbuilt gel warmer & can have storage shelf.
- DICOM output facility without additional Hardware or software.

- System should have central lock for all four wheels.
- System should have built in Image Management Software, for off line application when patient has gone after examination, such as Image Manipulation, Multi Planner reformatting, surface & volume rendering etc. It should have SSD hard disk memory of 512 GB or more with built in CD/DVD read write.
- The device should store images in DICOM, JPG, MPEG, BMP and AVI formats for maximum flexibility.
- System should be able to display hemodynamic color flow (Alpha blending).
- System should have features to detect very low intensity vascularization.
- System should have BIRADS based breast lesion classification tool.
- System should have TIRADS based thyroid lesion classification tool.
- System shall be equipped to perform elasticity imaging using latest available technology in a variety of application (liver, breast, prostate) and on a variety of transducers (convex, linear and endo-cavitary) accompanied by necessary quantification package software.

Note: The genuine product Data Sheet should be provided to validate the technical specification.

System should be provided with following transducer	
1	Single Crystal Convex Abdominal probe with Band width of 1MHz to 6MHz or more (Single Crystal Probe will be required for higher frame rate and deep penetration, also capable of doing Shear wave Elastography).
2	Single Crystal Linear probe for breast and MSK 3-14 MHz with automated quantification for easier identification of breast Neoplasm.
3	Dedicated Trans-Rectal/Trans vaginal Probe with Band width of 2MHz to 11MHz with more than 180 Degree Angle.
4	Single Crystal Convex Volume (4D) Probe, minimum frequency should be 1 MHz to ensure deep penetration. (Single Crystal Technology Probe will be required for higher frame rate and deep penetration)

Note: All standard and optional probe configuration should be specified in details.

POWER SUPPLY

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



STANDARD ACCESSORIES

1. Online UPS of 1KV for at least 30mins backup.
2. A good quality thermal printer.
3. Appropriate probe cleansing solution adequate for at least 6 months.
4. Heavy duty covers for cables of probes to safeguard against rodent damage

SAFETY, STANDARD, WARRANTY AND TRAINING

- Should be US FDA or CE approved product.
- Manufacturer should have ISO certification for quality, standards.
- On-site comprehensive training for concerned staff and application support services till customer satisfaction with the system.
- Type of protection against electric shocks -- Class I Degree of protection against electric shocks for ultrasound probes Type "BF" For ECG electrodes Type 'CF'
- The system must have a minimum warranty of 3 year since date of installation.

DOCUMENTATION

- An original catalogue with detailed literature should be provided.
- User manuals to be supplied in English.
- Service manual to be supplied in English.

MAINTENANCE &SERVICEABILITY

- Remote Service Network Connectivity.
- Online phone Support.
- Clinical application support.

Note: Any configured software upgradation during the warranty period should be done by the vendor / Supplier / manufacturer free of cost in due time.

