

ANNEX – C (PART-II)

List of Medical Equipment – Territory Level Hospitals - KPK Pakistan

Expected Delivery Date: 15-November-2020

Delivery Location: As per quantities and location specified in Annex-XX

S.#	Equipment name	Specification	Quantity
1	ABG Machine	<ol style="list-style-type: none"> 1. Fully automatic, upgradeable, fast electrolyte & blood gas analyzer. 2. Essential Measured parameters; pH, pCO₂, pO₂, Hematocrit Lactate, glucose, Na⁺, K⁺, Ca⁺⁺. All these parameters should be measured simultaneously 3. Calculated parameters should include Hemoglobin –cHgb, actual bicarbonate – cHCO₂, total Carbon Dioxide – cTCO₃, base excess of extra cellular fluid. - BE(ecf), base excess in Blood -- BE(b), Oxygen Saturation – cSO₂. 4. Sample volume - less than 100 micro liter. 5. Fast analysis time – less than 60 sec. 6. Fully automatic test card technology – rectangular shape with built-in gold-plated electrodes and concealed calibrated fluids lines with micro technology for fluid movement. 7. Data display should be on well-illuminated, adequate size screen display. 8. Power Supply Using Rechargeable battery (lithium ion battery) 9. Back up of 6 hours with Rechargeable battery. 10. Connectivity – Via Blue tooth and Wi-Fi for HIS and LIS . 11. Data Storage for at least 1000 patients. 12. Calibration – Auto Calibration before every sample is inserted. 13. Operating the machine- User Friendly Touch Screen. 14. Ambient working temperature – 15 to 30 Degrees. 15. Test cards Storage – At Room Temperature 	5

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		<p>16. Upgradeable to future parameters like Cl-, Creatinine on the same card.</p> <p>17. System should come along with a Windows based Personal Digital Assistant to control the entire system & printer.</p> <p>18. Stand by blood gas cum electrolyte analyzer in case of breakdown.</p> <p>19. Should have local service facility</p> <p>20. Should supply test cards for 3 years (1000 cards/year) in a staggered manner as per expiry date of test card.</p> <p>21. Warranty of 3 years and 5 years CMC after completion of three years</p> <p>22. It must be UF-FDA /CE (Conformity Europeans) approved.</p> <p>23. Must submit User list and Performance report</p> <p>24. Demonstration is compulsory.</p> <p>25. Training of hospital engineers & staff.</p> <p>26. Operating and detailed service manual should be supplied.</p> <p>27. Rates of consumables & accessories should be freezed for 8 years.</p>	
2	ECHO Machine	<p>Overview</p> <ul style="list-style-type: none"> • Exceptional image quality including 3D/4Dcapability with versatile features and functions • Amazing superficial imaging for breast another small parts with easy to use workflow with touch panel and19” monitor • RF data for computing without any information loss. RF platform which allows the development of many RF-based processing algorithms, which have ultra-premium contrast and resolution imaging. • Up to 25MHz next generation digital broadband and high-resolution acoustic beamforming. • 64 physical channels • Up/Down movement • 3 probe connectors • Innovative RF Ultrasound Platform <p>IMAGING FEATURES</p> <ul style="list-style-type: none"> • 2D grayscale imaging 	1

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		<ul style="list-style-type: none"> • Harmonic imaging both in tissue harmonic and pulse inversion harmonic technologies • VFusion, directional-enhanced information compounding • VSpeckle, specialized and adaptive imaging processing to remove speckle noise artifacts and enhance tissue edge for clarity and accuracy • VTissue, the advanced adaptive image processing to compensate for sound and speed variation in different tissue • (Optional) • Auto imaging optimization • Easy Comparative Function to compare previous exam • Color Doppler imaging • Power Doppler imaging • Pulse wave Doppler imaging • Simultaneous 2D and M mode • Duplex 2D/PW Doppler • Triplex 2D/Color/PW Doppler • High PRF pulsed wave Doppler • Continuous wave Doppler optional • Zoom • FULL screen imaging to enlarge imaging size • Dual real time imaging without compromising imaging size • PView for panoramic imaging (optional) • TView for trapezoidal imaging • Multi Angle M mode* (optional) • Needle Enhancement* (optional) • SGC (Scanline gain compensation) • 3D imaging • Real-time grayscale4D • Tomographic display (MCUT) • Tissue Doppler (TD) mode • Tissue Velocity Imaging (TVI)mode* (optional) • Auto IMT function* (optional) • Auto NT* (Optional) • Inversion Mode* (Optional) • Magic Cut* (Optional) • Smart touch panel 3D/4D operation* (Optional) 	
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		<ul style="list-style-type: none">• Free view* (Optional) <p>Probes</p> <ul style="list-style-type: none">• Convex• Phased Array <p>Features</p> <ul style="list-style-type: none">• Innovation plat form• State of art tech• Super image quality <p>System</p> <ul style="list-style-type: none">• Three prove slots• High quality speaker system• Ergonomic design• Tiling 19” monitor• Up/Down movement• 3D/4D module• CWD• Tissue Doppler• Mcur	
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3	ICU/CCU Beds	<ul style="list-style-type: none"> • Adult Intensive Care bed with head and foot panels • Height adjustment with foot pedals 40cm to 75cm • The bed must have Trendelenburg and reverse Trendelenburg adjustment. • Between +120 by means of hand control unit. • The backrest section of the bed must be able to be adjusted between 0-700 · • The bed must be equipped with auto-regression system at back rest. • The footrest section must be able to be adjusted between 0350 or more • Central brake system or lockable castors. • The bed should have facility to take X-Ray of the patient over the bed (cassette holder). • Back plate and knee rise by gas shock mechanism to make a fowler position. • 5-inch dia castors, foot operated central lock for all castors. • Two mattress holders on each side. • Structure of the platform shall be smooth and seamless. • Platform shall not contain cavities in order to avoid hideouts/safe areas for germs. • All the corners of the platform shall be round and smooth. • Size: Length 195 cm or more· Width 85 cm or more • Accessories: · Bed fitted patient lifting pole. · I.V Rod · To be provided with CPR board. • Side Railing: Adjustable length allows for use at bed rail to prevent falling out of bed. Collapsible in 2 steps, Height of Rail 18” (high from the point of fixing on the frame of the bed). • Mattress should be provided with high density good quality according to the bed size, anti-bacterial, and waterproof, shaped according to human body or bed position. 	100
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4	Flexible Lyrangoscope	<p>Seize</p> <ul style="list-style-type: none"> • Flexible Laryngoscope • Four Size diameter Laryngoscope with 3 instrument channel size • Features 4 size: 2.8mm, 3.9mm, 5.2mm, 5.8mm outer diameter while maintaining 1.2mm, 2.2mm, 2.6mm channel diameter for instruments. <p>Optimal image quality</p> <ul style="list-style-type: none"> • with high resolution CMOS sensor delivers • high-resolution image quality comparable to conventional hybrid scopes <p>Wider angulation range</p> <ul style="list-style-type: none"> • 160up, 130down angulation range supports smoother insertion to • lobe bronchi and allows more of a bend in the scope when an endo • therapy device is inserted in the endoscope's working channel <p>Portable monitoring system</p> <ul style="list-style-type: none"> • Friendly HDMI port can connect with big monitor. • Vedio camera function available • 180 degree up and down make operation view comfortable <p>1:1 inserted rotation function</p> <ul style="list-style-type: none"> • The inserted rotation can be 1:1 transfer from handle to distal tip. • This supports easier operation and smoother. <p>HugeMed Intuba View Technical Specification</p> <ul style="list-style-type: none"> • Display size: 3.5 full view • Monitor LCD aspect ratio:640x480x RGB • Vedio Refresh Rata: 30FPS • Illumination: LED • Data output: Easy to establish and restore files • Image output • Storage Humidity: AP 50hPa • Working Condition • Temperature 5~+40°C • Ap 86 hPa to 1060 hPa • Battery Type: Rechargeable lithium battery • Voltage: 3.7V • Capacity: 3200mAh • Battery Life Cycle: more than 300 times • Charging times: Less then 8hrs • Transport/Storage Temperature: -5~+45°C • Transport/Storage Humidity: 20~80% 	5
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5	CT Scan 256 Slice	<p>PRE-REQUISITE:</p> <ol style="list-style-type: none"> 1. THE QUOTED EQUIPMENT MUST BE MANUFACTURED IN USA, EUROPE OR JAPAN ONLY. 2. THE MEDICAL EQUIPMENT MUST COMPLY WITH 510(K) FDA (FOOD & DRUG ADMINISTRATION), AND EUROPEAN MDD (MEDICAL DEVICE DIRECTIVE) AND JAPANESE MHLW (MINISTRY OF HEALTH, LABOUR & WELFARE) FOR SPECIFIC QUOTED MODEL. ALL THREE CERTIFICATES ARE REQUIRED. 3. THE FOLLOWING ARE THE KNOCKOUT CLAUSES AND THE FIRMS NOT FULFILLING THESE CLAUSES, WILL BE NOT CONSIDERED: <ol style="list-style-type: none"> (a) The firms must quote their latest and leading brands from the above-mentioned origins with the proven past performance nationally and internationally. The firm must possess its related back up support services including trained engineers, workshop facilities, spare parts availability and repair/calibration tools etc. Firm must have PEC registration. (b) The quoting firm must possess ISO certificate for service operations and should have proper infrastructure to handle and execute the complete package with previous experience. (c) The quoting firm must have installed at least 5-Units of same equipment in Pakistan and must bring satisfactory recommendation letters from at least 5 local users along with installation certificates. (d) The firm must be a sole distributor at least for the five consecutive years and should have sole agency from manufacturer and also must have an established track record government supplies of over 5-years. (e) The most important criterion is the capability to provide quick and efficient after sales service at site. The hospital reserves the right to inspect workshop facilities of the vendor at any time to ascertain technical delivery capability. Bidders with inadequate facilities will not be considered. <p>SN PARAMETER DETAILED SPECIFICATION</p> <ol style="list-style-type: none"> 1. GANTRY <ol style="list-style-type: none"> 1.1. System should be capable of Acquiring / Generating 160 to 256-slices per gantry rotation in real time. 1.2. Gantry bore / aperture to be at least 75cm or more. 1.3. Minimum gantry rotation time to be at least 0.35seconds or better, for 160 to 256-slices per 360-degree rotation, for all applications. All the firms should quote their latest model scanner. 1.4. System should be able to acquire helical/ sequential scan with the gantry tilted from the vertical. 1.5. Gantry tilt range must be + 30 degree. 1.6. Maximum scan field of view to be at least 50cm for Paeds & Children the system should be able to reduce the field of view to 200mm or less. 1.7. Extended Field of View: 70cm or more. 1.8. Minimum slice thickness of at least 0.5mm. 	1
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		<p>1.9. Dual Control (including tilt,) of gantry and table from the gantry-housing and console.</p> <p>2. TUBE 2.1 Heat storage capacity of at least 7.5KHU or better without Iterative Dosage. 2.2 Generator output of up to 600mA or more for all applications.</p> <p>3. GENERATOR 3.1 High frequency power generator with minimum power of at least 70kW or more 3.2 should be capable of variable kV setting in steps 3.3 should have ability to vary the power (mAs) automatically in steps. 3.4 Real-time dose reduction hardware / software and with ECG modulation 3.5 Able to calculate patient dose in millisievert preferably before image acquisition (CTDI) Iterative dose reduction must be offered. 3.6 Low contrast detectability (LCD) is the most important specifications of CT Scanner. The CT Scan must be capable to show LCD of 2mm at 3HU (0.3%) contrast difference with radiation dosage of not more than 10mGy. 3.7 Scan Length of at least 1.75meters or more of helical or axial scan in a single acquisition. 3.8Maximum Scan Time 100sec. or more for handling heavy patient load.</p> <p>4. DETECTORS 4.1 Solid state crystal ceramic detectors with conversion efficiency (X-Ray to signal strength) of nearly 100% latest technology. 4.2 Isotropic voxel size of 0.33mm or better, in all three axis 4.3 Minimum 80 to 128 physical detectors and detector electronics capable of providing 160 to 256 slices per gantry rotation or more. 4.4 Detectors width 40mm or more per gantry rotation.</p> <p>5. COUCH 5.1 Dual motorized control (from console and gantry) of table movements in horizontal and vertical axis. 5.2 Maximum weight allowed on the couch up to 200kg or more 5.3. Horizontal movement speed up to 100mm per second. 5.4 Single acquisition scan range of at least 1.75meter 5.5 Scan with at least 0.25mm accuracy / reproducibility on a 200kg patient. 5.6 Lateral table shift of +/- 42mm for easy patient centering during cardiac and trauma scanning.</p> <p>6. CONSOLE COMPUTER 6.1 System architecture and operating system must be based on latest technology (64 bit RISC or Dual Xenon Processor PC) original. 6.2 Multitasking and parallel processing CPU system. 6.3 At least 12GB RAM or more 6.4 Hard disc capacity for image storage of at least 900GB or more. 6.5 Capable of storing at least 3000 raw data files / rotations or 700 GB raw data / 450000 images in 512 x 512 format</p>	
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		<p>6.6 Reconstruction of at least 50 images per seconds or better at 512 x 512 matrix with iterative dose reduction.</p> <p>6.7 Image area display matrix dimensions (1024 x 1024)</p> <p>6.8 Console color monitor, TFT type of at least 19inches, medical grade with maximum viewing angle</p> <p>6.9 CD / EOD and DVD writer</p> <p>6.10 CONSOLE SOFT WARE</p> <p>All the latest cardio-vascular and whole-body software should be supplied as standard which is available at the time of shipment.</p> <p>USER INTERFACE SOFTWARE</p> <p>6.10.1 True isotropic volume acquisition</p> <p>6.10.2 Prospective and retrospective ECG gated acquisition</p> <p>6.10.3 Variable Delay algorithm like fixed percent delay (FPD) and fixed offset delay (FOD) or better , for selection of period of least motion in cardiac cycle (temporal resolution of 40 milli second or better; less will be preferred)</p> <p>6.10.4 Automated contrast media bolus tracking software</p> <p>6.10.5 3D RECONSTRUCTION DISPLAY ORIGINAL COMPANY SOFTWARE:</p> <ol style="list-style-type: none"> a. Maximum and minimum intensity projections b. Multiplanar and curved planer reconstruction c. 3D shaded surface display d. 3D volume rendering software e. 3D virtual endoscopy, colonoscopy and bronchoscopy f. 3D cone beam correction. <p>6.10.6 CT angiography</p> <p>6.10.7 Brain perfusion analysis</p> <p>6.10.8 Dental CT</p> <p>6.10.9 Image reconstruction</p> <p>6.10.10 Fat Index View to calculate body fat area based on a single slice of non-contrast-enhanced CT data. Body fat area to be calculated including total fat, visceral fat and subcutaneous fat area. BMI should also be calculated with Reporting function and color display.</p> <p>6.10.11 Lung Nodule Detection and analysis</p> <p>6.10.12 Cardiac Function Analysis</p> <p>6.10.13</p> <ol style="list-style-type: none"> a) Artifact reduction algorithm b) Automatic control of tube current over high and low attenuation areas for patient dose reduction software for low dose to patient original / certified. c) ITERATIVE DOSE REDUCTION SOFTWARE SHOULD BE APPLICABLE FOR WHOLE BODY ORGANS. <p>6.10.14 MANDATORY OPTION to be quoted.</p>	
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		<p>SYSTEM MUST HAVE CAPABILITY OF DUAL ENERGY SCANNING SYSTEM WITH BLENDING SOFTWARE FOR COMBINING IMAGES ACQUIRED AT DIFFERENT KV'S. System should be able to acquire 2 energies 120KV and 80KV simultaneously in one scan. The Dual Energy scanning should be based upon ultrafast KV switching or slow KV switching or filter based twin beam or dual detector technology.</p> <p>Older technology of 2 full scans at different KV's is not acceptable.</p> <p>Dual energy latest applications to include:</p> <ul style="list-style-type: none"> o Composition Analysis to detect uric acid for gout and to analyze renal calculi. o Dose neutral iodine mapping for detection of tumors in lungs, liver etc. o Virtual non contrast (iodine subtraction) o monochromatic HU / spectral curve for advanced analysis <p>7. WORK-STATION</p> <p>FDA/CE approved, independent, multimodality, fully functional. All companies will supply the workstations from the same manufacturer of CT Scanner (third party solution is not acceptable)</p> <p>THREE INDEPENDENT STAND-ALONE WORKSTATIONS ARE REQUIRED, THESE SHOULD NOT BE THIN CLIENT</p> <p>7.1 High speed link to operator console on DICOM network</p> <p>7.2 System architecture and operating system</p> <ul style="list-style-type: none"> a. Dual processor Xeon b. 2.66 GHz or more speed c. 512 cache or more d. Graphic card and network card <p>7.3 Should have one high resolution TFT monitor of 18 inch or more</p> <p>7.4 DVD RW (super-drive will be preferred)</p> <p>7.5 DICOM-3 viewer with universal PC display capability (licensed)</p> <p>7.6 Heavy duty Laser black and white printer A4 /letter size 2400 dpi or higher, two paper trays for A4/ letter size media, (HP, Lexmark, Xerox, CANNON) network-ready</p> <p>7.7 WORKSTATION SOFTWARE</p> <p>7.7.1 3D RECONSTRUCTION DISPLAY</p> <ul style="list-style-type: none"> a. Maximum and minimum intensity projections b. Multi-planer and curved planer reconstruction c. 3D shaded surface display d. 3D volume rendering software e. 3D virtual endoscopy, colonoscopy and bronchoscopy <p>7.7.2 CT Angiography</p> <p>7.7.3 Advanced coronary vessels analysis</p> <p>7.7.4. Calcium scoring with ECG gating and prospective / retrospective reconstruction.</p>	
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	<p>7.7.5 Cardiac function analysis –</p> <p>7.7.6 Advanced peripheral /general vessels analysis</p> <p>7.7.7 Lung nodule detection and analysis</p> <p>7.7.8 Brain perfusion analysis</p> <p>8. DICOM DICOM 3 ready (multi-vendor and multimodality compatible for send, receive, achieve, retrieve and print, on main console and workstations).</p> <p>9. QUALITY and SAFETY STANDARD MDD (CE), FDA (510K) and MHLW (all three are required)</p> <p>10 Power requirement Three phase with line voltage of 380-440V, 50Hz.</p> <p>11 FLOUROSCOPE Fluoroscopy with real time imaging and display of at least 8 frames/sec with required hardware & software. One high resolution in-room TFT monitor of at least 15 inches or more on mobile base/ceiling mounted.</p> <p>12. ACCESSORIES 12.1 Programmable, dual head power injector with flow/volume and temperature control. Mounted on mobile base, with 500 syringes of 150 ml capacity and connecting tubes (Medrad-Bayer, Angiomat, Nemoto)</p> <p>12.2 DICOM 3 ready dry laser camera / imager, Multi-size upto 14 x17 in. (Agfa, Fuji, Kodak, Konica) for black and white printing on films including 5000 films.</p> <p>12.3 On-line sine wave UPS for whole CT suite, with a minimum back-up time of 10 minute on full load.</p> <p>12.4 Lead glass for control room (5 x 3 feet), 0.5 mm lead equivalent.</p> <p>12.5 Standard set of Phantoms for calibration of CT</p> <p>12.6 Pediatric scanning package - software and hardware with small FOV as low as 200mm or less.</p> <p>12.7 Dedicated Cardiac Monitor for synchronize with cardiac scan.</p> <p>12.8 TABLE ACCESSORIES – Table pads, arms rest, patient restraint kit, IV pole, infant cradle, flat head holder.</p> <p>13.TRAINING TWO visits (of one week each) of application specialist foreign trained trainer are mandatory for training of doctors and technicians – one visit will be immediately after complete installation of the system and second will follow by 03 months.</p> <p>14. WARRANTY: COMPREHENSIVE WARRANTY OF THREE YEARS WITH ALL PARTS INCLUDING CT TUBE AND DETECTOR TO BE OFFERED BY THE MANUFACTURER (LOCAL FIRM'S WARRANTY WILL NOT BE ACCEPTED)</p> <p>15. NOTE The firms must quote all other advanced available applications / packages as optional (which will not form the basis of acceptance or rejection).</p>	
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6	Dental X-Ray Machine	<ul style="list-style-type: none"> • Digital portable dental X Ray • Current: 3.5 mA intra-oral x-ray system or better. • Focal Spot: 0.4 or less • Maximum voltage: 70 KV or better. • With imported mobile stand from the same manufacturer • The Unit shall be mounted on a stand having 360° horizontal rotation. • Also, the multiplex arm has a variety of vertical movements. • Mobile on castors. • Digital dental X-ray sensor, Computer Desktop/ laptop with 17-inch monitors LCD/TFT and DVD/CD writer (optional price quoted separately) • Sensor with minimum 3 m cable connects with computer system via USB port. • Sensor (adult and child), fully waterproof, CMOS technology, • Pixel size 20 microns or better • Active area 20X30mm or better • Software for viewing image have post processing s tools zoom, rotate, contrast adjustment etc. 	1
7	Phaco Machine	Model visalis 100 carl Zeiss Germany OR Equivalent Brand with specifications	1
8	ECG Machine 12 Channel	<ul style="list-style-type: none"> • Instantaneous 12 channel ECG acquisition, and 7” or more LCD display. • ADC:24bits, resolution: 1uV/LSB • Inbuilt thermal recorder for printing out 12 channels simultaneously on Z-fold paper and port for external printer capable of A4 page printing. • Support the 12-lead ECG analysis program for complete ECG Analysis reports with measurement data table should be provided. • Must be able to indicate at least six critical values that require immediate clinical attention. • Must have continuous display of patient heart and rate • AC as well battery operated, battery backup time 3 hours or better. • Must have integrated pediatric analysis. • Can save up to 200 ECGs in internal memory or more • Complete with Patient Cable, • Reusable Electrodes Set, • ECG Rolls 20 Nos, <p>Function: Pacemaker detection Automatic measurement of amplitude-time parameters of ECG Typical cardio cycles construction</p>	10

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		<p> Transmission of ECG via GSM, GPRS network Automatic Shut-off Input of patient data and information on health facilities Automatic recording when detecting arrhythmia Construction of rhythmogram, histogram, scatterogram during HR monitoring Protection against defibrillation ECG interpretation (syndromic report) (option) HR Audible indication Sound signal level adjustment Light indication of AC power, battery charge status, filters status, loose electrode, run of thermopaper Synchronous recording in automatic mode Automatic and manual operating modes Filters of ECG signal: power disturbance, tremor, drift Grid printing Connecting an external AT-Keybaord and laser printer Accessories Electrocardiograph Patient cable Power cord Set of reusable electrodes Carrying bag for transportation Set of operational documentation The starter set of consumables (2 rolls of thermopower) CD free of cost </p>	
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9	Defibrillator	<p>Semi-automatic 200 joules or better biphasic defibrillator with monitor and AED mode.</p> <ul style="list-style-type: none"> • Synchronized output with ECG. • Control of energy charging/ delivering on main panel and paddle. • The energy range should be adjustable for Peads and adults up to 270Joules. • Charging Time for full energy will be less than 08 sec. • Screen Size of approx. 6.5 inch or better colored. • Display of Heart Rate: 30 to 300 bpm • ECG through Pads / paddles and 3 Lead ECG patient cable with arrhythmia detection • Built in recorder for printing of full summery on standard paper including waveforms, Frozen Waveforms, Event Summary, Tabular Trends, User test, and Configuration. • Alarms for High and low Heart rate, low battery warning. • AC 220V / 50 Hz operated. • Built-in Rechargeable battery with charger • Auto tester/self-check. • External pediatric and adults Paddles, ECG cable with reusable electrodes for adult & Peads. • AED facility. • AED pads • Pacing facility <p>DESIGN:</p> <ul style="list-style-type: none"> • design for resuscitation and electro pulse therapy of acute and chronic cardiac arrhythmia as well • as for external, transesophageal, endocardial pacing. It is used in hospitals, cardiology clinics and for equipping • Emergency medical assistance teams. The device is certified for the conformance with requirements of Directive • 93/42/EEC. <p>Three Versions:</p> <ul style="list-style-type: none"> • Full: Defibrillator + ECG + Nibp + SPO2 + 3 types of pacing (external, transesophageal, endocardial) + memory card. • Simplified: Defibrillator + ECG + Nibp + SPO2 + memory card • Basic: Defibrillator + ECG + memory card 	3
10	Mobile Color Doppler Ultrasound	<p>General Specifications</p> <p>High Resolution digital portable color Doppler ultrasound diagnostic equipment with fully digital beam former having facility of upgradability to 3D+4D Mode and capable of applications like abdominal, Obs/Gynae, Small Parts, Urology, Vascular Studies.</p> <ul style="list-style-type: none"> • Main Ultrasound Portable unit with 15" or More LCD Display with resolution 1024*768 • 2.0 to 5.0 MHz or better Triple frequency convex probe with THI frequencies • 5.0 to 10 MHz or better multifrequency Linear Probe with THI frequencies 	1

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		<p>Specifications:</p> <ul style="list-style-type: none"> • Scan Mode: B, B/B, B/M, and M-Mode, CDI, PW • B-Mode: Scan Depth: 35 cm or More • Focusing Point: Adjustable • Gain Adjustment: Gain: STC: 8-Steps or More • Display: Quad/Dual Display, Duplex B/M Scan • Scanning Mode: B+Color, B+PW, Power, B+Color+PW, B/M • Additional Software like Trapezoid Imaging, One Touch auto optimization, Speckle Reduction Imaging, Tissue Harmonic Imaging as standard • Built-In Software to wirelessly transfer clinical images from Ultrasound System to Smart devices like mobile phone, Tablet etc. • Wide Range of measurement functions with Calipers, distance, area (trace, ellipse), fetal growth measurement package with different method for Ob/Gynae. • Built-in Cine Loop: 250 Frames or more • Frame Rate: 400 Frames or More • Data Management System with 500 GB or More HDD built-in system to store and retrieve the images along with data output through USB • Accessories: • B/W Thermal Printer • One tablet compatible with machine • Built-in Battery for backup purpose having backup time more than 90 minutes or better • Imported Trolley: to place and fix the machine in proper condition <p>Capable of following features in standard as mandatory:</p> <ul style="list-style-type: none"> • Transfer of patient image form ultrasound machine to smart device without internet through LAN. • Transfer of patient data including images form remote area to centralize location (Server / Desktop computers) via internet <p>Optional Items:</p> <ul style="list-style-type: none"> • 5-8 MHz Multi-Frequency T.V.S Probe with THI Frequencies • 4D Volume Convex Probe • NOTE: the frequency ranges of the probes may vary from manufacture 	
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11	Mobile X Ray Machine	<p>Mobile X-ray machine battery operated and motor driven by the battery system general purpose mobile x-ray unit for radiography.</p> <p>X-Ray Generator</p> <p>KV Range: 40kv to 125 kV in 01 kV Steps.</p> <p>mA Range : Max. 300mA or better</p> <p>mAs range : 1 mAs to 300mAs or better</p> <p>30KW or better</p> <p>Preset anatomical programs (APR) available for different parts of body.</p> <p>Number of exposures which can be done on fully charged battery should be greater than 80.</p> <p>X-Ray Tube Unit</p> <p>Rotating anode : Single / Double focus</p> <p>Focus Size : 0.7&1.3 mm or better on either side</p> <p>Anode heat storage capacity : 100 KHU or better</p> <p>X-Ray Beam Limiting Device Projector Lamp: Halogen/LED</p> <ul style="list-style-type: none"> • Filtration: 1.2mm Aluminum or better. • Colum adjustment facility available <p>Collimator rotation available</p> <p>Independent battery system for exposure and movement</p> <p>Transportation mode</p> <p>Examination mode</p> <p>Big wheel for easy movement</p> <p>Brakes for control of movement</p> <ul style="list-style-type: none"> • Input voltage 100-220VAC, 50Hz <p>Cassette Box: For Storage of at least 3 Cassettes</p> <p>2 No's lead Apron thickness 0.5mm</p> <p>Shall be a upright type freezer</p>	2
12	Autoclave Table-Top	<ul style="list-style-type: none"> • Capacity 20 liters or more (Tabletop) • Microprocessor controlled • digital display • Automatic functioning • Pre and post fractionated vacuum. • Sterilization temperature:121°C to134°C 	1

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13	Baby Incubator	<p>Specifications</p> <ul style="list-style-type: none"> • Microprocessor controlled • Incubator to have a large double Plexiglas hood with excellent dual viewing panels mobile on lockable castors. • Temperature range: 34 to 37-degree C. • To have an integrated sensor module to collect air and skin temperatures Spo2, oxygen, humidity and pass this information to the display. • 5 inch or more LCD/TFT screen should available to display relevant information • The sensor module to have a visual alarm facility to complement the audible alarm. • The mattress base to be contoured, x-ray translucent. • To be able to tilt ± 12 degrees or more. • Trend data for 48 hours or more. • The hood to have four doors, two on either side'. Openings with 4 tubing access ports. • The unit to have the temperature, oxygen level and humidity to preset levels. • To have an alarm for all of these parameters with a low initial alarm intensity to avoid undue disturbance. • Oxygen to be able to be calibrated from 21% to 100%, • The humidity module to be front loading and to need filling daily. • The mattress base tilts control to be knobs on the base. • N+C14oise should be ≤ 45dbi. <p>Accessories:</p> <ul style="list-style-type: none"> o Telescopic IV stand. o Monitoring shelf, o Cylinder holder o Ventilator tube support. o Spo2 sensor for neonatal 	10
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14	Infant Warmer	<p>Mobile infant warmer with integrated baby bassinet unit that accommodates use of resuscitation equipment for intensive care of neonate.</p> <p>Technical Specification: -</p> <ul style="list-style-type: none"> • Infant warmer system to provide controlled source of radiant heat for infant. • Temperature Control (Skin). • Temperature Adjustment: • Skin Temperature adjustment: 34°C ~ 37°C, • Microprocessor controlled skin servo mode operation with digital display • Digital display for Infant Temperature • Apgar facility • Audible and visual alarms and automatic switch off if temperature reaches at 38°C. • Built-in examination light • Built-in air/gas driven venture suction system • Tilting large bed platform suitable for x-ray cassettes, with cassette holder. • To be able to tilt ±10degrees or more. • Bed with mattress that is tiltable and having Trendelenburg and reverse Trendelenburg position. • Accessible from all sides with acrylic collapsible side panels • Trolley with 2 Lockable castors or more. • Power Requirement: 220~V, 50Hz <p>Accessories</p> <ul style="list-style-type: none"> • Complete infant resuscitation package with mounting bracket (resuscitation module, flow meter, infant suction unit, suction regulator, suction bottle/400ml, positive pressure resuscitation, air hose, and oxygen cylinder medium size). • Skin probe reusable. • Infant face masks (Large, Medium, Small) 	5
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15	EEG 32 Channal Machine	<p>Technical specifications</p> <ul style="list-style-type: none"> • 32 channels EEG amplifier • A/D resolution: 24-bit or better • Sampling rate: 2000Hz or more • CMRR: 100dB or more • Input noise: 1uv or less • Input impedance: 20M ohm or more • With high pass and low pass filters • Brain mapping software (both selective and the whole data base) • Real time programmable spectral analysis <p>Electro-Encephalography NEURON-SPECTRUM-5:</p> <p>32-channel EEG and Long-Term Monitoring System</p> <ul style="list-style-type: none"> · Up to 32 EEG channels +8 channels to record EMG,ECG, EOG, etc. · Advanced EEG, EP, PSG analysis tools · Impedance/acquisition button on the front panel of EEG unit · 12 options to expand the device functions (video monitoring, EMG, etc.) · Local, network or cloud storage of database · Remote EEG monitoring <p>32-CHANNEL DIGITAL EEG SYSTEM:</p> <p>Neuron-Spectrum-5 device inherited the unique hardware architecture and high-quality signal amplification and digitization from the previous versions of Neurosoft digital EEG systems. The robust amplifier and various stimulators are combined in one compact electronic unit attached to PC and powered via one USB cable. Modern software with the wide range of exam analysis options and flexible user interface ensures easy workflow and optimized EEG diagnostics. Neuron-Spectrum-5 is a versatile and expandable 32-channel digital EEG system with a large number of high-quality polygraphic channels to record any physiological signals from EOG to short-latency EP.</p> <p>Features</p> <ul style="list-style-type: none"> *Dual Monitor Operation Mode *EEG Acquisition *Trends of EEG Parameters *Creation & Editing of EEG Montage *Automatic detection of spikes and sharp waves *Brain mapping and bar charts of EEG analysis results *Graph of spectral and coherence EEG analysis results *Working with LORETA and sLORETA 	1
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		<p>*Automatically generated EEG report</p> <p>Configuration</p> <ul style="list-style-type: none"> *EEG workstation Neuron-spectrum-5 on the stand with desktop PC and printer *Video EEG monitoring system with camera and special software for long-term video EEG monitoring *EMG and NCS system with special software , electrodes for EMG/NCS and needle EMG, dedicated keyboard and foot switch allows performing EMG studies *PSG system with sensors for PSG, camera for night video monitoring and special software for PSG study *Portable system with note book for mobile medical teams, and EEG and EP acquisition in ICU's and in home. *64 channel system: Two Neuron-Spectrum-5 connected to one workstation allow up to 64 channel EEG acquisition <p>APPLICATION:</p> <p>Neuron-Spectrum-5 digital EEG system is very popular among users due to premium signal quality, reliable EEG diagnostics and easy-to-use customizable interface.</p> <ul style="list-style-type: none"> *Routine EEG *Video EEG Monitoring & LTM *EP, NCS and EMG Studies *Intraoperative Neurophysiological monitoring *Cardiorespiratory monitoring & PSG study *Cerebral Function monitoring (aEEG), EEG in new born *Research <p>ACCESSORIES:</p> <ul style="list-style-type: none"> ü MCScap-EC21 Electrode EEG System <p>It is a special textile cap with 19 thin and flat EEG electrodes and 2 ear electrodes connected to 150 cm long cable. Electrode EEG system is connected to the amplifier using DB25M connector.</p> <ul style="list-style-type: none"> ü Helmets to Fix Bridge EEG Electrodes <p>Polyurethane chin rest, thickened harness (4 mm) and improved fixation make the helmets more reliable and low-wearing.</p> <ul style="list-style-type: none"> ü Cup EEG Electrodes <p>Unlike bridge electrodes, silver chloride EEG electrodes with flexible cable take smaller area on patient's head, so EEG montages with more derivations can be used.</p>	
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16	Refrigerated Floor Stand Centrifuge Machine	<p>Refrigerated Floor Stand Centrifuge Machine</p> <ol style="list-style-type: none"> 1.This instrument adopts dual-core processor to achieve high and low speed compatibility, size and capacity compatibility. It is the most embarrassing product developed according to the actual requirements of international biological research. 2. It adopts imported fluorine-free compressor unit, double-cycle refrigeration, strong heat and cold exchange capacity, no environmental pollution, and precise temperature control. At the highest speed, the sample temperature is always kept at -4 °C or below. 3. It adopts brushless frequency conversion motor, maintenance-free, high torque and fast lifting speed. 4. All use the microcomputer processor for precise control, digital display of parameters such as speed, temperature, time, button programming, setting parameters during operation can be modified, switching display operating parameters and RCF values. 5.It can store and call 10 sets of programs, automatically memorize the last set of running programs, and 10 kinds of lifting speeds to choose from. 6.Door cover independent motor servo, automatic electric induction door lock, emergency unlock function; overspeed, over temperature automatic protection, unbalance protection, abnormal automatic shutdown protection and error code display; body with high quality steel structure, built-in steel explosion-proof protection Set, three layers of protection, more secure and reliable. 7.The company adopts the unique spring taper sleeve of the company to connect the rotor and the main shaft. The loading and unloading rotor is quick and simple, non-directional, safe and reliable, and convenient to use. 8. Equipped with a variety of rotors to choose from and can be designed according to the test requirements of a variety of adapters, a multi-purpose machine. 9. Three-stage damping, the centrifugal effect is optimal. <p>Specification Max. speed 21000rpm Max. RCF 30910×g Max. volume 4×800ml(swing rotor)&6×100ml(angle rotor) Timer 1~9h59min RPM/RCF transfer YES Noise (dB) ≤ 58 Temperature range -20°C~40°C Accelerating rate 10kinds Speed accuracy 10r/min Temperature accuracy ±1°C Power (V/Hz) AC 220V 50HZ 7A Dimension (W x D x Hmm) 720×540×830mm</p>	1
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		Net weight (Kg) 130 KG Certificates CE,ISO & Calibration report are available	
17	Platelets Agitator Complete	Agitator/Microlab 300 OR Equivalent Brand with specifications	1
18	40 Freezer for Plasma Covid 19	Plasma Freezer Capacity 464 Plasma Boxes Interior Volume 25.2 cu ft 714 L Temperature Range Set Point -15° to -30°C -30°C Interior Dimensions (w x h x d) 24.75 x 58.25 x 30.25 in / 629 x 1480 x 769 mm Exterior Dimensions (w x h x d) 29.5 x 80 x 35.5 in / 750 x 2032 x 902 mm Electrical 115V 60Hz 208-230V 60Hz 230V 50Hz Net Weight 557 lb 253 kg Storage 8 Stainless Steel Drawers	1
19	16 Slice CT scanner Trauma Center	Description: SPECIFICATIONS OF WHOLE BODY 16 SLICE CT SCANNER. Department: Radiology 1. GANTRY <ul style="list-style-type: none"> • System should be capable of acquiring 16 slices per gantry rotation or more for all applications in helical and axial mode. (One slice means data acquired from 360 degree tube rotation). • Gantry bore to be at least 65 cm or more. • Minimum gantry rotation time to be at least 1.0 sec or less for 16 slices per 360 degree rotation for all applications. • Maximum scan field of view to be at least 50 cm or better • Minimum slice thickness 0.6 mm or less in axial and helical mode. • Bilateral control of gantry and table from the gantry housing and operator console. 2. X-RAY TUBE. <ul style="list-style-type: none"> • Heat storage capacity of at least 3.5 MHU or more. • Anode heat dissipation of maximum 567 kWh/min or more. • Generator output of at least 240 mA or more. 3. GENERATOR. <ul style="list-style-type: none"> • High frequency power generator with minimum power of at least 30 kW or more. • KV Range: 80 kV to 130 kV or better • Should have ability to vary the power (mAs) automatically in steps. • Real time dose reduction hardware 4. COUCH.	1

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		<ul style="list-style-type: none"> • Dual motorized control (from console & gantry) of table movements in horizontal and vertical axis. • Maximum weight allowed on the couch up to 220 kg or more. • Horizontal movement speed up to 200 mm/s or more • Single acquisitions scan range of at least 125 cm or more. <p>5. CONSOLE COMPUTER.</p> <ul style="list-style-type: none"> • System architecture and operating system must be based on latest technology (Intel Xeon 3.3 GHz) • Multi-tasking and parallel processing CPU system. • At least 16GB RAM or more. • Hard disk capacity for image storage of at least 75,000 (uncompressed) images or more. • Reconstruction of at least 13 images per second or better • Image area display matrix (512 x 512) • Console color monitor (02 Nos). TFT/LCD type of at least 21 inches or more, medical grade with 1920 x 1080 resolutions • DVD / CDR <p>6. Console software.</p> <ul style="list-style-type: none"> • True isotropic volume acquisition • Variable delay algorithm for automatically finding the best phase for cardiac CT imaging. • Automated contrast media bolus tracking software. • 3-D reconstruction display; • Maximum and Minimum intensity projections. • Multi planer and curved planer reconstruction. • 3-D Shaded surface display (SSD) • 3D volume rendering software. • Automated real-time tube current adjustment for best diagnostic image quality at lowest possible dose, independent of patient size and anatomy • Artifacts Reduction Algorithm • Dedicated Pediatric Protocol. 80 KV • Dose Control Parameters (online/continuous) • Dose Display CTDI, DLP, Dose efficiency etc. • Iterative reconstruction technique with dedicated dose reduction software and hardware • Pediatric scanning package including software and infant holder / immobilizer. Inbuilt feature of dose reduction for pediatric scanning • Automated 3D bone removal functionality <p>7. CT POST PROCESSING Multi-Modality WORKSTATIONS</p> <ul style="list-style-type: none"> • Manufacturer's original Multimodality 1 Thin Client Solution with Licensed software and having 2 concurrent user licenses with necessary hardware for CT post processing. • FDA & CE Approved. • Offered post processing workstation should be from same OEM. 	
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	<ul style="list-style-type: none"> • Server Hardware • Min 19-inch LCD monitor for Administration • Min 08 -16 GB (extendable) • Min 1TB Image database disk. • DVD + RW for image storage & for software loading. • Computer system of Client WS: • Min 21-inch 2 MP or more medical grade monitor. • Quad Core XEON processor 2.4 GHz processors or better • Min 6 GB RAM • Min 250 GB Image database disk. • DVD + RW for image storage & for software loading. • Online UPS for workstations 3 KVA with dry batteries 10 min back up time. <p>8. Workstation Software.</p> <ul style="list-style-type: none"> • Software up gradation of all existing applications during the warranty period • Following software should be provided at all workstations. • 3-D reconstruction display; • Maximum and Minimum intensity projections. • Multi planer and curved planer reconstruction. • 3-D shaded surface display (SSD) • 3D volume rendering software. • 3-D Virtual Endoscopy • Advance peripheral / general vessels analysis • "Single click bone removal for neuro evaluation for bone-free evaluation of the neuro vasculature for the diagnostic evaluation of neurovascular disease (e.g. aneurysms & stenosis) and planning interventional treatment (e.g. coiling and stenting). Complete with Vessel analysis and stenosis measurement tools. <p>9. DICOM 3</p> <ul style="list-style-type: none"> • DICOM 3 ready (multi-vendor and multimodality compatible) for Send, Receive, Archive, Retrieve and Print on main console and workstation. <p>10. QUALITY & SAFETY STANDARDS.</p> <ul style="list-style-type: none"> • MMD (CE) compliance. • FDA 510 K approval. <p>11. POWER REQUIREMENTS.</p> <ul style="list-style-type: none"> • Three Phase with line voltage of 220 V & 50 Hz. <p>12. ACCESSORIES.</p> <ul style="list-style-type: none"> • Programmable Injector with flow / volume and temperature control. Mounted on mobile base with 500 syringes of 150 ml capacity and connecting tubes (Medrad, Angiomat, Nemoto, Medtron.) • DICOM 3 Ready Dry Laser Camera / Imager multi size up to 14" x 17" with 3 drawers for different 	
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		<p>size of films (care stream, Agfa, Fuji, Konica) for black/white printing on film including 1000 films.</p> <ul style="list-style-type: none">• Film viewers (x02) for images up to 14 x 17 with variable light control and shutter• On line sine wave UPS for whole C.T. Scanner with a minimum back up of full load sine wave UPS for whole system, back up time 10 minutes.• Diesel power Generator 200 KVA including ATS, sound proof canopy, foundation pad, earthling and cabling (Perkins, Cummins, caterpillar)• Protection devices (lead aprons (x6) with hangers, lead gloves (x6) pairs, all 0.5mm Pb or eq.• Lead glass 5x3 ft. lead 1.5 mm pbeq• Standard set of Phantoms for calibration of CT <p>13. WARRANTY.</p> <ul style="list-style-type: none">• The Comprehensive Warranty for the machine will be 03 years including all kind of parts, labor and CT tube from the date of installation/acceptance. Spare parts availability must be from the manufacturer for 10 years.	
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20	Teaching Microscopes	<p>A. TEACHING MICROSCOPES (05 Headed):</p> <p>Stand Stable stand with convenient location of focus controls with hand rests and heat resistant Nosepiece Reversed Quintuple revolving nosepiece with rubber grip for traction.</p> <p>Stage Double Layers Mechanical Stage, Moving Range 75x55mm</p> <p>Focusing System Co-axial coarse and fine focusing system with auto focus stop</p> <p>Objectives Infinity Corrected Full Plan Achromatic Objectives Anti Fungus Coated 4x, 10x, 20x & 40x (Spring Loaded), 100x (Spring Loaded, Oil Immersion)</p> <p>Eye Piece Wide field 10x, Inter-papillary distance and diopter adjustment</p> <p>Illumination Built-in Koehler illumination 100W Halogen/equivalent LED</p> <p>Inbuilt transformer Potentiometer and Power Cord.</p> <p>Condenser Abbe Condenser N.A. 0.9/1.25 having Aspheric lens, center able</p> <p>Compensation Free 05 Head, inclined at 30°, 360° Rotatable,</p> <p>Interpupillary Distance 48-75mm Qty: 1 Nos.</p> <p>Observation Heads</p> <p>Compensation Free Binocular head, inclined at 30°, 360° Rotatable,</p> <p>Interpupillary Distance 48-75mm Qty: 4 Nos.</p> <p>Pointer Orange and Green LED Pointer, Brightness Adjustable</p> <p>With infinity color corrected optics, microscope stand with Z-drive with fine drive knob left and fine drive disk, right, flat with scale, nosepieces 5x bright field, integrated 12V 50W-100W power unit, stabilized 100--240 V AC, transmitted light illumination with halogen, stage and condenser carrier, mechanical stage 75x30 R with hard coat anodized surface, 210 x 145 mm stage plate covered Xguide positioned at bottom, specimen holder with spring lever, left, fine drive knob with scale, contrast enhancing blue filter, five binocular tube 30o/23, dust cover, adaption set, 2 tube carrier for 2 tubes, 10 eye pieces 10x, foe, ten eyepiece eyecup.</p> <p>B. Microscopic Camera for 05 Headed Teaching Microscope</p> <p>Note: The Camera must be compatible to the aforementioned teaching microscope along with Computer System.</p>	1
21	Rotablator	<p>Percutaneous rotational coronary angioplasty with adjunctive balloon angioplasty.</p> <p>2. To perform Highly Calcific Lesions and diffused disease.</p> <p>3. 220-240 V A.C Voltage with the frequency of 50-60 Hz.</p> <p>4. Multiple Rotalink Catheters of varying sizes and with a single Rotalink Advancer for easier more effective debulking.</p> <p>5. Rotational speed of 0 - 2,50,000 rpm.</p> <p>6. Console compatibility with DynaGlide system.</p> <p>7. Diamond coated elliptical burr with sizes 1.25 mm, 1.5 mm, 1.75mm, 2.00mm and 2.25mm, 2.38mm, and 2.5 mm and with Catheter Length of 135 cm in length.</p> <p>8. Compatibility with 0.014(tip)/.009” Rota wire with 325 cm in length and Floppy, Standard and Extra Support System.</p>	1

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		9. Approval International standard agency US FDA or Equivalent.	
22	Anesthesia Machine with Accessories	<p>Anesthesia Apparatus Compact, high reliability with functions equivalent to large machines. Setting Range of Flow Rate : O2 Flow Meter : 0.1 ~ 10.0l/min. N2O Flow Meter : 0.5 ~ 10.0l/min Introductory Gas Pressure Gauge : O2 Pressure Gauge : 0 ~ 10kgf/cm² NO2 Pressure Gauge : 0 ~ 10kgf/cm² Adjusting Pressure by : O2 Pressure Regulator Pressure Regulator : 4.2±0.5kg/cm² O2 Flush Flow Rate : 35 ~ 75l/min. O2 Supply Pressure Alarm : 2.5±0.5kgf/cm² Canister Capacity : 1100±50ml Dimensions : H420 × W445 × D230mm Weight : 14.5kg Safety Device : Relief Valve (Safety Valve in the main part) Oxygen Ratio Controller ----- O2 Supply Pressure Alarm ----- N2O Cut-Off Valve -----</p>	1

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23	RO System for Dialysis Machines	<p>Color TFT Monitor 10 inch or above</p> <p>Computerized programmable with graphic screen</p> <p>Electronic control of flow rate and blood flow.</p> <p>Both Bicarbonate and Acetate mode of dialysis application</p> <p>Automatic control for various set bicarbonate proportions.</p> <p>Variable Sodium control concentration system.</p> <p>With Sodium and Ultra filtration Profiles · With bicarbonate Profiles</p> <p>Variables temperature control</p> <p>Programmable Ultra filtration control system. · Ultra filtration with diffusion · With Ultra filtration rate control – fully adjustable / controllable and visible on the screen · Balance Ultra filtration control system.</p> <p>Anticoagulant Management System with bolus option intact program system.</p> <p>Automatic priming system with full display system</p> <p>Automatic clean and rinsing mechanism. Display for services diagnostic and rinsing mechanism</p> <p>With automatic thermal disinfection mechanism (up to or 80°C or above)</p> <p>Blood pump with variable blood flow rate which should be highlighted on the machine.</p> <p>With automatic heparin pump 0 to 10cc per hour or better on upper side.</p> <p>Variable / adjustable dialysate flow rate (300-700ml per min or better on either side)</p> <p>With adjustable temperature control system, up to 39°C</p> <p>With venous pressure monitor —-52 to 400mm Hg or better on either side.</p> <p>With Arterial pressure monitor —-300mm Hg to +400mm Hg or better on either side</p> <p>With Air bubble detector and Alarm system.</p> <p>Blood leak Detector. · With conductivity control system-both for Acetate and bicarbonate solution ·</p> <p>Blood pump capability for both adult and paed.</p> <p>Real time graphical / display for dialysis treatment /Does delivery (KT/V) · Real time show dialysate pressure, temperature and flow.</p> <p>With Endotoxin Filter · With battery backup service : 20 minutes or better · With inbuilt integrated BPM system Input power 220VAC, 50Hz</p>	3
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