Note: If your specifications match ours, Please Submit your clear specifications as shown in the Manufacturer's Technical Document

1 **Magnetic Resonance Imaging Sysem 1.5 T (MRI)**

No.	Item Specifications	Compliance	Your Specifications
1	**Magnet:**		
	Superconductive		
	Active shielding		
	1.5 Tesla field strength		
	Patient opening > 60 cm		
	High order shimming		
	External interference shielding		
2	**Patient couch:**		
	Min. patient load, active > 150 kg.		
	Min. table height < 50 cm		
3	**RF transmitter/ receiver system:**		
	Solid state technology		
	High power transmitters < 20kw		
	Wide receiver bandwidth < 1MHz		
	High sampling rate, please specify, with auto adjustment.		
4	**Gradient coil system:**		
	Active shielded		
	Gradient strength > 30 mT/m at each axis.		
5	**Surface coils: (Each to be priced separately)**		
	Body coils		
	Spine coil		
	Neck coil		
	Head coil		
	Extremity coil		
	Shoulder coil		
	breast coil		
	Knee coil		
	TMJ coil		
	Abdomen coil		
	Endocavity coil		
	Neuro-vascular coil		
	Large loop flexible coil		
	Flexible circular surface coils		
6	**Computer system:**		
	Fast clock speed. > 700MHz		
	Large image memory, > 50GB		
7	**Array Processor:**		
	Fast clock speed > 700 MHz		
	Fast reconstruction time, please specify		
	Large main memory, please specify		
	Large raw data disk capacity, please specify		
8	**Imaging and software:**		
	Parallel Imaging, please specify factor		
	Imaging subtraction system		
	Spin echo		
	2D/3D		
	Multi planar reconstruction/ MPR		
	Maximum intensity projection/ MIP		
	Large monitor display, colored, TFT flat panel > 18"		
	Artifact reduction system		
	Speed package for reduced scan speed		
	Ultra fast single shot imaging option		
	MR angiography and MRCP		
	Vascular software package		
	Perfusion package		
9	**Image quality:**		
	High resolution image display		
	Multi scan orientation to include oblique and double oblique		
	1024 x 1024 display matrix		
	Large FOV, > 50 cm		
	Optimal inversion time range, please specify		
	Optimal repetition time range, please specify		
	Optimal Echo time range, please specify		
	Minimum slice thickness, 2D < 0.5 mm		
10	**Image parameters and manipulation:**		
	Multi slice/ multi angle features		
	Parallel acquisition technique		
11	**THIRD PARTY ITEMS**		
	The system must be offered with the following:		
	Laser printer		
	Automatic Injector		
	UPS for hole system		

2 **16 Slices CT Scan Machine**

No.	Item Specifications	Compliance	Your Specifications
	Multi Slice Spiral CT Scanner for high resolution whole body scanning including vascular application. The system should be capable of acquiring **16 slices** per rotation. Latest slip ring technology. True isotropic volume acquisition and submillimetric resolution.		
	GANTRY AND PATIENT COUCH		
1	Gantry opening must be at least 70 cm.		
2	Tilt of gantry must be at least +/- 30 degrees		
3	Remote tilting for the Gantry should be possible		
4	The gantry must be of a low-voltage slip-ring design.		
5	Rotation Speeds: Not more than 0.8s.		
6	Couch vertical Range: 42 cm to 100 cm		
7	Weight limit must be at least 200 kg		
	GENERATOR & TUBE		
1	The generator must be a high frequency, inverter type generator.		
2	Max power of the generator not less than 40 kW.		
3	Max mA: Not less than 300mA.		
4	The anode heat capacity of the X-ray tube must be at least 3,000 kHU or better.		

No.	Item Specifications	Compliance	Your Specifications
5	Cooling rate must be at least 700 kHU/min.		
6	Max kVp: Not less than 120 KV.		
	SCAN PARAMETERS		
1	Scan time (360 degrees) must be sub-second of 1.00 seconds or le		
2	The system must have a variety of different fields of view.		
3	The system should be able to use slice thickness of 1, 2, 3, 5, 10 mm.		
	X-RAY DETECTION		
1	Detectors should be of solid state type.		
2	Number of slices 16.		
3	Number of physical detector channels/slices: Not less than 1,500 n Number of detector individual elements.: Not less than 18,000		
	DATA PROCESSING		
1	Reconstruction matrix must be at least 512 X 512.		
2	Display matrix of 512X512 & 1024X1024.		
3	Image reconstruction time for axial scanning should be stated.		
4	Hard disk drive of 6000 image and 1200 raw data.		
5	The system must include M.O.D. or CD-R for archiving.		
	APPLICATIONS		
1	Contrast Media Tracking		
2	CT Angiography		
3	CT Pulmonary Angiography		
4	CT Fluoroscopy for Biopsy		
5	Advances 3D analysis		
6	Dynamic cerebral perfusion mapping		
7	Head CT		
8	Thoracic CT		
9	Abdominal CT		
10	Pelvic CT		
11	Skeletal CT		
12	Interventional CT		
	HELICAL SCANNING		
1	Minimum scan speed for 360 degrees of rotation in helical operation is 0.6 second.		
2	System must offer several helical scanning protocols (i.e. multi-directional, stacked helical, etc.).		
3	Reconstruction time per image should be stated.		
	CONSOLE and SOFTWARE PACKAGES		
	The system must include the following:		
1	Colored 3D package with surface and volume rendering.		
2	MPR (Multi Planner Reconstruction) & curved MPR.		
3	Maximum & minimum Intensity Projection Package.		
4	Virtual endoscopy.		
5	Contrast media prediction software.		
6	System Monitor		
7	DICOM		
	THIRD PARTY ITEMS		
	The system must be offered with the following:		
1	Laser Printer		
2	Automatic Injector dual head		
3	UPS for hole system		
	A. Dry View Imaging Camera with the following specifications;		
1	Dry Laser Technology speed <=100filim /h		
2	Resolution :12 bits/ 500 dpi		
3	Supports 5 Multiple Film Sizes: one of which must be 17"xl4"		
4	Must have 3 or more online film tray sizes.		
5	DICOM Compatible Attach conformance statement.		
6	Should be **US FDA or CE** (from notified body) approved CT-Scan		
7	Electrical safety conforms to standards for electrical safety **IEC-60601.**		
8	**Lead Glass window** as per room requirement		
9	Site preparation requirements should be held by the bidder.		
	Dual head Pressure Injector with the following:		
1	Flow rate -0.1-10 ml/sec, Volume- 1 ml to syringe capacity, programmable pressure limit of 325 psi with 200 ml disposable sterile syringes. Syringe heater range 35 deg C+/- 5 deg		
2	Should be provided with head mounting device and integral IV pole.		
3	100 no's syringes with tubing's to be provide with the machine.		
4	Unit will be provided with display monitor to provide Pressure Monitor graph, Flow Profile, Stop Watch Feature, Scan Display, multiphase capability and protocol locking capabilities.		
	Warranty:		
1	Two years comprehensive onsite warranty for entire CT system after commissioning.		
2	Availability of spare parts for minimum (10) years.		
3	Spare parts and consumables price list		
	Documentation		
1	User manual in English incorporating the newer applications.		
2	Service manual in English		
3	Assembly manual		
4	Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist.		
	Upgradeability		
1	Software upgrades that enhance existing applications must be provided by the vendor indefinitely at no cost to the purchaser. These no charge upgrades shall include any circuit boards or parts if software is added to enhance existing capabilities.		
2	System should have capability to being upgraded as new technology emerges for at least 7-10years		
3	Additional or new software must have the capability of being downloaded by remote computer access. Software must include a free trial period before purchase.		
	System configuration Accessories, spares and consumables		
1	Good quality light weight vinyl Lead Aprons of 0.5mm lead equivalent : 4 nos		
2	Lead Glass 150x100cmx 2mm lead : 1nos		
3	Double rows LED view boxes 4 in each row : 2nos		
4	Site preparation requirements should be held by the bidder.		

3 **Patient Monitor with full Parameters**

No.	Item Specifications	Compliance	Your Specifications
1	**Description of Function**		
1.1	Modular Multi parameter Monitor is used to monitor vital parameter of critical patients.		
2	**Operational Requirements**		
2.1	Capability of storage of patient data and printing of patient reports.		
3	**System Configuration**		
3.1	Vital multi-parameter monitor to monitor and display - ECG, Respiration, NIBP, SPO2, CO2 with capnography, Temp, Cardiac output & IBP and with complete accessories.		
4	**Technical Specifications**		
4.1	Minimum 15 inches multi colored TFT display screen.		
4.2	Separate CPU/Module rack.		

No.	Item Specifications	Compliance	Your Specifications
4.3	Eight digital and waveforms/traces display		
4.4	Combination of single, dual and multi parameter modules.		
4.5	Parameter modules freely exchangeable between all the monitors.		
4.6	Multi channel (up to 12 leads) ST segment analysis.		
4.7	Facility to monitor and display - ECG, Respiration, NIBP, SPO2, CO2 with capnography, Temp, Cardiac output & IBP – 2 nos.		
4.8	Automatic arrhythmia detection & alarm for standard and lethal arrhythmia.		
4.9	EtCO2 -Main stream/ side stream. Display both inspired and expired values, showing capnography.		
4.10	NMT Module/monitor: For measurement and display of TOF count, TOF %, ST, DBS, Tetanic and Trend for continuous usage.		
4.11	Automatic measurement facility in selected time interval.		
4.12	Automatic selection of supramaximal current. Include standard accessories.		
4.13	EEG Module with all accessories.		
4.14	Must provide hemodynamic, oxygenation, Ventilation calculation package		
4.15	Trend of at least 48 hours.		
4.16	200 nos. event recall/snapshot facility both manually and automatically triggered by alarm.		
4.17	Automatic Zoom In Facility in the monitor display.		
4.18	The monitors must have monitor-to-monitor overview facility and data transfer over the network.		
4.19	Must have drug calculation package.		
4.20	Web browsing facility to review each networked monitors data through hospital LAN via office PC in Hospital LAN Network and/or through dial up facility from remote location.		
4.21	Communications with Information Management Systems:		
	A. To provide HL-7 compatible server for sending and receiving information to and from the monitoring network to and from Hospital Information System, Laboratory information etc for integration of various information		
	B. To provide suitable facility for sending and receiving DICOM compatible Radiological Images like Ultrasound, X-Ray etc. to and from the monitoring network to and from Hospital Information System, Radiology Information System etc. for integration of various information .		
4.22	Integrated or external printer for report output.		
5	**Accessories, spares and consumables**		
5.1	Accessories:		
	□ ECG/Resp: 5 Lead ECG Cable with clip- 2 sets per monitor and 10 Lead ECG Cable with clip- 1 set per monitor.		
	□ Temperature: Rectal temperature probe- two per monitor and skin temperature probe- one per monitor.		
	□ NIBP: Adult cuff- 2nos. per monitor and two sizes of paediatric cuffs- one per monitor (complete sets)		
	□ EtCO2 module with all accessories. In case of side stream EtCO2- 10 sets of sampling tubes for each module to be included.		
	□ SPO2: Adult SPO2 sensor with cable- two nos. per monitor and Paediatric SPO2 sensorsone no. per monitor.		
	□ Cardiac Output: Must be by thermodilution method with all accessories		
	□ IBP: Include four nos. per monitor of reusable pressure transducer with bracket, holder and 100 nos. disposable domes per monitor.		
	□ EEG Modules- with all accessories. Must display at least two channels .		
	□ BIS/Entropy Module: Adult Sensors-200 numbers. Spectral analysis modules by compressed spectral array .		
	□ Necessary cabling for networking the monitors on turnkey basis.		
	□ Necessary mounting solution/ mounting on any pendant for monitors		
5.2	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).		
6	**Operating Environment**		
6.1	The system offered shall be designed to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc. 6.2 Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.(UK standard)		
7	**Standards and Safety Requirements**		
7.1	Must be USFDA, CE (93/42 EEC Directives), UL or TUV approved product		
7.2	This unit shall be certified to meet ISO9001 and/or ISO14971 and/or ISO 13485:2003/AC: 2007.		
7.3	Shall meet IEC-60601-1-2:2001 General Requirements of Safety for Electromagnetic Compatibility or must comply with 89/366/EEC; EMC directive		
7.4	Shall meet the safety requirements as per IEC 60601-2-27:1994—Medical electrical equipment—Part 2: Particular requirements for the safety of electrocardiographic monitoring equipment.		
8	**User Training**		
8.1	Must provide user training (including how to use and maintain the equipment).		
9	**Warranty**		
9.1	Comprehensive warranty for 2 years from acceptance.		
10	**Maintenance Service During Warranty Period**		
10.1	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.		
11	**Installation and Commissioning**		
11.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.		
12	**Documentation**		
12.1	User (Operating) manual in English		
12.2	Service (Technical / Maintenance) manual in English		
12.3	List of important spare parts and accessories with their part number and costing.		
12.4	Certificate of calibration and inspection from factory.		

4 **Patient Monitor with Basic Parameters**

No.	Item Specifications	Compliance	Your Specifications
1	**Description of Function**		
1.1	NIBP/Vital Sign Monitor is used to continuously monitor the vital parameters including NIBP of critically ill patients.		
2	**Operational Requirements**		
2.1	Capability of storage of patient data and printing of patient reports.		
2.2	Capability to integrate with the HIS and transfer the data through LAN / Wireless LAN to any other monitoring room / doctor's desk. Must be HL-7 compatible for transmitting and receiving data to/from LAN/HIS		
3	**System Configuration**		
3.1	NIBP/Vital Signs Monitor with complete accessories.		
4	**Technical Specifications**		
4.1	Monitoring parameters;- ECG, respiration,NIBP,SPO2 and temperature		
4.2	Digital and 6 waves / traces display on minimum 9 inches TFT/LCD Display Screen.		
4.3	Monitor must have audible and visual alarms capability. Alarms must have three distinct audible alarm tones to distinguish alarm levels as under. Also monitor must permit automatic viewing of alarming parameter waveform and numeric from any bedside in alarm as and when connected in a network.		
4.4	Must include hemodynamic calculations and vital sign and graphic trends. Trends must be automatically stored for at least 24 hours in at least one minute intervals.		
4.5	Numeric monitored data shall be viewable and recordable in a patient chart type format in at least 1, 5, 15, 60 minutes intervals.		
4.6	Convenient handle for carrying the same		
4.7	Able to fix with bed/trolley.		
4.8	Inbuilt rechargeable battery for minimum 3 hours of operation.		
5	**Accessories, spares and consumables**		
5.1	**Accessories:**		
	□ Patient cable -01 no.		

No.	Item Specifications	Compliance	Your Specifications
	□ Adult Cuff – 01 no.		
	□ Paediatric Cuff -01 no.		
	□ Adult Probe SPO2 -02 nos.		
	□ Paediatric Probe SPO2 -02 nos.		
	□ Skin Temp Probe -02 nos.		
5.2	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.		
6	**Operating Environment**		
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature,Humidity, etc. for Sudan.		
6.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.		
7	**Standards and Safety Requirements**		
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND		
7.2	CE (93/42 EEC Directives) or USFDA or TUV approved product certificate.		
7.3	Shall meet IEC-60601-1-2:2001 General Requirements of Safety for Electromagnetic Compatibility or must comply with 89/366/EEC; EMC directive.		
7.4	Shall meet the safety requirements as per IEC 60601-2-27:1994—Medical electrical equipment—Part 2: Particular requirements for the safety of electrocardiographic monitoring equipment.		
8	**User Training**		
8.1	Must provide user training (including how to use and maintain the equipment).		
9	**Warranty**		
9.1	Comprehensive warranty for 2 years from acceptance.		
10	**Maintenance Service During Warranty Period**		
10.1	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.		
11	**Documentation**		
11.1	User (Operating) manual in English		
11.2	Service (Technical / Maintenance) manual in English		
11.3	List of important spare parts and accessories with their part number and costing.		
11.4	Certificate of calibration and inspection from factory.		

5 **ICU Ventilator**

No.	Item Specifications	Compliance	Your Specifications
1	**Description of Function**		
1.1	ICU ventilator provides artificial respiratory support to the critical patients in the intensive care units.		
2	**Operational Requirements**		
2.1	Microprocessor Controlled ventilator with integrated facility for ventilation monitoring suitable for new-born to adult ventilation.		
3	**System Configurations**		
3.1	ICU Ventilator for Infant to Adult, complete unit with all standard accessories.		
4	**Technical Specifications**		
4.1	Imported hinged arm holder for holding the circuit.		
4.2	Colour TFT screen, 12 Inch or more.		
4.3	Facility to measure and display:		
	□ End tidal CO2 with capnography.		
	□ 3 Waves: Pressure & Time, Volume & Time and Flow & Time.		
	□ 3 Loops: P-V, F-V, P-F with facility of saving of 3 loops for reference.		
	□ Graphic display to have automatic scaling facility for waves.		
	□ Status indicator for ventilator mode, battery life, patient data, alarm settings, clock etc.		
4.4	Trending facility for 72 hours with minimum 5 minutes resolution for recent 24 hours.		
4.5	Automatic compliance & leakage compensation for circuit and ET tube.		
4.6	**Must have following settings :**		
	□ Tidal Volume between 20 ml - 2000 ml (can cover between 2 kg up to 200kg).		
	□ Pressure (insp.).		
	□ Pressure Ramp.		
	□ Flow Pattern.		
	□ Respiratory rate up to 100 breaths per minute.		
	□ SIMV Respiratory Rate up to 40 breaths per minute.		
	□ CPAP/PEEP: PEEP 50cmH2O.		
	□ Pressure Support.		
	□ FIO2.		
	□ Pause Time.		
	□ Pressure & Flow Trigger: Pressure Trigger 0-20 cmH2O below PEEP, Trigger Flow 0-100%.		
	□ Inspiratory rise time:-0-20% of breath cycle time.		
	□ I:E Ratio: 1:10 to 4:1		
4.7	**Monitoring of the following parameters:**		
	□ Airway Pressure (Peak & Mean).		
	□ Tidal volume (Inspired & Expired).		
	□ Minute volume (Inspired and Expired).		
	□ Spontaneous Minute Volume.		
	□ Total frequency.		
	□ FIO2 dynamic.		
	□ Intrinsic PEEP and PEEPi volume.		
	□ Plateau pressure.		
	□ Resistance & Compliance.		
	□ Use selector alarms for all measured & monitored parameters.		
4.8	**Modes of ventilation:**		
	□ Volume controlled.		
	□ Pressure controlled.		
	□ Pressure support.		
	□ SIMV (pressure control and volume control) with pressure support.		
	□ CPAP/PEEP.		
	□ Inverse ratio ventilation.		
	□ Advanced mode like pressure controlled volume guaranteed.		
	□ Non Invasive ventilation.		
	□ APRV or equivalent.		
	□ PRVC or equivalent.		
4.9	Shall have apnoea /backup ventilation		
4.10	Expiratory block must be autoclaveable and no routine calibration is required.		
4.11	Shall have the ability to calculate / procedure:		
	□ Intrinsic PEEP & Intrinsic PEEP Volume.		
	□ Occlusion Pressure.		
	□ Spontaneous breathing trial.		
	□ Facility to calculate lower and upper inflection point.		
4.12	Nebulizer with capability to deliver particle size of < 3 micron & to be used in both Off and On line		
4.13	Shall have automatic patient detection facility.		
4.14	**Medical Air Compressor:**		
	□ Imported standalone medical air compressor.		
	□ Snap fit with the ventilator module to provide an oil free medical air.		

No.	Item Specifications	Compliance	Your Specifications
	□ Peak output flow shall be minimum 160 LPM.		
	□ Air quality must comply with ISO compressed air purity class.		
	□ Medical Air Compressor must automatically activate in the event of wall air supply loss.		
	□ Replacement of internal filters must be performed without removing the compressor.		
	□ Must have washable air filter.		
4.15	**Reusable Face Mask & Nasal Mask:**		
	□ Reusable face & nasal mask with textured dual flap silicone cushion flap for easy fit.		
	□ Removable forehead support and pad to match the angle of patient's forehead.		
	□ Stability selector for easy fit and angle.		
	□ Ball & Socket headgear attachments.		
	□ Must be autoclaveable.		
4.16	Shall have battery backup for minimum 1 hour.		
4.17	RS 232C interface for communications with networked devices.		
5	**Accessories, spares and consumables**		
5.1	Adult, Paediatric and Neonatal reusable, autoclaveable silicon breathing circuits: 02 set each		
5.2	Reusable Masks (Small, Medium, and Large): 02 set each.		
5.3	Connecting hose with regulator/ flow meter or probe for connection to Pin index oxygen cylinder and BOC type oxygen wall outlet, 3 meter length: 01 set.		
5.4	Humidifier: Servo controlled with digital monitoring of inspired gas temperature complete with heating wire: 01 no.		
5.5	Filter paper for humidifier for 100 uses.		
5.6	O2 cell with O-ring.		
5.7	Silicone test lung adult and child size: 01 set each		
5.8	Nipple connector 15-10 mm.		
5.9	Flow sensors: 05 nos.		
5.10	Inspiration bacterial filter, able to filter 99.97% of all 0.3 microns particles: 05 nos.		
5.11	Expiration bacterial filter, able to filter 99.97% of all 0.3 microns particles: 05 nos.		
5.12	Non corrosive imported trolley with wheels & brakes and hinged arm: 01 no.		
5.13	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.		
6	**Operating Environment**		
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature,Humidity, etc. for Sudan.		
6.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.		
7	**Standards and Safety Requirements**		
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND		
7.2	CE (93/42 EEC Directives) or USFDA or TUV approved product certificate.		
7.3	Certified to be compliant with ANS/IEC60601.2.12-01 Medical Electrical Equipment—Part 2-12; Particular Requirements for the Safety of Lung Ventilators—Critical Care Ventilators.		
7.4	Must meet IEC 529 Level 3 (IP3X) (spraying water) for enclosure protection, water ingress.		
7.5	Certified to be compliant with ISO-7767 for Oxygen monitoring.		
8	**User Training**		
8.1	Must provide user training (including how to use and maintain the equipment).		
9	**Warranty**		
9.1	Comprehensive warranty for 2 years after acceptance.		
10	**Maintenance Service During Warranty Period**		
10.1	During the warranty period supplier must ensure preventive maintenance and corrective/breakdown maintenance whenever required.		
11	**Documentation**		
11.1	User (Operating) manual in English.		
11.2	Service (Technical / Maintenance) manual in English.		
11.3	List of important spare parts and accessories with their part numbers and costing.		
11.4	Certificate of calibration and inspection from factory.		

6 **Colour Doppler Ultrasound Machine**

1	**Description of Functions**	Compliance	Your Specifications
1.1	A fully digital Colour Doppler ultrasound DICOM compatible imaging system for Radiology, OB Gyn, vascular, Cardiac, small parts applications.		
2	**Operational Requirements**		
2.1	It shall operate on mains AC power supply.		
3	**System Configurations**		
3.1	Digital colour Doppler ultrasound machine, 1 unit		
3.2	2-6 MHz. broadband curved array transducer, 1 unit		
3.3	3-12 MHz. broadband linear array transducer, 1 unit		
3.4	2-6 MHz. volume 4D convex transducer for real-time 3D Imaging / 4D Imaging, 1 unit		
3.5	B/W Video Thermal printer of latest model, 1 unit.		
3.6	Ultrasound gel warmer, 1 unit		
3.7	Bidder shall indicate brand and model information here and provide technical data document for major components specified above.		
4	**Technical Specifications**		
4.1	System shall provide all-digital broadband beam forming with maximum display depth shall be at least 30 cm.		
4.2	The system must be capable of supporting XRES Extreme Resolution adaptive image processing technique that performs analysis at the pixel level eliminating speckle noise artefact and dynamically enhancing tissue textures, margins and borders.		
4.3	The system shall be capable of supporting Sono CT nine lines compound imaging using computed beam steering technology.		
4.4	The system shall be capable of acquiring/ displaying quantitative 3D or 4D volume data with STIC capability for Foetal Echocardiography.		
4.5	The system shall be capable to perform 4D acquisitions at least 30 volumes/sec.		
4.6	The system shall have minimum 8000 digitally processed channels per image frame.		
4.7	The system must support broadband Phased array, Convex and Linear array transducers.		
4.8	System shall have at least 3 active ports.		
4.9	System shall provide 232 dB fulltime input dynamic range.		
4.10	Digitally controlled, 17-inch Flat Panel monitor with tilt & swivel facility.		
4.11	Full alphanumeric keyboard.		
4.12	Slide pot TGC & LGC gain controls with pre-defined curves.		
4.13	System must be a new generation ergonomically designed to curb minimum injury to sonographer/ physician with keyboard platform rotatable and moveable (up/down).		
4.14	System must support Tissue Harmonic Imaging in Phased Array, Linear Array and convex array transducers.		
4.15	The system shall support full screen display of all 3D views including individual A, B and C MPR views and simultaneous display of thumbnail views on the same system display monitor.		
4.16	The system must have in-built image management system with at least 80 GB HDD, CD- Writing facility and direct paper printout of images.		
4.17	System must have 256 grey shades.		
4.18	Cine memory of 250 frames for cine loop playback.		
4.19	Frame rate: not less than 500fps.		
4.20	The system must have 2D, CW, PW, Colour Doppler, THI, Colour Power Doppler, M-Mode, Pulse Inversion Harmonic Technology, High Definition Colour flow with Colour power angio imaging and full Colour Doppler echocardiography system, 2D Duplex, colour Power Angio, Directional power angio and colour panoramic .		
4.21	Power Doppler for small flow shall be available along with latest technology Eflow/B Flow/Dynamic flow technology.		

No.	Item Specifications	Compliance	Your Specifications
4.22	Colour coded tissue Doppler must be available with quantification for Myocardiac thickness and strain rate imaging as option.		
4.23	ECG triggers facility.		
4.24	Shall have stress echo with ECG gating as option.		
4.25	Anatomical M-Mode, High Q Automatic Doppler Analysis, Intelligent 2D Scan Facility, Intelligent Doppler Scan Facility, Tomographic Ultrasound Imaging Capability of Foetal brain(TUI).		
4.26	System Shall offer Contrast harmonic imaging and must have optimization settings to detect contrast agents. Please specify other advanced technologies to perform better contrast harmonic imaging		
4.27	Exhaustive software for Cardiovascular applications with report formats.		
4.28	System must be DICOM ready and capable of being interfaced with HIS/RIS/PACS.		
4.29	Following transducers to be quoted as standard:		
	· 2-6 MHz. broadband curved array transducer.		
	· 3-12 MHz. broadband linear array transducer.		
	· 2-6 MHz. volume 4D convex transducer for real-time 3D Imaging / 4D Imaging		
4.30	To ensure maximum clinical utility, the manufacturer must demonstrate the capability of the system to successfully perform in the following types of applications:		
	· Abdominal		
	· Small parts and superficial		
	· Paediatric		
	· Musculoskeletal		
	· Obstetrical		
	· Gynaecological and fertility		
	· Cardiac		
	· Prostate		
	· Vascular (Peripheral, Cerebrovascular, and Intraoperative)		
4.31	The system architecture shall be designed to simultaneously process the entire bandwidth of broadband transducer received frequencies from 1 to 15 MHz		
5	**Accessories, Spare Parts and Consumables**		
5.1	Accessories:		
	· Black and white video thermal printer with 10 rolls of high density recording paper: 01 no.		
	· DVD/CD Recorder with 100 CDs and 100 DVDs.		
	· MO Disc: 10 pcs.		
	· Ultrasound gel warmer: 02 bottles.		
5.2	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).		
6	**Operating Environment**		
6.1	The system offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.		
6.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metres in length.		
6.3	Shall provide UPS of suitable rating with voltage regulation and spike protection for 30 minutes back-up.		
7	**Standards & Safety Requirements**		
7.1	Must submit ISO 13485:2003/AC: 2007 **AND**		
7.2	CE (93/42 EEC Directives) or USFDA approved product certificate.		
7.3	Electrical safety conforms to standards for Electrical Safety IEC 60601-2-37 Medical electrical equipment – Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment.		
8	**User Training**		
8.1	The Supplier shall conduct user training for this equipment to enable operators to use the equipment properly. The training shall include the use of all operational functions of the equipment, as well as routine checks and maintenance expected by users.		
9	**Warranty**		
9.1	Comprehensive warranty for 2 years after acceptance.		
10	**Maintenance Service During Warranty Period**		
10.1	During warranty period supplier must ensure preventive maintenance & corrective/breakdown maintenance whenever required.		
11	**Installation and Commissioning**		
11.1	The bidder must arrange for the equipment to be installed by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.		
12	**Documentation**		
12.1	User (Operating) manual in English.		
12.2	Service (Technical / Maintenance) manual in English.		
12.3	List of important spare parts and accessories with their part numbers and costing.		
12.4	Certificate of calibration and inspection from factory.		

7 **Echo Ultrasound**

No.	Item Specifications	Compliance	Your Specifications
1	**Description of Function**		
1.1	Colour Doppler Echocardiography System is required to study the anatomical abnormalities and blood flow in the heart and associated vessels.		
2	**Operational Requirements**		
2.1	□ Latest generation Electronic Phased array Colour Doppler system with minimum 512 electronic independent channels.		
	□ System must be DICOM ready and capable of being interfaced with HIS/RIS/PACS.		
	□ Must be upgradable to next generation system on site.		
	□ Frequency compounding or better technology for better resolution and penetration.		
3	**System Configuration**		
3.1	Colour Doppler System with all application packages, quad loop for serial studies with high frame rate review. Harmonic imaging capability in all modes. (Tissue, Contrast, Anglo) Integrated Stress Echo Package, Digital Storage and Retrieval – 01no.		
	□ 1-3 MHz Adult Cardiac probe Electronics Phased Array probe- 01 ea.		
	□ 3-11 MHz Electronics Phased Array Probe for Vascular applications- 01 ea.		
	□ Multi-plane TEE Probe: 4-8 MHz for Adult as well as Paediatric echocardiography.		
	□ 5-10 MHz Electronic phased array probe for Paediatric cardiology.		
	□ Colour Printer -01no.		
	□ B/W Video Thermal Printer -01no.		
4	**Technical Specifications**		
4.1	Latest generation Electronic Phased array colour Doppler system with Minimum 512 Electronic independent channels.		
4.2	256 gray shades for sharp contrast resolutions		
4.3	Multi-dimensional Beam former for generating two images simultaneously-one at low end of bandwidth and one at high end-then selectively retrieves and mixes the components together for finely textured 2-D or B mode image with superior contrast resolution		
4.4	Adult Cardiac and Vascular Probes to be supplied which must be latest generation wide band transducers without frequency selection for higher sensitivity of response over a broader frequency range of operation. All probes to be phased array.		
	Probes for paediatric application and Trans oesophageal Echo for future requirement.		
4.5	Harmonic Imaging: System must have following modes in harmonic with separate setting for:		
	□ Tissue Harmonic.		
	□ Contrast Harmonic - both triggered and real time		
	□ Harmonic Angio.		

No.	Item Specifications	Compliance	Your Specifications
	□ Quantification of harmonics imaging		
4.6	Harmonic imaging capability in Adult Cardiac, Paediatric Cardiac and linear Probe.		
4.7	Gain control in two dimensions for additional level of flexibility to image quality control.		
4.8	Real time high frequency 2D for higher resolution and low frequency Doppler for higher sensitivity in all probes		
4.9	Frame rate must be 300 FPS or more.		
4.10	Steerable PW/CW in all Phased Array probes.		
4.11	High definition acoustic zoom for enlarging sections of 2D and colour flow images with more acoustic information for greater clarity and detail while maintaining an optimal frame rate.		
4.12	Modes - 4D, M-Mode, Steerable PW/CW Doppler, Colour Doppler, and High Definition colour flow with capability of automatically picking up colour flow as a function of focal depth		
4.13	Monitor must be 15" or more, high resolution colour monitor.		
	Tilt and Swivel monitor must be able to view in all angles and all light conditions.		
4.14	Colour Flow Imaging for:		
	□ Increased lateral & spatial resolution.		
	□ Detection of even subtle areas of turbulence, displaying a more physiological blood flow appearance without loss of frame rate.		
	□ Colour flow with capability of automatically picking up colour flow as a function of focal depth		
4.15	Tissue Colorization (B-colour) for improved contrast resolution		
4.16	Application software for Adult, Paediatric, Foetal and Peripheral Vascular and Trans oesophageal applications. (All application packages must be built into the system).		
4.17	Cine loop memory- more than 120MB of memory.		
	□ High Frame rate review for better clarity of playback images study in slow motion.		
	□ Quad loop with memory for pre and post image comparison of any procedure.		
	□ Memory: 256 frames or more in quad loop. M Mode & Doppler Scroll Memory-40 seconds or more.		
	□ Frame grabber facility for post analysis.		
4.18	Various maps for pre and post processing.		
4.19	ECG triggers facility.		
4.20	User defined system and application pre-sets for multi-user department.		
4.21	Minimum 4.8 GB optical disc drive for image storage and retrieval. (standard with system)		
4.22	Dedicated integrated dynamic stress echo package for flexible user defined protocols with stacked sub loops facility and contrast stress protocol.		
4.23	Tissue movement colorization with quantification possibility for IHD/CAD patients.		
4.24	Three transducer ports will be preferred.		
4.25	Colour Map resolution up to 128 levels.		
4.26	Study Manager (> 1.5 GB) for on-cart digital acquisition, review and editing of complete patient studies.		
4.27	Facility of Real time perfusion studies		
4.28	System Peripherals shall include:		
	□ CD Writer with calculation facility on playback.		
	□ Colour Video Printer.		
	□ B/W Thermal Printer.		
5	**Accessories, spares and consumables**		
5.1	**Accessories:**		
	□ DVD/CD Recorder with 100 CDs and 100 DVDs		
	□ Colour Print Paper- 500 sheets		
	□ B/W Thermal Paper - 10 rolls		
	□ ECG Cable - 02nos.		
	□ MO Disc - 10pcs		
5.2	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.		
6	**Operating Environment**		
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature,Humidity, etc. for Sudan.		
6.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.		
6.3	UPS of suitable rating conforming to international standards shall be supplied for minimum 30 min. backup for the entire system.		
7	**Standards and Safety Requirements**		
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND		
7.2	CE (93/42 EEC Directives) or USFDA approved product certificate.		
7.3	The product shall comply to IEC 60601-2-37 ed1: Medical Electrical Equipment - Part 2-37: Particular Requirements for the Safety of Ultrasonic Medical Diagnostic and Monitoring Equipment.		
7.4	Type of protection against electric shocks - Class I		
	Degree of protection against electric shocks for ultrasound probes Type "BF"		
	For ECG electrodes Type 'CF"		
8	**User Training**		
8.1	Must provide user training (including how to use and maintain the equipment).		
9	**Warranty**		
9.1	Comprehensive warranty for 2 years.		
10	**Maintenance Service during Warranty Period**		
10.1	During the warranty period supplier must ensure planned preventive maintenance (PPM) along with corrective/breakdown maintenance whenever required.		
11	**Documentation**		
11.1	User (Operating) manual in English		
11.2	Service (Technical / Maintenance) manual in English		
11.3	List of important spare parts and accessories with their part numbers and costing.		
11.4	Certificate of calibration and inspection from factory.		

8 **Central Steam Sterilization Unit (CSSD)**

1	Horizontal Rectangular High Pressure High Vacuum Sterilizer **(Qty.3)**	Compliance	Your Specifications
	Horizontal Rectangular High Pressure High Vacuum steam Sterilizer.suitable for operation on electricity. Capacity approx. 200 L.		
	The chamber and door should be made of stainless steel AISI 316 quality and electric steam generator would be made of stainless steel AISI 304 quality. The jacket would be made of boiler quality steel.		
	The chamber should be hydraulically tested to 2 times the working pressure. The normal working pressure would be 2.1 Kg/cm2 corresponding to temperature 134oC.		
	The unit also should be incorporated with water ring vacuum pump to create vacuum of 24 mm Hg when the temperature of cooling water to the pump is less than 30oC for total evacuation of the air from the chamber, thus allowing complete sterilization of the load in shortest possible time.		
	The sterilizer would be supplied with the following mountings and fittings:		
	a) Automatic with pre-selected and variable programs		
	b) Self sterilizing vacuum drier		
	c) One spring loaded safety valve and one vacuum breaker.		
	d) Chamber discharge line would consist of one plug screen, one swing check valve, one steam trap.		
	e) Automatic self locking device - The door would have automatic locking device when it is under pressure.		
	f) Stainless steel electric steam generator fitted with heaters, one low water protection and one automatic pressure controller, one air break contactor with indicating lamps, gauge glass assembly for the steam generator. The heaters should be mounted on a thick stainless steel plate.		

No.	Item Specifications	Compliance	Your Specifications
	The unit should be provided with High Pressure Feed Water Pump for filling water into the steam generator when under pressure with interconnecting piping etc.The Heart of the system is PLC based microprocessor with the facility of HMI (Human-Machine-Interface) which is incorporated with the sterilizer.The technician should be able to program the cycles with his choice of different settings of time, temperature and corresponding pressure, which can be used to sterilize various types of contents / materials.		
	Accessories, spares and consumables		
	the bidder should provide water treatment system (sand filter and softener filter with automatic control head) , water tank bigger than 100 liter and(1 hours water pump with automatic pressure control)		
	Accessories:		
	Lead Free Autoclave Steam Indicator Tape, one inch, 60 yards long – 18 rolls		
	□ A minimum of two spare lid gaskets.		
	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.		
	Operating Environment		
	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature,Humidity, etc. for Sudan.		
	Power supply: 380-440 V (3 Phase), 50Hz fitted with appropriate plug.		
	Standards and Safety Requirements		
	Must submit ISO 9001 or ISO 13485:2003/AC:2007 AND		
	CE (93/42 EEC Directives) or USFDA approved product certificate.		
	Electrical safety conforms to standards for electrical safety IEC-60601.		
	User Training		
	Must provide user training (including how to use and maintain the equipment).		
	Warranty		
	Comprehensive warranty for two years.		
	Maintenance Service During Warranty Period		
	During the warranty period supplier must ensure corrective/breakdown maintenance whenever required.		
	Documentation		
	User (Operating) manual in English		
	Service (Technical / Maintenance) manual in English		
	List of important spare parts and accessories with their part number and costing.		
	Certificate of calibration and inspection from factory.		
2	**Washer Disinfector (Qty.1)**		
	Fully automatic. Double door operation (vertical sliding doors) with loading buckets and trolleys. Body 316 stainless steel. Temperature up to 93 deg: adjustable. Touch panel control system. Programmable LCD/ led color display. Should have a valid FDA/ CE certification.		
	Detailed specification:		
	1. Drying sensor- adjust the drying time according to the load.		
	2. Double door- passes through functionality, laminated glass door and full view in process, optimal sound and heat isolation.		
	3. Drain cooling- reducing temperature of drain water.		
	4. Flow control- ensuring correct dosage. 3rd and 4th dosing pump maximum dosing flexibility.		
	5. Booster tank- washer disinfector should be equipped with booster tank for faster operation. Also should be shorter cycle time.		
	6. Process phase. The washer should perform pre-rinsing, cleaning, post rinsing and thermal disinfection and drying phases.		
	7. Drying- the washer should have fast and efficient energy saving 'dual drying mechanism' with heat exchanger, fan, condenser and HEPA filter. The unit should have the drying sensor to ensure the drying time as per the wash load.		
	8. Washer should have audible alarm that alerts if cross code occurs.		
	9. The washer should have 2 dosing pump for process. Chemicals, instrument lubricant/enzymatic cleaning.		
	10. The wash chamber also be filled with bright light for clear visibility of the washing process.		
	11. Conductivity monitoring- extra quality assurance before final rinse.		
	12. The washer should be supplied with the wash cart for general surgical instrument. Also should have the loading/unloading trolleys for these carts. Trolley two numbers to be provided.		
	13. Cleanable spray arms should be located at the top and bottom of the chambers.		
	14. Should be equipped with process tank for shortest possible filling and draining phase, higher capacity, quick opening valves should be used. so that the short total process time is achieved.		
	Complete installation, technical support, service, demonstration and training required at the site. Necessary accessories and operational manual required.		

9 **Medical Bed With Mattress (Two Movement)**

No.	Item Specifications	Compliance	Your Specifications
1	**Description of Function**		
1.1	A hospital bed is a bed specially designed for hospitalized patients in need of patient ease. These beds have special features both for the comfort and well-being of the patient and for the convenience of hospital staff.		
1.2	Mattress is to provide a comfortable platform to rest or sleep upon the bed.		
2	**Operational Requirements**		
2.1	The patient bed shall be made of solid steel construction with anti-corrosive and antirust treated baked hard epoxy powder coating		
3	**System Configuration**		
3.1	Hospital Bed epoxy powder coated		
4	**Technical Specifications**		
4.1	Bed base shall be anti-corrosive and antirust treated epoxy powder coated welded steel bar or epoxy powder coated 18G perforated sheet top to improve ventilation.		
4.2	The patient bed shall be fixed height with 3 sections where the backrest section could be elevated by mechanical hand crank located at the foot-end of the bed.		
4.3	Shall have 4 IV rod receptacles and mosquito net pole receptacles at the 4 corners		
4.4	It shall come with one dual hook anti-corrosive and antirust treated epoxy powder coated or 304 grade stainless steel IV rod.		
4.5	Shall have provisions to fix urinary bag on both sides.		
4.6	It shall mobile on 4 x 200mm robust swivelling castors with non-marking grey tyres and with at least 2 diagonal castors shall have locking/brake mechanism.		
4.7	Bedhead and foot-end panel (head and foot bows) shall be made of either between 4-6 anti-corrosive and antirust treated epoxy powder coated vertical tubular tube of not less than 30mm in diameter or epoxy powder coated steel panel		
4.8	Both bedhead and foot-end panel shall be detachable.		
4.9	The height of the bedhead panel: not less than 1060mm from floor.		
4.10	The height of the foot-end panel: not less than 820mm from floor.		
4.11	Overall approximate dimension: not less than 1980mm length, 910mm width, 600mm height		
4.12	The mattress negotiable with hospital beds having an overall approximate dimension of not less than 1980mm length, 910mm width.		
4.13	It shall be fire retardant antibacterial treated high density approx. 40kg/m3 PU foam mattress.		
4.14	The mattress shall have thickness of at least 100mm.		
4.15	Mattress with two sections shall be designed to bend with the positioning of the bed when the backrest and foot section of the bed are adjusted.		
4.16	The weight capacity of the mattress shall be more than 100kg.		
4.17	**Mattress Cover:**		

No.	Item Specifications	Compliance	Your Specifications
	The mattress shall come with a zipped fire retardant antibacterial, antistatic, acid resistance, waterproof and washable vinyl or vinylized nylon cover. It shall be designed to provide ventilating airflow over the patient's skin. The zip shall be a heavy-duty/large toothed synthetic zipper to enable inspection of the inner foam and totally covered by a flap extending over the zip to prevent ingress of fluids into the actual mattress and allow for replacement.		
5	**System Configuration Accessories, spares and consumables**		
5.1	All standard accessories/consumables/parts required for the proper operation of the above item shall be included in the offer. Bidders shall specify, in a separate Excel worksheet, the quantity and details of any items included in this offer which have not been specified in this Technical Specifications Form.		
6	**Operating Environment**		
6.1	The system offered shall be designed to store and to operate normally under the conditions. The conditions include Climate, Temperature, Humidity, etc.		
7	**Warranty**		
7.1	Warranty for 2 years.		

10 **I.C.U Beds**

No.	Item Specifications	Compliance	Your Specifications
1	**Description of Function**		
1.1	ICU Beds are required in the Intensive Care for comfort of the patient and to facilitate comfortable transfer to and fro emergency/OT/Wards etc. It is also required to carry out point of care procedures including radiological procedures at the bedside.		
2	**Operational Requirements**		
2.1	The system should be electrically operatable and adjustable for heights, trendelenburg etc.		
	It should also be having radiotransluscent top		
3	**System Configuration**		
3.1	Electrically and pneumatically operated ICU bed with mattress.		
4	**Technical Specifications**		
4.1	Should have four section mattress base		
4.2	Should have X-Ray translucent back section made up of high pressure laminate.		
4.3	Should have X-Ray cassette holder underneath the back section & should allow insertion of X-Ray cassette from either side of the bed.		
4.4	Base frame & support frame should be made up of steel for long life & prevention from rusting.		
4.5	**Should have step less electrical adjustment for the following :-**		
	Height : 450-840 mm		
	Back section : 0- 50 degrees		
	Leg Section : 0-30 degrees		
4.6	Should have step less pneumatic adjustment for Trendelenburg (25° approx.), antitrendelenburg (15° approx.)		
4.7	Should have a manual quick release mechanism for back section adjustment during emergency situation		
4.8	Should be equipped with four articulated half-length tuck away side rails		
4.9	Should be equipped with large castors (diameter 150 mm) with central braking and steering facility.		
4.10	Mattress of the Bed should be made up of high density foam with Anti-Microbial agent incorporated into all components that assists in Prohibiting growth of bacteria & fungi and easy to clean.		
4.11	Mattress should be fully Radiolucent for ease in performing portable X-Rays.		
4.12	4.12 Should have bumpers at all four corners and place for fixing accessories		
4.13	**Dimensions of bed (approx.) :**		
	Length : 2200 -2290 mm		
	Width : 850 -1020mm		
	Mattress Size : appropriate as per bed size		
5	**Accessories, spares and consumables**		
5.1	**Accessories:**		
	· I.C.U Bed Mainframe -01		
	· Bed Ends, detachable : 01 pair		
	· Articulated half-length tuck away side rails : 04 Nos.		
	· IV Rods: 01 No.		
	· Mattress 12 cm Thick : 01 No.		
6	**Operating Environment**		
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature,Humidity, etc. for Sudan.		
6.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.		
6.3	Resettable overcurrent breaker shall be fitted for protection		
7	**Standards and Safety Requirements**		
7.1	The unit offered shall be certified to meeting the relevant quality and safety requirements of TUV, CE mark (MDD), USFDA, IEC,Radiation safety, safety of pressurised equipment and any other relevant quality and safety standards .		
7.2	7.2 Manufacturer must have ISO certification for quality standards.		
7.3	7.3 Certified to be compliant with IEC 60601-2-38 Medical Electrical Equipment part 2-38 Particular requirements for safety of Electrically Operated Hospital Beds.		
8	**User Training**		
8.1	On site operational training till the familiarity of the system and satisfaction of end user shall be provided.		
9	**Warranty**		
9.1	Comprehensive warranty for 2 years.		
10	**Maintenance Service During Warranty Period**		
10.1	During the warranty period supplier must ensure corrective/breakdown maintenance whenever required.		
11	**Documentation**		
11.1	User (Operating) manual in English		
11.2	Service (Technical / Maintenance) manual in English		
11.3	12.3 List of important spare parts and accessories with their part numbers and costing.		
11.4	12.4 Certificate of calibration and inspection from factory.		
11.5	Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist.		

11 **ARTHROSCOPY**

No.	Item Specifications	Compliance	Your Specifications
I	**DIGITAL ENDOSCOPIC CAMERA SYSTEM**		
1	Should be a single chip camera technology		
2	Should have one composite video outputs and one S video output.		
3	Should have fully automatic exposure control		
4	Should have automatic white balance with memory function		
5	Should have horizontal resolution of more than 450 lines		
6	Should be supplied with suitable coupler		
7	Should be supplied with suitable TFT / LCD TV.		
8	Should work with input 200 to 240 Vac 50 Hz supply		
9	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.		
II	**TELESCOPE**		
1	Should be supplied with wide angle oblique 300 telescope, autoclavable, enlarged view of diameter 4 mm, and minimum length 18 cm		
2	Should have incorporated fiber optic light transmission		
3	Should have scratch resistant tip		
III	**LIGHT SOURCE AND FIBER OPTIC LIGHT CABLE**		
1	Should be a halogen light source with minimum 250 W light output		

No.	Item Specifications	Compliance	Your Specifications
2	Should have manual light intensity control		
3	Should have two lamps of 250 W and should have provision to change over in the event of failure from one lamp to another		
4	Should be supplied with flexible fiber optic light cable with minimum diameter of 5 ±1 mm and minimum working length of 300 ±10 cm.		
5	Should work with input 200 to 240 Vac 50 Hz supply		
IV	**SHAVER SYSTEM**		
1	Should be supplied with a microprocessor controlled shaver control unit, Shaver hand piece, two pedal foot switch		
2	Should display the running RPM		
3	Should have feedback technology to maintain the selected RPM throughout the surgery		
4	The shaver hand piece should have minimum 10000 rpm speed		
5	The hand piece must be provided with DC brushless built in motor for minimal maintenance		
6	Should have tools free design for mounting of cutting accessories		
7	Should have autoclavable hand piece		
8	Should be supplied with 1 set of autoclavable blade or 5 set of reusable blades.		
9	Should work with input 200 to 240 Vac 50 Hz supply		
10	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		
V	**ARTHROSCOPY INSTRUMENTS**		
1	Should be provided with 6 ±0.5 mm Arthroscopy sheath / cannula with easy locking mechanism and two rotating stop cocks.		
2	Trocar and obutator for 6mm ±0.5mm easy lock sheath.		
3	Arthroscopic probe 3mm±0.3mm		
4	Punch forceps, trough cutting, straight, heavy jaws, diameter 3.5±0.2mm minimum working length 13 ±1cm, consisting of handle without ratchet and working attachment (basket forceps)		
5	900 left rotary punch		
6	900 right rotary punch		
7	3.4 ±0.2mm grasping forceps.		
8	Scissors straight, diameter 3.5±0.2mm, minimum working length 13±1cm consisting of handle without ratchet and working attachment		
VI	**OTHERS**		
1	Should be supplied with suitable trolley		
2	Trolley should have at least 5 power sockets to connect the camera, shaver system, light source, monitor, etc.		
3	Should be provided with sterilization tray and chamber 2 nos. each		
4	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		
5	Should provide additional lamp – 2 nos for the light source		
6	Equipment performance should not be affected by electro magnetic radiated or conducted through power lines from another device		
7	Equipment should be provided with sufficient capacity automatic servo stabilizer and should be fixed in the supplied trolley		

12 **Surgical Endoscopy (Labroscopy)**

No.	Item Specifications	Compliance	Your Specifications
1	**Description of Function**		
	The system should have following features:		
	It should be a Three Chip high definition camera with digital video of 1920x1080 resolution camera head and console		
	The system should have Digital /Optical Zoom to enhance the quality of Image size regardless of the telescope used.		
	Button controls on camera Head to control vital functions of camera, like White Balance, Brightness etc.		
	Video Outputs: DVI, S-Video and C- Video. Other Video Outputs like RGB, HDSDI etc		
	The Camera should preferably have Signal to Noise ratio range of 60-70dB.		
	The Camera Head should have a focusing coupler for even focus control.		
	Should offer both NTSC and PAL Video Formats.		
	The Unit should be compatible for recording of stills and videos and should have compatibility with recording options from other vendors.		
	The system should be Menu driven, thus allowing the surgeon to program the camera head functions as per the surgical needs & requirement		
	Technical Specifications:		
	Image System: 1/3" CCD		
	Pixels 1920 X 1080 pixels per chip		
	AGC: Microprocessor controlled		
	Signal-to-noise ratio 60-70 dB		
	Video outputs: C- Video, S-Video & DVI (Minimum)		
	Peripheral Controls: Minimum Two for Image Capture & Printer Usage		
	High Definition Medical Grade Monitor Qty-1		
	The system should have:		
	Hi Definition Medical Colored Monitor 24''-26" Flat Panel Monitor		
	PAL system compatible.		
	Composite, S-Video and DVI inputs(Minimum)		
	Compact & Lightweight design.		
	Resolution more than 1100 lines		
	Xenon Light Source		
	300 W Xenon Light Source with 2 lamps, automatic changeover of lamp in case of failure of 1st lamp.		
	Xenon bulb or better should emit light at temperature of 5700-6000K		
	Minimum bulb life of 500 hours.		
	Light intensity adjustable from console.		
	Multiple make Light cable acceptance on console.		
	Display of Bulb hours elapsed on console		
	Fiber Optic Light Cable		
	Size should be diameter 3.5-5.5mm, length up to 250 cm		
	Laparoscopes		
	Wide Angle Full Screen, Forward-Oblique and lateral scope		
	Optimal centre-to-edge resolution for enhanced picture quality		
	Angle of view: 0º 30º		
	Diameter 10mm & 5mm		
	Length 30-32cm		
	Fiber optic light transmission incorporated		
	Standard ocular window for coupling the camera head		
	Scratch resistance sapphire quoted tip lens		
	Advanced Rod lens system for optimum brightness, contrast and definition		
	Digital High Definition Recording System		
	The Full High-Definition Digital Documentation System should be a high-end computer system based on Windows embedded platform (for		
	security purposes) designed specifically for recording, managing, editing and archiving surgical images and video in HD (1920x1080) resolution.		
	The captured full high definition images & videos can be accessed from the hard drive for printing or saving onto multiple forms of external		
	media which includes CD/DVD, USB Flash Drive or Hard Disk Drive(HDD)		
	It should have a touch screen display with atleast 200GB Memory of Hard Disk Drive (HDD)		

No.	Item Specifications	Compliance	Your Specifications
	Video Formats compatible MPEG-1,MPEG – 2 and MPEG-4 (Minimum)and Still Image formats like JPEG(.jpg) and BMP(.bmp)		
	Should offer multiple video signals like S Video, DVI, C-Video in both NTSC and PAL Formats.		
	Video Signals available : DVI, S- Video, C-Video(Minimum)		
	Should be compatible to 100-240V 50/60 Hz Power requirements,		
	Part B: Insufflator & Hand Instruments Set for Laparoscopic Surgery		
	High Flow Insufflator		
	High flow of 30 liters or more with LCD display		
	Microprocessor controlled & Software driven for upgradeability		
	Soft approach pressure control for safe recovery of abdominal pressure		
	Should have visual and audible alarms with min 0.1 L flow rate		
	Internal leakage detection capability		
	Integrated Gas heating		
	Having internal venting system for safety		
	Unit should include heated tubing, hose & yoke		
	Laparoscope Trolley		
	Environmental factors		
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%		
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%		
	Power Supply		
	Power input to be 220-240VAC, 50Hz		
	Type of Protection Against Electric Shock Class I (3-core cord)to be supplied for the Light Source		
	Standards, Safety and Training		
	Product should be FDA/CE or ISI approved		
	Manufacturer should be ISO certfied for quality standards		
	Electrical safety conforms to standards for electrical safety IEC-60601-1 General Requirements		
	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.		
	Degree of Protection Against Electric Shock Type BF -Should incorporate insulated patient attachment for light source.		
	Certification to meeting Biocompatibility as per ISO 10993-1, “Biological evaluation of medical devices-Part 1: Guidance on selection of tests”		
	Certified to meet the current leakage requirement of IEC 60601-2-18 or equivalent standard for Medical Equipment particular requirement for		
	safety of endoscopy equipments.		
	Comprehensive warranty for 2 years		
	Documentation		
	User Manual in English		
	Maintenance Manual in English		
	Certificate of Calibration and inspection from the factory		
	List of important spares and accessories with their part number and costing.		
	Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist.		
	The job descriptin of the hospital technician and company service engineer should be clearly spelt out.		
	List of Equipments available for providing calibration and routine maintenance support as per manufacturer		
	documentation in service / technical manual		
	Laparoscopic Instrumentation		
	Trocars Cannula & Veresse Needle		
	120mm Veress Pneumoperitonium Needle with spring loaded blunt stylet		
	Metal Trocars & Cannulae with Sealing Caps & Insuffulation Cock, Length 10-11 cm with ribbed/threaded outersurface for self retention		
	on abdominal wall		
	Trocar, Pyramid Tip, 11 mm 11 mm Cannula Sleeve with Automatic Valve, Stop Cock		
	Metal Trocars & Cannulae with Sealing Caps & Insuffulation Cock, Length 10-11 cm with ribbed/threaded outersurface for self retention		
	on abdominal wall		
	Trocar, Pyramid Tip, 5.5 mm		
	5.5 mm Cannula Sleeve with Automatic Valve, Stop Cock		
	Reducer11mm-5.5mm		
	5mm Hand Instruments and Handles		
	(For ease of usage and post surgical cleaning & Sterilization the Hand instruments should be provided with separate inserts and		
	appropriate handles)		
	□ Monopolar Autoclavable Multifunction Handle, 3 cm Inner Shaft Flush Port, 360° Rotation & Shaft Rotation Lock with Monopolar		
	Handle Ratcheted, facility for connection with monopolar electrosurgery, insulated, Easy to use Ergonomic Design & Easy to clean Shaft.		
	□ 5mm, Fundus Grasping Forceps 33 cm,Insert		
	□ Monopolar Autoclavable Multifunction Handle, 3 cm Inner Shaft Flush Port,360° Rotation & Shaft Rotation Lock with Monopolar		
	Handle Ratcheted, facility for connection with monopolar electrosurgery, insulated, Easy to use locking		
	□ 5mm, Atraumatic Grasper 33 cm, Insert		
	□ Monopolar Autoclavable Multifunction Handle, 3 cm Inner Shaft Flush Port, 360° Rotation & Shaft Rotation Lock with Monopolar		
	Handle Non Ratcheted, facility for connection with monopolar electrosurgery, insulated, Easy to use locking		
	□ 5mm, Maryland Dissector 33 cm, Insert		
	□ Monopolar Autoclavable Multifunction Handle, 3 cm Inner Shaft Flush Port, 360° Rotation & Shaft Rotation Lock with Monopolar		
	Handle Non Ratcheted, facility for connection with monopolar electrosurgery, insulated, Easy to use locking Easy to use locking		
	□ 5mm, Metzenbaum Scissors, Single Action Jaws 33 cm, curved tip,Insert		
	□ Reusable Monopolar Cable		
	□ Dissecting cannula, L - Shaped Electrode 5mm, Length 36 cm		
	10mm Hand Instruments & Handle(s)		
	(For ease of usage and post surgical cleaning & Sterilization the Hand instruments should be provided with separate inserts and		
	appropriate handles)		
	□ Clip Applicator for use with Titanium Clips (Medium Large), Rotating shaft		
	□ Monopolar Autoclavable Multifunction Handle, 3 cm Inner Shaft Flush Port, 360° Rotation & Shaft Rotation Lock with Monopolar		
	Handle Ratcheted, facility for connection with monopolar electrosurgery, insulated, Easy to use Ergonomic Design & Easy to clean Shaft. Locking		
	□ 10mm, Gall Bladder Extractor, 33 cm, Insert		
	Miscellaneous		
	Laparoscopic suction irrigation machine or pelvis cleaner system –Laparo –pump & holder for irrigation stand reusable tube set,		
	power supply cable, Hygine filter for aspiration, aspiration container, 3L autoclable pack & mounting for securing		
	aspiration container to irrigator stand & suction irrigation tube set.		
	Electro-surgical unit with accessories:		
	It should have high frequency surgical unit more than adequate for all surgical procedures, can set a lower limit. Power –pack system		

No.	Item Specifications	Compliance	Your Specifications
	gives intelligent cutting and coagulation support for initial incisions for all situations. Bi –polar coagulation has to be included in the above		
	unit. Sophisticated self –check program: Minimum power consumption and patient's safety in top quality must be present. Cut control for		
	consistent regulation of cutting quality & soft coagulation with no carbonization to reduced adhesive effect. Neutral electrode safety system.		
	Auto start and auto coagulation during bipolar coagulation. Digital error code displays electronic memory.		
	□ Needle Holder with detachable Handle (Straight/ Curved)		
	□ 5mm Bipolar Forceps with Ring Handle includes Shaft, Insert, Handle & Sealing Cap		
	□ Reusable Bipolar Cable		
	□ 5.5.mm Aspiration Needle 17 G.		
	Suitable UPS for the complete system for 60 minutes backup.		
	Item must have CE & US FDA certificate		

13 **GIT Endoscopy System (Upper and Lower)**

No.	Item Specifications	Compliance	Your Specifications
1	**Technical Specifications**		
A	**Upper GI Scope (Adult)**		
1	Direction of view should be zero degree		
2	Minimum of 140 degree of field of view.		
3	Range of observation at least from 3 mm to 100 mm		
4	Angulations of tip up at least 210 degrees and down 90 degrees with right and left movement of at least 100/100 degrees		
5	Insertion tube diameter of less than 10 mm		
6	Distal end diameter of not more than 10.5 mm		
7	Instrument channel should be 2.8 mm or more		
8	Working length of not less than 1030mm		
9	NBI/F1CE/I-SCAN /SPIES or equivalent capable scope compatible with the HD video system specified		
B	**Lower GI Scope (Adult)**		
1	Direction of view should be zero degree.		
2	Minimum of 140 degree of field of view.		
3	Range of observation at least from 3 mm to 100 mm.		
4	Angulations of tip up at least 180 degrees and down 180 degrees with right and left movement of at least 160/160 degree		
5	Distal end diameter of not more than 13 mm		
6	Instrument channel should be3-4 mm		
7	Working length of not less than 1600mm or better		
8	Should be compatible with the HD video system specified		
9	Endotherapy compatible		
10	Fully immersible in disinfectant solution		
11	NB1/FICE/I-SCAN /SPIESor equivalent capable scope		
12	Auxiliary Water Jet Channel to clean the mucosal surface		
13	Water pump to be connected to auxiliary water jet channel		
14	Variable scope stiffness		
C	**DUODENO VIDEOSCOPE HD (Side viewing for ERCP)**		
1	Field of vision more than 100 deg.		
2	Depth of view approximately 5-60 mm		
3	Distal end outer diameter should be less than 14 mm		
4	Insertion tube outer diameter less than 14 mm		
5	Bending angulation should be at least:Up 120 deg,Down 90 deg,Right 110 deg Left 90 deg		
6	Working length not below 1200 mm		
7	Instrumental channel not less than 3 mm		
8	NBI/FICE/I-SCAN/SPIESor equivalent capable ERCP scope compatible with the IID video system specified		
D	**HD Video processor with l00-300 Watt Xenon light**		
1	Light weight		
2	PAL type video signal.		
3	Class I protection against electrical shock.		
4	Controls for color adjustment, to enhancement and balance settings.		
5	Video output DVI-D,IID-SD1,RGB and should have composite output ine number each		
6	Controls to freeze images, enhance a portion of frozen image (zoom & post-processing).		
7	Patient and physician data input key board.		
8	B. Light source: high intensity Xenon lamp with 100-300 watt xenon lamp Having colour temperature of 6000 degree Kelvin		
9	Emergency lamp.		
10	Compatibility with the gastroscope, colonoscope, duodenoscope and Enteroscope		
11	At least 21" LED/LCD IID colour monitor with DVI/HD-SDI input facility		
12	Monitor should be capable of displaying NBI/FICE/I-SCAN /SPIES or equivalent and standard image simultaneously		
E	**HD Data storage and retrieval system**		
1	**Documentation:**		
	Latest computer system for imaging and documentation system		
	Should be supplied with LASER printer for generation of reports		
	The system should have DVD/ CD writer along with USB download facility		
	The system should be supplied with the compatible UPS for power backup for at least 01 hour.		
2	**Endoscope trolley:**		
	Separate equipment trolley from the same endoscope manufacturer company and have following specifications -		
	Equipment cart, with 4 antistatic dual wheels, with locking wheels, 3 shelves, mains switch in the trolley, 1 drawer unit with lock,integrated cable conduits in the vertical beams, 1 set of non-sliding stands for units, double rear panel with integrated electrical sub distributors with 12 sockets, holder for power supplies, potential earth connectors and cable winding on the outside, 2 scope holders, 2 equipment rails sidewise. Approximate dimensions of Equipment trolley: 530 x 1455 x 645 mm (w x h x d), shelf: 430 x 480 mm (w x d), castor diameter: at least 125 mm.		
F	**Accessories (To provide cleaning brush)**		
1	Leakage tester		
2	Cleaning brush		
3	Standard Biopsy forceps: 2 each (for UG1E & LGI scope)		
4	Spiked biopsy forceps: 2 each (for UGIE & LGI scope)		
5	Polypectomy snare: 2 each (for UGIE & LGI scope)		
6	Endoscopic needle for injection 2 each (for UGIE & LGI scope)		
7	Endoscopic FNAC attachment: 1 each (for UGIE & LGI scope & ERCP scope)		
8	Guide wires 2 types (0.025 "F, 0.035 F"in diameter); length 450 cm, non-kinkable with stripes to detect movement - 4 nos		
G	**Stone extracting Dormia basket: 4**		
1	4 basket wire design		
2	Stiffer wire construction that can be opened in the bile duct while maintaining its original shape for easy stone capture		
3	Basket opening width 22mm		
4	Working length 1950mm		
5	Reusable		
H	**H. Stone extracting Balloon: 4 Nos**		
1	Precalibrated syringes for reliable inflation		
2	Working length-1950 mm		
3	Balloon diameter 15/18/20 mm		
4	Sheath design-over the wire distal wire guided		

No.	Item Specifications	Compliance	Your Specifications
5	Distal tip-5,5 Fr		
6	Multiple sizing balloon		
I	**Mechanical lithotripter Basket: 4**		
1	Rotatable basket		
2	Unique double sheath to aid cannulation		
3	Basket opening width_ 30 mm		
4	Working length 1950 mm compatible with mechanical lithotripter		
J	**Mechanical Lithotripter Handle: 2nos**		
1	Basket rotation mechanism		
2	Easy attachment to sheath		
3	Ratchet to prevent loss of traction on stone		
4	Easy application of pressure using T lever design		
5	Reusable handle		
6	Compatible with lithotripter basket		
K	**Triple lumen Sphincterotome for side viewing duodenoscope only (wire guided triplelumen) : 4nos**		
1	insulated cutting wire 20mm		
2	distal tip 4.5F		
3	working length- 1700mm		
4	Pre curved design		
5	C-Hook to be attachable to the V-holder or endoscope control handle		
6	distal tip length- 3mm		
L	**Triple lumen needle knives: 2nos**		
1	separate lumen for guide wire, cutting wire and contrast injection		
2	unique safety coating		
3	pre-curved and tapered tip		
4	working length- 1700mm		
5	Pre curved design		
6	C-Hook to be attachable to the V-holder or endoscope Control handle		
7	distal tip length- 3mm		
M	**Balloon dilation system for CBD Strictures: 2 nos Optional accessories:**		
1	Double pigtail stents - 7 F and 10 F size, 7 cm & 10 cm long;- 5 each		
2	Plastic Stents - straight 7 F and 10F; 7 cm and 10 cm long - 5 each		
N	**Accessories sterilization Tray: 2 nos**		
1	Suitable size to allow easy sterilization of the accessories		
2	Able to use commonly used chemical means for sterilization		
O	**Environmental factors**		
1	The unit shall be capable of being stored continuously in ambient temperature deg C and relative humidity of 15-90%		
2	The unit shall be capable of operating continuously in ambient temperature of C and relative humidity of 15-90%		
P	**Power Supply**		
1	Power input to be 220-240VAC, 50Hz fitted with Indian plug		
2	UPS of suitable rating with voltage regulation and spike protection for 60 minutes back up		
3	Shall be certified to be meeting safety standard IEC 60601-2-18 part 2 Particular requirements for the safety of endoscopicequipment.		
4	Should be FDA, CE approved product		
Q	**Documentation**		
1	User/Technical/Maintenance manuals to be supplied in English.		
2	Certificate of calibration and inspection.		
3	List of Equipments available for providing calibration and routine Preventive Maintenance Support. As per manufacturer documentation in service/technical manual		
4	List of important spare parts and accessories with their part number and costing.		
5	Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out		

14 **Air Drill**

1	**Description of Function**	Compliance	Your Specifications
1.1	The drill system is required to saw, cut dissect, curette, abrade, carve and shape the skull bones and the vertebral bodies, bio-metal, bio-plastics, methacrylate, ceramics and the like.		
2	**Operational Requirements**		
2.1	The drill system must be able to saw, cut dissect, curette, abrade, carve and shape the skull bones and the vertebral bodies, bio-metal, bio-plastics, methacrylate, ceramics and the like. A wide range of attachments and dissecting tips both for routine and microsurgical work required.		
3	**System Configuration**		
3.1	Pneumatic Drill Machine for Neurosurgery with complete accessories.		
4	**Technical Specifications**		
4.1	Motor speed must be at least 80,000 rpm, operating pressure up to 100-200 psi (variable).		
4.2	Motor must be light weight (preferably less than 70 grams).		
4.3	Main motor unit must be detachable from air supply hose.		
4.4	Straight and angled attachments of various lengths must be available for Cranial and Spinal surgery.		
4.5	Keyless Change of hand piece with mounted tool must be possible.		
4.6	Motor must be converted to an angulated position with or without an adaptor.		
4.7	Sound level must be very low less than 85db close to the operating field		
4.8	Quick coupling attachment must be available.		
4.9	Sterilization through Flash or Regular steam autoclave.		
4.1	Perforator driver with cutter must be available.		
4.11	Must have Saw hand piece (reciprocating, oscillating and sagittal with saw blades) with same system. Foot control for variable speed.		
4.12	Compatible low noise medical grade air compressor to run the machine optimally at the required psi.		
4.13	Irrigation pump must be available.		
5	**Accessories, spares and consumables**		
5.1	Shall supply all accessories including:		
	Handpieces:		
	□ Straight hand piece 120mm: 01 no.		
	□ Straight hand piece 90mm: 01 no.		
	□ Straight hand piece 160mm: 01 no.		
5.2	**Craniotomy Attachment:**		
	□ Craniotome hand piece: 01 no.		
	□ Fixed Duraguard adult: 01 no.		
	□ Fixed Duraguard paediatrics: 01 no.		
5.3	**Craniotome Cutter (Bits):**		
	□ Craniotome cutter (bits) paediatrics: 20 nos.		
	□ Craniotome cutter (bits) adult: 20 nos.		
5.4	**Perforator:**		
	□ Perforator driver: 01 no.		
	□ Cranial perforator, 9X12mm, Hudson type: 02 nos.		
	□ Cranial perforator, 6/9mm, Hudson type: 02 nos.		
	□ Hudson chuck: 01 no.		
5.5	**Burrs:**		
	□ Rosen burr for medium hand piece: 10 nos.		
	□ Diamond burr for medium hand piece: 10 nos.		

No.	Item Specifications	Compliance	Your Specifications
	□ Diamond burr for large hand piece: 5 nos.		
	□ Barrel burr for medium hand piece: 10 nos.		
	□ Barrel burr for large hand piece: 05 nos.		
	□ Acorn burr for small hand piece: 10 nos.		
	□ Pin Point burr for medium hand piece: 25 nos.		
	□ Twist drill for small hand piece: 10 nos.		
5.6	**Micro Sagittal Saw Attachment:**		
	□ Micro sagittal saw pencil shape: 01 no.		
	□ Saw blade for micro sagittal saw 9/13/0.3/0.3mm: 04 nos.		
5.7	**Storage & Maintenance:**		
	□ Oil spray for high speed motor and hand pieces: 50 nos.		
	□ Oil spray for perforator: 05 nos.		
	□ Autoclaveable perforated basket with covering lid with holders for motors, all other accessories		
5.8	**All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.**		
6	**Operating Environment**		
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature,Humidity, etc. for Sudan.		
6.2	**Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.**		
6.3	Suitable UPS with maintenance free batteries with voltage regulation and spike protection for minimum 30 min. back-up shall be supplied with the system.		
7	**Standards and Safety Requirements**		
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND CE (93/42 EEC Directives) or USFDA approved product certificate.		
7.3	**Electrical safety conforms to standards for electrical safety IEC 60601-1 General requirement for Electrical safety of Medical Equipment.**		
8	**User Training**		
8.1	**Must provide user training (including how to use and maintain the equipment).**		
9	**Warranty**		
9.1	**Comprehensive warranty for 2 years.**		
10	Maintenance Service During Warranty Period		
10.1	During warranty period supplier must ensure preventive maintenance & corrective/breakdown maintenance whenever required.		
11	**Documentation**		
11.1	User (Operating) manual in English.		
11.2	Service (Technical / Maintenance) manual in English.		
11.3	List of important spare parts and accessories with their part numbers and costing.		
11.4	Certificate of calibration and inspection from factory.		

15 **Electric Drill**

No.	Item Specifications	Compliance	Your Specifications
1	**Description of Function**		
1.1	Drilling machines are used in a number of orthopaedics surgical procedures, for example, in making holes in bones for bone screws and in drilling out the medulla or marrow areas of bones.		
2	**Operational Requirements**		
2.1	Electric driven, autoclaveable, versatile, forward & reverse mode with oscillating saw hand pieces.		
3	**System Configuration**		
3.1	Electric Operated Drill & Saw, complete unit.		
4	**Technical Specifications**		
4.1	Driving unit shall include motor, sturdy stand with wheels.		
4.2	Flexible shaft: Minimum length, 2 metres, autoclaveable quick connection.		
4.3	**Hand Piece for Drill:**		
	□ Cannulated autoclaveable pistol type.		
	□ Speed-1200 to 1500 RPM.		
	□ Jacob chuck.		
	□ Quick coupling chuck (Synthesis type).		
	□ Hudson's chuck.		sdas
	□ Chuck for K-wire.		
	□ Forward & reverse options.		
4.4	**Hand Piece for Reamers:**		
	□ Cannulated autoclaveable pistol type.		
	□ Speed-400 RPM, non-damaging to the bone endosteal blood supply.		
	□ Chuck for cannulated reamers.		
	□ Forward & reverse options.		
4.5	**Sagittal Saw:**		
	□ Autoclaveable pistol type.		
	□ Easy Attachments of blades (without Instrument).		
	□ 2 Blades each of different size routinely used in Orthopaedic surgery (Total nos. 10).		
	□ ACL Blades for commonly used sizes.		
5	**Accessories, spares and consumables**		
5.1	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.		
6	**Operating Environment**		
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature,Humidity, etc. for Sudan.		
6.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.		
7	**Standards and Safety Requirements**		
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND		
7.2	CE (93/42 EEC Directives) or USFDA or TUV approved product certificate.		
7.3	Electrical safety conforms to standards for electrical safety IEC 60601-1 General requirement for Electrical safety of Medical Equipment.		
8	**User Training**		
8.1	Must provide user training (including how to use and maintain the equipment).		
9	**Warranty**		
9.1	Comprehensive warranty for 2 years.		
10	**Maintenance Service During Warranty Period**		
10.1	During warranty period supplier must ensure corrective/breakdown maintenance whenever required.		
11	**Documentation**		
11.1	User (Operating) manual in English.		
11.2	Service (Technical / Maintenance) manual in English.		
11.3	List of important spare parts and accessories with their part numbers and costing.		
11.4	Certificate of calibration and inspection from factory.		

16 **Battery Drill**

No.	Item Specifications	Compliance	Your Specifications
1	**Description of Function**		

No.	Item Specifications	Compliance	Your Specifications
1.1	Drilling machines are used in a number of orthopaedics surgical procedures, for example, in making holes in bones for bone screws and in drilling out the medulla or marrow areas of bones.		
2	**Operational Requirements**		
2.1	Battery driven, autoclaveable, versatile, forward.		
3	**System Configuration**		
3.1	Battery Operated Drill , complete unit.		
4	**Technical Specifications**		
4.1	Driving unit shall include motor		
4.2	Flexible shaft , autoclaveable quick connection.		
4.3	**Hand Piece for Drill:**		
	□ Cannulated autoclaveable pistol type.		
	□ Jacob chuck.		
	□ Quick coupling chuck (Synthesis type).		
	□ Hudson's chuck.		
	□ Chuck for K-wire.		
	□ Forward & reverse options.		
4.4	**Hand Piece for Reamers:**		
	□ Cannulated autoclaveable pistol type.		
	□ Chuck for cannulated reamers.		
	□ Forward & reverse options.		
5	**Accessories, spares and consumables**		
5.1	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.		
6	**Operating Environment**		
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature,Humidity, etc. for Sudan.		
7	**Standards and Safety Requirements**		
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND		
7.2	CE (93/42 EEC Directives) or USFDA or TUV approved product certificate.		
8	**User Training**		
8.1	Must provide user training (including how to use and maintain the equipment).		
9	**Warranty**		
9.1	Comprehensive warranty for 2 years.		
10	**Maintenance Service During Warranty Period**		
10.1	During warranty period supplier must ensure corrective/breakdown maintenance whenever required.		
11	**Documentation**		
11.1	User (Operating) manual in English.		
11.2	Service (Technical / Maintenance) manual in English.		
11.3	List of important spare parts and accessories with their part numbers and costing.		
11.4	Certificate of calibration and inspection from factory.		