

PVMS OF CARDIOLOGY

DRAFT

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Clinical Specialty	Cardiology
Generic Name	ECG Machine (6-Channels)

Clinical Purpose	Electrocardiography (ECG) is the process of recording the electrical activity of the heart over a period of time using electrodes placed on a patient's body. These electrodes detect the tiny electrical changes on the skin that arise from the heart muscle depolarizing during each heartbeat.
TECHNICAL SPECIFICATIONS	
<p>Six channel ECG on at least 3-5 inches LCD display. Display of six channel ECG simultaneously. Automatic Operation Variable gain: 1/2, 1, 2 cm/mV Thermal recorder for printing out of Six channels simultaneously Interpretation Software. Recording Trace speed: 10, 25 and 50 mm/sec Muscle artifact and AC (50Hz) interference filters Defibrillator protection Built in AC Supply and battery operation. Built-in AC interference, Noise filter and Baseline connection. Capability to interface with LAN/WLAN for data transfer Paper Rolls, 50</p>	
<p>Accessories: Complete with standard accessories, including patient cables for Adult, Paediatric & Neonatal with re-usable electrodes</p>	
<p>Optional (If any): Mobile Cart (Local/Imported) No. of Electrodes</p>	

Clinical Specialty	Cardiology
Generic Name	ECG Machine (12-Channels)
Clinical Purpose	Electrocardiography (ECG) is the process of recording the electrical activity of the heart over a period of time using electrodes placed on a patient's body. These electrodes detect the tiny electrical changes on the skin that arise from the heart muscle depolarizing during each heartbeat.
TECHNICAL SPECIFICATIONS	
<p>Twelve Channel ECG on at least 5 inches LCD display. Automatic Operation Variable gain: 1/2, 1, 2 cm/mV Thermal recorder for printing out Twelve channels simultaneously. Interpretation software. Recording Trace speed: 10, 25 and 50 mm/sec, Muscle artifact and AC (50Hz) interference filters Defibrillator protection Mains AC as well as battery operation.</p>	

Built-in AC interference, noise filter and baseline drift control. Capability to interface with LAN/WLAN for data transfer Paper Roll 50.
Accessories: Complete with standard accessories, including patient cables for Adult, Paediatric & Neonatal with re-usable electrodes
Optional (If any): Mobile Cart (Local/Imported) No. of Electrodes

Clinical Specialty	Cardiology
Generic Name	Pulse Oximeter
Clinical Purpose	A pulse oximeter is a medical device that indirectly monitors the oxygen saturation of a patient's blood (as opposed to measuring oxygen saturation directly through a blood sample) and changes in blood volume in the skin, producing a photoplethysmogram.

TECHNICAL SPECIFICATIONS

Non-invasive measurement of oxygen saturation and pulse rate with LCD screen.
Display of oxygen saturation and pulse rate.
Oxygen saturation measurement range from 0 -100%.
Pulse strength perfusion indication
Capability of Plethysmography.
Pulse rate measurement from 20-250 bpm.
Visual and audible indication of alarms.
High and low alarms settings.
Power of 220 V/ 50 Hz

Accessories:
Complete with standard accessories, including reusable type Adult, Pediatric & Neonatal sensors

Optional (If any):
Qty of Reusable sensors

Clinical Specialty	Cardiology
Generic Name	Cardiac Monitor
Clinical Purpose	The phrase cardiac monitoring generally refers to continuous monitoring of the heart activity, generally by electrocardiography, with assessment of the patient's condition relative to their cardiac rhythm.

TECHNICAL SPECIFICATIONS

For Adults & Peads
For monitoring patients vital signs.

Operating Features and Characteristics:

Non fade TFT color display
Electro-surgical interference suppression/protection
Defibrillator protection
Freeze and cascade facility.
Waveform trace speed; 25 / 50mm/sec.
Screen size: min. 12" TFT/LCD colour display.

Parameters:

ECG :

Numeric: heart rate.

Waveform : real time and freeze ECG trace

NON-INVASIVE BLOOD PRESSURE (NIBP):

Method: oscillometric principle

Numeric: systolic, diastolic and mean pressure

Selectable auto inflate interval settings

Rising cuff/continuous pressure display.

TEMPERATURE:

Numeric: temperature selectable in °C/°F.

PULSE OXIMETRY:

Numeric: 0-100% oxygen saturation measuring range.

Waveform-plethysmograph pulse with pulse strength indication.

Reusable sensor electrode.

Reusable cuff.

ARRHYTHMIA ANALYSIS:

Arrhythmia analysis and ST analysis.

RESPIRATION:

Breath rate display and settable apnea alarms.

Sweep speed; 6.25, 12.5 mm/sec.

Numeric: temperature selectable in °C/°F.

PULSE OXIMETRY:

Numeric: 0-100% oxygen saturation measuring range.

Waveform-plethysmograph pulse with pulse strength indication.

Reusable sensor electrode.

Reusable cuff.

ARRHYTHMIA ANALYSIS:

Arrhythmia analysis and ST analysis.

RESPIRATION:

Breathe rate display and settable apnea alarms.

Sweep speed; 6.25, 12.5 mm/sec.

Ac 220v/50HZ

Built-in rechargeable battery for at least 1-2 hour.

Accessories:

The system must be complete with all sensors, probes, cables or any other accessories required for measuring all the above selected parameters.

Optional (If any):

Qty of Reusable sensors

Mounting Local/Original

Clinical Specialty	Cardiology
Generic Name	Vital Sign Monitor (Adult)
Clinical Purpose	Vital signs (often shortened to just vitals) are a group of the 4 to 6 most important signs that indicate the status of the body's vital (life-sustaining) functions. These measurements are taken to help assess the general physical health of a person, give clues to possible diseases, and show progress toward recovery.

TECHNICAL SPECIFICATIONS

For monitoring patients vital signs.

Operating Features and Characteristics:

Non fade TFT/LCD color display

Electro-surgical interference suppression/protection

Defibrillator protection

Freeze and cascade facility.

Waveform traces speed; 25 / 50mm/sec.

Screen size: min. 12" TFT/LCD colour display.

Parameters:

ECG:

Numeric: heart rate.

Six Waveforms minimum, real time and freeze ECG trace

NON-INVASIVE BLOOD PRESSURE (NIBP):

Method: Oscillometric principle

Numeric: systolic, diastolic and mean pressure

Selectable auto inflate interval settings

Rising cuff/continuous pressure display.

TEMPERATURE:

Numeric: temperature selectable in °C/°F.

PULSE OXIMETRY:

Numeric: 0-100% oxygen saturation measuring range.

waveform- plethysmograph pulse with pulse strength indication.

Reusable sensor electrode.

Reusable cuff.

ARRHYTHMIA ANALYSIS:

Arrhythmia analysis and st analysis.

RESPIRATION

Breath rate display and settable apnea alarms.

Sweep speed; 6.25, 12.5 mm/sec.

OTHER FEATURES:

Trend data; graphical and tabular

ALARMS:

High & low (settable) on all parameters

Visual and audible indication of alarms.

Built in Printer 2 Channel or more.

Capability to interface with LAN/WLAN for data transfer

OPERATING REQUIREMENTS:

Ac 220v/50HZ Built-in rechargeable battery for at least 1- 2 hour ac power failure at full parameter.
Accessories: Complete with standard accessories, including reusable type Adult, Paediatric & Neonatal sensors
Optional (If any): Qty of Reusable sensors Mounting stand Local/Original

Clinical Specialty	Cardiology
Generic Name	Vital Sign Monitor (pediatric & neonatal)
Clinical Purpose	Vital signs (often shortened to just vitals) are a group of the 4 to 6 most important signs that indicate the status of the body's vital (life-sustaining) functions. These measurements are taken to help assess the general physical health of a person, give clues to possible diseases, and show progress toward recovery.

<p>TECHNICAL SPECIFICATIONS</p> <p>For monitoring patients vital signs.</p> <p>Operating Features and Characteristics:</p> <p>Non fade TFT /LCD color display</p> <p>Electro-surgical interference suppression/protection</p> <p>Defibrillator protection</p> <p>Freeze and cascade facility.</p> <p>Waveform trace speed; 25 / 50mm/sec.</p> <p>Screen size: min. 12" TFT/LCD colour display.</p> <p>Parameters:</p> <p>ECG :</p> <p>Numeric: heart rate.</p> <p>Six Waveforms minimum, real time and freeze ECG trace</p> <p>NON-INVASIVE BLOOD PRESSURE (NIBP):</p> <p>Method: oscillometric principle</p> <p>Numeric: systolic, diastolic and mean pressure</p> <p>Selectable auto inflate interval settings</p> <p>Rising cuff/continuous pressure display.</p> <p>TEMPERATURE:</p> <p>Numeric: temperature selectable in °C/°F.</p> <p>PULSE OXIMETRY:</p> <p>Numeric: 0-100% oxygen saturation measuring range.</p> <p>Wave form- plethysmograph pulse with pulse strength indication.</p> <p>Reusable sensor electrode.</p> <p>Reusable cuff.</p> <p>ARRHYTHMIA ANALYSIS:</p> <p>Arrhythmia analysis and ST analysis.</p> <p>RESPIRATION:</p> <p>Breath rate display and settable apnea alarms.</p> <p>Sweep speed; 6.25, 12.5 mm/sec.</p>

<p>OTHER FEATURES: Trend data; graphical and tabular Capability to interface with LAN/WLAN for data transfer</p> <p>ALARMS: High & low (settable) on all parameters Visual and audible indication of alarms. Built in Printer 2 Channel or more.</p> <p>OPERATING REQUIREMENTS: AC 220 V/50HZ Built-in rechargeable battery for at least 1- 2 hour ac power failure at full parameter.</p>
<p>Accessories: The system must be complete with all sensors, probes, cables or any other accessories required for measuring all the above selected parameter</p>
<p>Optional (If any): Qty of Reusable sensors Mounting stand Local/Original</p>

Clinical Specialty	Cardiology
Generic Name	Pre-configured Neonatal Monitor
Clinical Purpose	The pre-configured neonatal monitor generally refers to continuous monitoring of the vital parameters for neonate patient.

<p>TECHNICAL SPECIFICATIONS Pre-configured bedside monitor for neonates. Operating Features and Characteristics: Non fade TFT color display Electro-surgical interference suppression/protection Defibrillator protection Freeze and cascade facility. Waveform traces speed; 25 / 50mm/sec. Screen size: min. 12" TFT/LCD color display. Capability to interface with LAN/WLAN for data transfer</p> <p>Parameters: ECG: - Numeric: heart rate. - Waveform : Six Wave forms minimum, real time and freeze ECG trace</p> <p>NON-INVASIVE BLOOD PRESSURE (NIBP): - Method: oscillometric principle - Numeric: systolic, diastolic and mean pressure - Selectable auto inflate interval settings - Rising cuff/continuous pressure display. - Reusable cuff four each size</p> <p>TEMPERATURE: - Numeric: temperature selectable in °C/°F. - Two skin temperature and rectal probes</p> <p>PULSE OXIMETRY: - Numeric: 0-100% oxygen saturation measuring range.</p>

<ul style="list-style-type: none"> - Waveform-plethysmograph pulse with pulse strength indication. - Reusable sensor electrode. <p>ARRHYTHMIA ANALYSIS:</p> <ul style="list-style-type: none"> - Arrhythmia analysis and ST analysis. <p>RESPIRATION:</p> <ul style="list-style-type: none"> - Breathe rate display and settable apnea alarms. - Sweep speed; 6.25, 12.5 mm/sec. <p>OTHER FEATURES:</p> <ul style="list-style-type: none"> - Trend data; graphical and tabular <p>ALARMS:</p> <ul style="list-style-type: none"> - High & low (settable) on all parameters - Visual and audible indication of alarms. <p>Capability to interface with LAN/WLAN for data transfer</p> <p>OPERATING REQUIREMENTS:</p> <ul style="list-style-type: none"> - Ac 220v/50HZ - Built-in rechargeable battery for at least 1-2 hour AC power failure at full parameter.
<p>Accessories:</p> <p>The system must be complete with all sensors, probes, cables or any other accessories required for measuring all the above selected parameters for neonates and paed.</p>
<p>Optional (If any):</p> <p>Qty of Reusable sensors</p> <p>Mounting stand Local/Original</p>

Clinical Specialty	Cardiology
Generic Name	Modular Bed Side Monitor
Clinical Purpose	In medicine, monitoring is the observation of a disease, condition or one or several medical parameters over time. It can be performed by continuously measuring certain parameters by using a medical monitor (for example, by continuously measuring vital signs by a bedside monitor), and/or by repeatedly performing medical tests (such as blood glucose monitoring with a glucose meter in people with diabetes mellitus).

<p>TECHNICAL SPECIFICATIONS</p> <p>Modular bedside monitor for Adult / Neonates/ Peads. The monitor should take different modules for display of vital sign monitor of Adult /Neonate/Peads. (The procuring agency will specify the requirement)</p> <p>Operating Features and Characteristics:</p> <p>Non fade TFT color display</p> <p>Electro-surgical interference suppression/protection</p> <p>Defibrillator protection</p> <p>Freeze and cascade facility.</p> <p>Waveform traces speed; 25 / 50mm/sec.</p> <p>Screen size: min. 12" TFT/LCD color display.</p>

Capability to interface with LAN/WLAN for data transfer
Parameters in module form:
ECG:
Numeric: heart rate.
Waveform : Six Wave forms minimum, real time and freeze ECG trace
NON-INVASIVE BLOOD PRESSURE (NIBP):
Method: Oscillometric principle
Numeric: systolic, diastolic and mean pressure
Selectable auto inflate interval settings
Rising cuff/continuous pressure display.
TEMPERATURE:
Numeric: temperature selectable in °C/°F.
PULSE OXIMETRY:
Numeric: 0-100% oxygen saturation measuring range.
Waveform-plethysmograph pulse with pulse strength indication.
Reusable sensor electrode.
Reusable cuff.
ARRHYTHMIA ANALYSIS:
Arrhythmia analysis and st analysis.
RESPIRATION:
Breath rate display and settable apnea alarms.
Sweep speed; 6.25, 12.5 mm/sec.
OTHER FEATURES:
Trend data; graphical and tabular
ALARMS:
High & low (settable) on all parameters
Visual and audible indication of alarms.
OPTIONALS: (Procuring agency will select according to its requirement)
IBP Two/ Three/four Channel module
Capnography (EtCO2) module
Cardiac Output Module
EEG Module
Built in Printer Two / Three Channel
OPERATING REQUIREMENTS :
Ac 220v/50HZ
Built-in rechargeable battery for at least 1 - 2 hour ac power failure at full parameter.

Accessories:
The system must be complete with all sensors, probes, cables or any other accessories required for measuring all the above selected parameters for neonates / paed and Adults.

Optional (If any):
Qty of Reusable sensors
Mounting stand Local/Original

Clinical Specialty	Cardiology
Generic Name	ICU Monitor
Clinical Purpose	The intensity of the care provided in ICU requires monitoring

device. Patients in the ICU generally have many wires attached to them for various types of monitoring. Usually measure vital signs & other intensive care parameters of the patient.

TECHNICAL SPECIFICATIONS

Operating Features and Characteristics:

Non fade TFT/LCD color display

Electro-surgical interference suppression/protection

Defibrillator protection

Freeze and cascade facility.

Waveform traces speed; 25 / 50mm/sec.

Screen size: min. 12" TFT/LCD colour display.

Parameters:

ECG :

Numeric: heart rate.

Waveform : Six Wave forms minimum, real time and freeze ECG trace

NON-INVASIVE BLOOD PRESSURE (NIBP):

Method: oscillometric principle

Numeric: systolic, diastolic and mean pressure

Selectable auto inflate interval settings

Rising cuff/continuous pressure display.

TEMPERATURE:

Numeric: temperature selectable in °C/°F.

PULSE OXIMETRY:

Numeric: 0-100% oxygen saturation measuring range.

Waveform-plethysmograph pulse with pulse strength indication.

Reusable sensor electrode.

Reusable cuff.

ARRHYTHMIA ANALYSIS:

Arrhythmia analysis and st analysis.

RESPIRATION:

Breath rate display and settable apnea alarms.

Sweep speed; 6.25, 12.5 mm/sec.

OTHER FEATURES:

Trend data; graphical and tabular

ALARMS:

High & low (settable) on all parameters

Visual and audible indication of alarms.

IBP Dual Channel /Three Channel (Procuring agency to specify)

Capnography (EtCO₂)

Built in Printer Two / Three Channel (Procuring agency to specify)

OPTIONAL:

Cardiac Out put

OPERATING REQUIREMENTS :

Ac 220v/50HZ

Built-in rechargeable battery for at least 1 - 2 hour ac power failure at full parameter.

Accessories:

The system must be complete with all sensors, probes, cables or any other accessories required for measuring all the above selected parameters.

Optional (If any):
 Qty of Reusable sensors
 Mounting Original/Local

Clinical Specialty	Cardiology
Generic Name	Central Monitoring System
Clinical Purpose	Central Monitoring System make it possible to see the patient's data on the central/main monitor, wherever the patient may be.

TECHNICAL SPECIFICATIONS

Multi-channel central station for 8/16/24/34/64 bedside monitors. (Procuring agency will specify the exact requirement)

Operating features and characteristics:
 Colored monitor
 Resolution minimum 1024 x 1024
 Laser printer
 For connection to: Bedside monitors with 19" TFT central station monitor.

Parameters :
 Selectable display of all parameters of bedside monitors
 As selected.

Alarms :
 All parameters alarms on central station monitor with bed no. Identification.
 All alarms of each bedside monitors selectable from central workstation.

Full Disclosure :
 Other Features:
 Ac 220v / 50Hz.
 Keyboard and mouse
 Trend data: graphical and tabular
 Arrhythmia analysis feature.

Operating Requirements:
 Built-in battery and charger for at least 1 hour on ac power at full parameter or imported full sine wave ups.

Accessories:
 Complete with standard accessories, including reusable type Adult, Paediatric & Neonatal sensors

Optional (If any):
 Qty of Reusable sensors
 HIS & RIS Connectivity

Clinical Specialty	Cardiology
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Generic Name	Defibrillator
Clinical Purpose	Defibrillation is a common treatment for life-threatening cardiac arrhythmia and ventricular fibrillation. Defibrillation consists of delivering a therapeutic dose of electrical current to the heart with a device called a defibrillator .

TECHNICAL SPECIFICATIONS

Biphasic transthoracic (external) defibrillator with LCD colour display
 Synchronized output with ECG.
 Energy selection on control panel and paddles for external defibrillation.
 Energy delivery on paddles for external defibrillation.
 Energy selection and delivery on control panel for internal defibrillation. Charging Indicator
 The energy range should be adjustable for peds and adults up to 200Joules.
 Charging Time for full energy will be less than 05 sec.
 Screen Size of approx. 5 inch colored.
 Display of HR, ECG through paddles and Lead I,II & III patient cable.
 Built in recorder for printing of full summery on standard 50mm paper.
 Alarms for High and low Heart rate, low battery warning.
 Built-in Rechargeable battery with charger for minimum 50 shocks at max energy.
 Auto tester/self check.
 External Paddles (Adult, Paed, Neonate)
 AED facility with cable.
 Pacing facility
 AC 220V / 50Hz operated.

Accessories:
 Complete with standard accessories, including reusable type Adult, Paediatric & Neonatal sensors

Optional (If any):
 Qty of Reusable sensors
 Internal Paddle(Adult, Paed, Neonate)

Clinical Specialty	Cardiology
Generic Name	Spiro Meter
Clinical Purpose	A spirometer is an apparatus for measuring the volume of air inspired and expired by the lungs. A spirometer measures ventilation, the movement of air into and out of the lungs. The spirogram will identify two different types of abnormal ventilation patterns, obstructive and restrictive.

TECHNICAL SPECIFICATIONS

Spirometer with 1000 or above test memory
 Blue tooth, USB connection
 Records best 3 trials

<p>Up to 8 blows on one screen Screen size at least 5” or above Internal temperature sensor for BTPS conversion FVC, VC with breathing pattern plus MVV tests with real time curves Over 30 parameters with automatic interpretation and test quality control PRE/POST bronchodilator comparison Built-in thermal printer for full Spiro-metric report printing. Rechargeable battery and mains power Turbine flow sensor. Auto calibration mode.</p>
<p>Accessories: Complete main unit with: Nose Clip, Mouthpiece & Thermal Paper = 1 each Operation Manual & Carrying Case= 1 each Spiro meter software</p>
<p>Optional (If any): 2 hours backup time through battery or Sine Wave UPS.</p>

Clinical Specialty	Cardiology
Generic Name	Ambulatory B.P Monitoring System
Clinical Purpose	Ambulatory Blood Pressure Monitoring (ABPM) is when your blood pressure is being measured as you move around, living your normal daily life. It is normally carried over 24 hours. It uses a small digital blood pressure machine that is attached to a belt around your body and which is connected to a cuff around your upper arm. It small enough that you can go about your normal daily life and even sleep with it on.

TECHNICAL SPECIFICATIONS

Computerized Non-invasive, Ambulatory BP for continuous 24/48 hr – switch able monitoring. (The procuring agency will specify)
OPERATING FEATURES AND CHARACTERISTICS:
Main computerized unit with color monitor
Keyboard and mouse and Laser Printer for printing reports
Data retrieval system
Osillometirc system
Artifact and motion noise elimination
24/48 hour switch able summary and average hourly blood pressure,
Day/ Night analysis and % of readings over pre-selected limits
Number of Recorders:
04 Recorders required with 04 each adult, paediatric and large BP cuff
PARAMETERS
Report on Blood Pressure and Pulse Rate in tabular and graphical form summary report of
data and histograms
Settable BP taking intervals from 10 to 60 mins, independently programmable

measurement intervals. Start/Stop facility for patient initiated B.P reading Main unit battery and AC 220/50 Hz operated.
Accessories: All allied accessories for the measurement of required parameters should be from original manufacturer.
Optional (If any):

Clinical Specialty	Cardiology
Generic Name	Ambulatory (Holter) HR, ECG Monitoring System
Clinical Purpose	A Holter monitor is a machine that continuously records the heart's rhythms. The monitor is worn for 24 /48/72 hours during normal activity.

TECHNICAL SPECIFICATION

PC based digital Holter monitoring system Holter with 24/48/72 HR ECG Monitoring system, (The procuring agency will specify the requirement)

Operating features and characteristics

PC based with color monitor of 19" LCD/ TFT monitor, play back module. Keyboard and mouse and laser printer for printing reports. (6CPM for ECG/Grid printing) Full disclosure reports and Superimposition feature, Analysis of ST slope, heart rate, R-R variability & arrhythmias detection including atrial fibrillation. Pace maker detection and analysis.

Reports: In tabular and summary form, Graphical and Analytical, Arrhythmia data, Heart rates (min. max & AVG), R-R variability time domain calculations of test duration, ventricular and super ventricular ectopic. ST segment reports: adjustment ST-segment criteria, time duration maximum deviation & slope deviation severity & index number.

3 channel simultaneous high resolution Holter Recorder (solid state with even marker, time clock) minimum 48 hours or above recording time. Sampling rate 175/ channel / sec in normal rhythm. Solid-state recorders. Minimum of 3 channel simultaneous acquisition of Holter data. (Two sets of leads per recorder ordered) connectivity: via USB port / flash memory card.

Operating requirements:

Recorders: Standard long life batteries. (AA) Alkaline, disposable,

UPS (imported) for main unit for at least 60-min. back up time

Computer: Minimum i5, Hard disk drive 100GB(minimum), DVD R/W, Operating system Windows

Printer: HP laser jet , Networking capability

Standard PC keyboard, Mouse. High resolution 19" or more colour LCD/TFT monitor with a maximum of 1280 x 1024 resolutions.

Accessories:

All allied accessories for the measurement of required parameters should be from original manufacturer.

Clinical Specialty	Cardiology
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Generic Name	Event Loop Recorder
Clinical Purpose	This device is attached in much the same way as a Holter monitor. When you feel symptoms of a heart problem, such as palpitations, you press a button on the monitor. Information on your heart's electrical activity is then sent to your doctor for analysis. This device can be removed for bathing. At the end of the testing period—typically one to four weeks—you return the monitor so the recorded data can be analyzed.

TECHNICAL SPECIFICATIONS

Diagnostic embedded algorithms that automatically capture asymptomatic events.
 Single device for patient convenience, comfort and ease of use
 Powered by 1 AA Lithium Battery Pack
 No patient interaction to transmit data
 Transmission of data can be sent wirelessly or also trans telephonically as a backup if the patient is out of cellular network.
 On site data download via USB or flash card reader.
 Large Single Button Operation for Symptomatic Event Recording and Transmission of Event.
 30 Minutes Programmable Looping Memory.
 Pacemaker Detection.
 Lead Loss Detection.
 Simple Patient Operation with One Button Record and Send.

Accessories:
 All allied accessories for the measurement of required parameters should be from original manufacturer.

Optional (If any):

Clinical Specialty	Cardiology
Generic Name	Neonatal Respiration & Apnea Monitor
Clinical Purpose	The, subject Electromedical equipment monitors the respiration and apnea for neonate neonatal patient.

TECHNICAL SPECIFICATIONS

Display of parameters.
 Selectable time interval 10,15,20,25 second
 Rechargeable battery operated
 Indicators for time interval selected
 Apnea alarm
 Sensor Capsule type disposable/reusable
 Audio alarm- Event at apnea/ respiration

Accessories:

Complete with standard accessories
Optional (If any): Mounting Original/Local Reusable Sensors

Clinical Specialty	Cardiology
Generic Name	ETT Machine
Clinical Purpose	An Exercise Tolerance Test or Stress Test is used to provide information about how the heart responds to stress. It usually involves walking on a treadmill at increasing levels of difficulty, while the electrocardiogram, heart rate and blood pressure are monitored. By placing the stress of exercise on the heart, the test can help to determine if there is adequate blood flow to the heart during increasing activity and help to determine the best cardiac treatment plan for you.

TECHNICAL SPECIFICATIONS	
<p>Dedicated Computer based ETT System. Analysis of ST levels, ST slopes and ST-index etc. Report: 12 leads, rhythm and full disclosure arrhythmia, and exercise summary, trend. Holter and Stress test review. Display of 12 channels. Colour monitor of 15". TREADMILL Programmable. Treadmill, medical grade, controllable from main unit. Speed adjustable from 0-15 km/h. Emergency stop button. Bearing capacity of minimum 180kg. Automatic Blood Pressure measurement Device. Automatic baseline drift control filter. Complete integrated full functional workstation. 3KVA UPS for thirty minutes back up time.(Emerson,Liebert,Chloride,MGE or equivalent) AC 220 V/ 50Hz</p>	
Accessories: Complete with standard accessories	
Optional (If any):	

Clinical Specialty	Cardiology
Generic Name	Temporary Pace Maker (Single Chamber)
Clinical Purpose	A pacemaker is a small device that's placed in the chest or abdomen to help control abnormal heart rhythms. This device uses electrical pulses to prompt the heart to beat at a normal

	rate. Pacemakers are used to treat arrhythmias (ah-RITH-me-ahs). Arrhythmias are problems with the rate or rhythm of the heartbeat.
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TECHNICAL SPECIFICATIONS

Temporary pacemaker for cardiac pacing
 OPERATING FEATURES and CHARACTERIST

Asynchronous and demand moded operation
 Sensing: light indication
 Pacing: light indication
 Calibrated rate, output and sensitivity contro
 Defibrillator protected

PARAMETERS:

Stimulation control of current output upto 2
 Pulsing rate control adjustment upto 150 pp
 Sensitivity control upto 8mV
 Pulse width 1.5 m sec
 Asynchronous and demand mode switch

INDICATORS:

Battery status light indication

OTHER FEATURES:

Portable
 Accessories including case and cables

OPERATING REQUIREMENTS:

Standard alkaline battery operation
 Backup operation during battery change.

Accessories:

Complete with standard accessories

Optional (If any):

Clinical Specialty	Cardiology
Generic Name	Temporary Pace Maker (Dual Chamber)
Clinical Purpose	A pacemaker is a small device that's placed in the chest or abdomen to help control abnormal heart rhythms. This device uses electrical pulses to prompt the heart to beat at a normal rate. Pacemakers are used to treat arrhythmias (ah-RITH-me-ahs). Arrhythmias are problems with the rate or rhythm of the heartbeat.

TECHNICAL SPECIFICATIONS

Dual chamber multi-mode temporary 'pacemaker for cardiac Pacing

OPERATING FEATURES and CHARACTERISTICS:

LCD display of all pacing, sensing and warning indicators

PARAMETERS:

Multi-mode: all combinations of atrial,ventricular&dual;AA,VV,DD,A0,VO,DO,DV Adjustable pacing rate adjustment upto 150 ppm Adjustable pacing voltage upto 10V Sensitivity control upto 8mV Pulse width upto 1.5 m sec OTHER FEATURES: Portable Accessories including case and cables OPERATING REQUIREMENTS: Standard alkaline battery operation
Accessories: Complete with standard accessories.
Optional (If any): Qty of Reusable sensors/leads

Clinical Specialty	Cardiology
Generic Name	Head Up Tilt (HUTT) System
Clinical Purpose	
TECHNICAL SPECIFICATIONS	
Tilt table with Recording system and facility of both Invasive and non invasive blood pressure recording and Tonometric blood pressure recording	
Accessories: Complete with standard accessories	
Optional (If any):	

Clinical Specialty	Cardiology
Generic Name	Intra Aortic Balloon Pump
Clinical Purpose	The Intra-aortic balloon pump (IABP) is a mechanical device that increases myocardial oxygen perfusion while at the same time increasing cardiac output. Increasing cardiac output increases coronary blood flow and therefore myocardial oxygen delivery.
TECHNICAL SPECIFICATIONS	
Self contained Fiber optic based intra arotic ballon pump having mobile console with ECG Amplifier with possible selection 5 leads arterial blood pressure amplifier. Discriminative Triggering circuit to command balloon actions on patient's ECG arterial blood pressure curve or internal simulator 80 BPM. Color graphic displays at least of 10" for display of arterial and pressure heart rate balloon volume used and alarm conditions with trouble	

shooting procedures. Wave form displays for ECG, arterial pressure and balloon pressure on three channel memory type oscilloscope. Fall safe system. V Pacing switch. Progressive viewing sequence. Integrated battery power supply to take patient to catheterization labs, operating theatre or other hospital: 60 minute autonomy. CO2 / helium tank wrench. 5 lead ECG cable, male connector pressure, transducer, adopter, chart recorder.

220 V, 50 Hz, Ac.

System should be complete to display all the parameters.

Accessories:

Complete with standard accessories

One spare set of patient cable.

Optional (If any):

Qty of Reusable sensors

Disposable balloon catheters of varying sizes for use with the pump 25 nos.

Clinical Specialty	Cardiology
Generic Name	Echocardiography Machine(4D)
Clinical Purpose	4D Echocardiography machine make it possible to view the moving picture of 3D echocardiogram.

TECHNICAL SPECIFICATIONS

A complete dedicated digital Echocardiography unit for wide range of premium performance application of cardiovascular imaging in pediatrics and adult. Built in workstation / data management system for digital acquisition, storage and review of complete ultrasound studies including static and dynamic clips in DICOM format, read/write zoom. Studies can be reviewed and output to CD / DVD/MOD. The machine must have sharp and high quality image reproduction with heavy duty performance. It should have minimum following specification :

DISPLAY:

High resolution 1280x 1024 non interlaced, flicker free.

Display size Min. 19" Flat/TFT, tilt able and swive able type.

OPERATING MODES:

B, 2D,4D Imaging, M-Mode, Power Doppler, HPRF, Spectral Doppler, Color Doppler, Velocity

Mode, Pw Doppler, Duplex And Triplex Doppler, CW Doppler Steerable and ECG Gating, Capable of Performing 4D View.

CONTROL PANEL:

Alphanumeric keyboard with built-in trackball.

Direct access to system functions through dedicated keys.

Indicator lights identify activated keys.

Audio volume control with bidirectional / stereo speakers and foot switch

User selectable image magnification control.

Adjustable transmit focusing control.

Total and Lateral Gran Compensation controls (6 or more).

CALIPER / MEASUREMENTS :

6 to 8 calipers for measurement per screen trace length measurements for:
Distance, angle, distance depth from skin line, area, circumferences, compound /
volume, slope, time, heart rate and acceleration.

APPLICATION:

Cardiac, Peripheral, pediatric, adult cephalic and transesophageal with all required software for measurements.

OPERATING MODES:

2D tissue, 2D angio flow, color M-Mode, tissue velocity M-mode, tissue strain imaging, disynchrony imaging, continuous wave Doppler, tissue m-mode, pulse wave Doppler, tissue velocity imaging, tissue tracking, tissue synchronization, blood flow imaging, blood flow angio flow imaging.

DISPLAY MODES:

Live and stored display format: full size and split screen. Review image format: for still and cine, simultaneous capability B+PW, B+ CFM/TVI+PW, CW, B+ or triplex mode, , B+ color split screen display. 4 D scan, B+Color Screen display, Slice view Tissue Imaging, 4D Mode, 2D mode, , M-mode, color Doppler imaging, color flow imaging, color Doppler imaging, color angio, color m-mode, blood flow imaging, blood flow angio imaging, tissue velocity imaging, tissue velocity imaging mode, tissue synchronization imaging mode, PW / HPRF Doppler, CW Doppler, contrast imaging, LVO Contrast, Vascular / abdominal contrast, vascular calculations, cardiac measurements.

FRAME RATE

Min. 200fps in B-Mode and 100fps in Doppler mode.

CINE MEMORY

Min. Cine Memory for 1000 frames or 250mb min.

IMAGE VIEWING DEPTH:

20 – 280 mm or more for cardiac application

IMAGING MODES / TECHNIQUES:

Tissue harmonic Imaging, Tissue Doppler Imaging, Color Angio, Tissue Velocity Imaging

Tissue Imaging (Display real time Doppler shift information from moving tissue to better visualize and quantify myocardial function). Capability to display time difference in myocardial motion in color for CRT (Cardiac resynchronization therapy).

Quantitative strain rate imaging; An advanced quantitative technique of Tissue Doppler Velocity. Strain rate is a measure of the contractile motion of myocardium.

Auto-Tracking contrast quantification: quantitative technique for on-line assessment of contrast agent images.

Contrast plus sequencing technology: a real time, low mechanical index, non-linear imaging technique for contrast agent examinations. The software should have the capability to show contrast agent only, tissue only or contrast and tissue displays.

Contrast Harmonic Imaging capability. Vascular imaging software for carotids with IMT measurement.

STRESS ECHO

Integrated multi stage stress echo system for advance and flexible stress echo

Acquisition and measurement for LV B-Mode imaging. Quantitative analysis for contrast during stress. examinations

Used with TDI protocols.

<p>STORAGE DEVICE Built-in MOD/CD / DVD Drive WITH 10 DISKETTES SYSTEM DYNAMIC RANGE Dynamic range minimum 160 dB or more COMMUNICATION SOFTWARE System should conform to DICOM 3 communication software for: Image Storage, print, Query / Retrieve, Network Communication. Probes: Should be light weight, capable of multiple centre frequencies on transmit for 2D, color Doppler PW/CW (Steerable) Imaging and to perform Harmonics. PORTS: Video Output USB / RS 232 Networking</p>
<p>STANDARD TRANSDUCERS: Linear Probe multi frequency to cover frequency of 6.0-8.0 MHz. Multi frequency Phased array sector probe to cover 2.0/2.5 – 4.0MHz. Multi frequency Phased array sector probe to cover 5.0 – 8.0MHz. CW Pencil Probe Multiplane TEE Transducer (3 – 6 MHz) for adults. Transthoracic /4D Volume probe Accessories: Digital Color Thermal Printer with 10 Packs of 100.. Online UPS for 10 min. backup time for complete unit including Printer.(Emerson,Liebert,Chloride,MGE & Riello) Digital B/W Thermal Printer with 50 rolls of papers. Jelly 20 L in bottles. Complete with standard accessories.</p>
<p>Optional (If any): Multiplane TEE Transducer (4 – 6 MHz) for peads</p>

Clinical Specialty	Cardiology
Generic Name	Mobile Echocardiography Machine
Clinical Purpose	Echocardiogram , often referred to as a cardiac echo or simply an echo , is a sonogram of the heart. Echocardiography uses standard two-dimensional, three-dimensional, and Doppler ultrasound to create images of the heart.

TECHNICAL SPECIFICATIONS

A complete dedicated digital Echocardiography unit for wide range of premium performance application of cardiovascular imaging in pediatrics and adult. Mobile trolley mounted system with built in workstation / data management system for digital acquisition, storage and review of complete ultrasound studies including static and dynamic clips in DICOM format, read/write zoom. Studies can be reviewed and output

to CD / DVD/MOD. The machine must have sharp and high quality image reproduction with heavy duty performance. It should have minimum following specification :

DISPLAY:

High resolution 1280x 1024 non interlaced, flicker free.

Display size Min. 17" Flat/TFT, tilt able and swive able type.

OPERATING MODES:

B, 2D M-Mode, Power Doppler, HPRF, Spectral Doppler, Color Doppler, Velocity Mode, Pw

Doppler, Duplex And Triplex Doppler, CW Doppler Steerable and ECG Gating,

CONTROL PANEL:

Alphanumeric keyboard with built-in trackball.

Direct access to system functions through dedicated keys.

Indicator lights identify activated keys.

Audio volume control with bidirectional / stereo speakers and foot switch

User selectable image magnification control.

Adjustable transmit focusing control.

Total and Lateral Gain Compensation controls (6 or more).

CALIPER / MEASUREMENTS :

6 to 8 calipers for measurement per screen trace length measurements for:

Distance, angle, distance depth from skin line, area, circumferences, compound / volume, slope, time, heart rate and acceleration.

APPLICATION:

Cardiac, Peripheral, pediatric, adult cephalic and transesophageal with all required software for measurements.

OPERATING MODES:

2D tissue, 2D angio flow, color M-Mode, tissue velocity M-mode, tissue strain imaging, disynchrony imaging, continuous wave Doppler, tissue m-mode, pulse wave Doppler, tissue velocity imaging, tissue tracking, tissue synchronization, blood flow imaging, blood flow angio flow imaging.

DISPLAY MODES:

Live and stored display format: full size and split screen. Review image format: for still and cine,

simultaneous capability B+PW, B+ CFM/TVI+PW, CW, B+ or triplex mode, , B+ color split screen display. Tissue Imaging, 2D mode, , M-mode, color Doppler imaging, color flow imaging, color Doppler imaging, color angio, color m-mode, blood flow imaging, blood flow angio imaging, tissue velocity imaging, tissue velocity imaging mode, tissue synchronization imaging mode, PW / HPRF Doppler, CW Doppler, contrast imaging, LVO Contrast, Vascular / abdominal contrast, vascular calculations, cardiac measurements.

FRAME RATE

Min. 200fps in B-Mode and 100fps in Doppler mode.

CINE MEMORY

Min. Cine Memory for 1000 frames or 250mb min.

IMAGE VIEWING DEPTH:

20 – 280 mm or more for cardiac application

IMAGING MODES / TECHNIQUES:

Tissue harmonic Imaging, Tissue Doppler Imaging, Color Angio, Tissue Velocity

Imaging

Tissue Imaging (Display real time Doppler shift information from moving tissue to better visualize and quantify myocardial function). Capability to display time difference in myocardial motion in color for CRT (Cardiac resynchronization therapy).

Quantitative strain rate imaging; An advanced quantitative technique of Tissue Doppler Velocity. Strain rate is a measure of the contractile motion of myocardium.

Auto-Tracking contrast quantification: quantitative technique for on-line assessment of contrast agent images. Contrast plus sequencing technology: a real time, low mechanical index, non-linear imaging technique for contrast agent examinations. The software should have the capability to show contrast agent only, tissue only or contrast and tissue displays. Contrast Harmonic Imaging capability.

Vascular imaging software for carotids with IMT measurement.

STRESS ECHO :

Integrated multi stage stress echo system for advance and flexible stress echo Acquisition and measurement for LV B-Mode imaging.

Quantitative analysis for contrast during stress. examinations

Used with TDI protocols.

STORAGE DEVICE

Built-in MOD/CD / DVD Drive WITH 10 DISKETTES.

SYSTEM DYNAMIC RANGE

Dynamic range minimum 160 dB or more

COMMUNICATION SOFTWARE

System should conform to DICOM 3 communication software for:

Image Storage, print, Query / Retrieve, Network Communication.

Probes:

Should be light weight, capable of multiple centre frequencies on transmit for 2D, color Doppler

PW/CW (Steerable) Imaging and to perform Harmonics.

PORTS:

Video Output

USB / RS 232

Networking

220-240VAC 50 Hz

Accessories:

STANDARD TRANSDUCERS:

Linear Probe multi frequency to cover frequency of 6.0-8.0 MHz.

Multi frequency Phased array sector probe to cover 2.0/2.5 – 4.0MHz.

Multi frequency Phased array sector probe to cover 5.0 – 8.0MHz.

CW Pencil Probe

Online UPS for 10 min. backup time for complete unit including

Printer.(Emerson,Liebert,Chloride,MGE & Riello)

Digital B/W Thermal Printer with 50 rolls of papers.

Jelly 20 L in bottles.

Optional (If any):

Digital Color Thermal Printer with 10 Packs of 100.

Multipan TEE Transducer (3 – 6 MHz) for adults.

Multipane TEE Transducer (4 – 6 MHz) for peads

Clinical Specialty	Cardiology
Generic Name	Angiography
Clinical Purpose	Angiography or arteriography is a medical imaging technique used to visualize the inside, or lumen, of blood vessels and organs of the body, with particular interest in the arteries, veins, and the heart chambers.

TECHNICAL SPECIFICATIONS

A fully digital flat panel single plane cardiac Angiography/ cardiac catheterization system

dedicated for diagnosis and interventional cardiac procedures.

POSITIONING ARM: Frontal Arm stand

The system should be ceiling / floor mounted

Real time display of rotation angulations.

Geometry : C-arm/ G-arm

ROA/LAO +/- 105° or More

Cranial / Caudal : min. +/- 45°

Rotation speed : 20° /Sec or more in LAO/RAO

Isocentric Height: Variable /Fixed.

Auto positioning: Programmable auto positioning of selected.

Angulations, (30 or more) Programmable Positions.)

The control panel can be mounted at any side of the patient table.

All the rotational / Angles should be digital displayed next to the.

Ceiling mounted 56 Inch or more LCD/LED monitor.

Motorized/Manual Parking / rotation of the positioning arm.

DIGITAL FLAT PANEL:

Single Plane C-Arm /G-Arm

Image matrix of 1024x1024 x 14 bit or more.

Standard cardiology size with three formats.

Built in temperature stabilizer.

DIGITAL FLAT PANEL DETECTOR 12 x 12 Inch or LARGER

Integrated Collision protection feature.

All other standard accessories according to this digital flat panel.

Dose management with fluoro filters range of 0.1/0.2mm to 0.9/1.0 mm Cu

Pixel size of 200 um or better

Removable grid for pediatric application

PATIENT SUPPORT/ TABLE:

Catherization table

Floor mounted with up down/vertical longitudinal and transverse

Rotational movements

Longitudinal stroke : 1000-1500 mm

Lateral stroke 100-300 mm

CPR in any table position

All Table side movement controls.

Table top should be of such construction in material and durability to accept patients weight of

not less than 150Kg plus 100 kg for resuscitation.

Table dimensions should be able to accommodate patients of all ages.

Table top should have large metal free over hand for unobstructed image coverage.

complete accessories should be provided including arm holder, hand grip, arm support and arm rest and positioning aids.

Left / right table pivoting: +/- 90 degree.

Stent visualization software with integrated tableside control

X-RAYS GENERATOR:

Microprocessor based high frequency using fiber optic for data communication between each imaging system.

Dedicated X-Rays generator of 100KW

Radiographic rating minimum 1000mA

Serial filming exposures with shortest exposure of 1 mS, with automatic KV and mA control

for optimum image quality.

The system should have capability of digital radiography and fluoroscopy.

Should have capability of doing digital pulsed fluoroscopy 10/12.5/15 and 25/30 frames per second. Automatic KV mA & pulse width regulations.

DIGITAL IMAGING AND ACQUISITION / FLUOROSCOPY:

Digital System. Acquisition, storage and display in 1024x1024 x12 bit or more at 12.5/15 and 25/30 FPS.

Parallel processing capability / multitasking facility

Real time filtering and road map function.

Magnetic disk capacity for storage of 50,000 images in 1024 x 1024 x 12 bit or more on the

magnetic disk of main console.

Minimum scene length to be 10 seconds in 1024 matrix.

Digital Pulsed fluoroscopy with 12.5/15 and 25/30 PLS in 1024x1024 x 10 bit or more.

Images to be stored on the retrieved from archive disk for possible manipulation and quantification using available software packages.

Digital Subtraction Angiography Package.

X-RAYS TUBE:

Minimum of five years unconditional warranty on the x-rays tube by the original manufacture. (To be confirmed by the manufacturer)

Dual Focus with at least 2.4 MHU or better anode heat storage.

Capacity to enable continuous heat dissipation during serial exposure.

Dual focal rotating anode.

Focus 0.5 and 0.9 mm or better.

Dose management with auto adjustment fluoro filters.

MONITORING SYSTEM:

Flat screen LCD/LED 56 Inch of 3840 x 2160 / 8 Mega Pixel

Monitors should be ceiling mounted in the operation room with the original ceiling suspension system.

Two monitors for live images and road mapping in the Examination room 18 inch or larger

LCD/LED as back up.

Two monitors for live images and road mapping in the control room 18 inch or larger LCD/LED.

All the monitors will be of Medical Graded, complied with international standards for medical monitors

One 56 inch LED TV Monitor for live images and road mapping in the Auditorium remote

from the cath lab, complete with all the cabling and hardware required.

CONTROL :

All the controls of digital imaging system, inch, post processing & quantifications (QCA) analysis shall be in the control room with replay / display of auditorium room image should be

available in the examination room.

RECORDING / ARCHIVING & COMMUNICATION SYSTEM:

Recording/ archiving system should be DICOM-3 compatible.

They digital images should be stored as backup on CD, DVD

DICOM (Send/store, commitment, retrieve/ query)

Ethernet connection to connect with other terminals.

Integrated intercom system.

BRANDED REVIEW STATIONS (01):

DICOM-3 compatible.

Edge enhancement, adjustable view speeds & post processing.

High Definition Medical Graded 18 inch LCD/LED Monitors.

Online workstations to review studies directly and the facility to review studies on workstations with lossless compression and original image quality as on console.

CD. DVD writer and CD/DVD ROM Drive.

Image storage capacity 3x80 GB with at least 10,000 rpm speed.

And SCSI or equivalent controller at each review station.

Laser black & white printer , 24000 DPI or better (HP, LEXMARK, XEROX, CANON) network

ready x1

QCA software

Licenses software with part numbers.

SOFTWARE/HARDWARE PACKAGES:

Complete Analysis package for the following cardiac applications.

Dynamic pre and post PTCA / Valvotomy comparison with one image live and other reference.

Automatic loop replay after acquisition or fluoroscopy.

Dynamic real time pan / zoom.

Dynamic real time digital imaging processing like edge enhancement or gamma correction ,

noise reduction (spatial filtration)

They bidders should quote their licensed software with part number in their Principals offer.

Simultaneous display of fluoroscopy and reference images, not only as static images but as

dynamic loop.

Standard quantification packages for QCA analysis.

online image density (gray scale) correction

Facility to review previous studies in the examination room from the patients old CD. All controls of digital imaging system incl. Post-processing & quantification (QCA) shall be in the examination as well as control room. Automatic positioning of the c-arm corresponding to reference image. Store fluoro facility to store fluoroscopy. Stent visualization system latest version by the company. 3-D Coronary visualization/reconstruction software and workstation (if required)
One latest branded computer with black and white laser printer 2400 dpi at least and 21 inch LED Monitor for reporting.

SURGICAL SHADOW LESS LIGHT:

Ceiling suspended/Floor mounted, For Angiographic and related surgical procedures.

RADIATION PROTECTION:

Ceiling suspended / Floor mounted tiltable lead glass for radiation protection of operators head

& neck regions and lower body parts.

Collision tolerant.

Lower body radiation protection flaps.

Lead lining of room.

PHYSIOLOGICAL HEMODYNAMIC MONITORING SYSTEM:

Multichannel (16 channels or more) to record at least 4 channels IBP, Cardiac out put with

thermo dilution method, Surface ECG in any configuration and simultaneous 12 lead ECG,

NIBP and SpO2 measurement.

They system must be complete software for all pediatric & adult , right /left heart, angio/valvular hemodynamic calculations such as gradients, valve areas, shunt.

Including

annotations and 12 channel ECG.

Digital display of all the parameters like IBP, Heart rate, cardiac out put parameter. It should be possible to print the waveforms simultaneously while acquiring the data in the back ground.

It should be possible to store the waveforms on the hard disk of the physiological recording system.

System with tableside integrated control of the hemodynamic system in the exam room.

The hemodynamic system Should be from the original manufacturer /Joint venture manufacturer of the angiography system.

Optional:

Integration of image on the examination room monitor for FFR,IVUS and Hemodynamic system with up-gradation to incorporate CT imaging

Workstation for TAVI procedure along with software

ACCESSORIES:

Pulse oximeter probes (QTY- 10 (05 pediatric probes, 05 adult probes))

10 x invasive blood pressure reusable transducer with 500 disposable transducer domes.

Disposable transducers (500 No)

Complete 12 lead ECG Cable (10 Nos.)

NIBP (05 Nos.)

Cardiac output (01 Nos.)

Holder for mounting the IBP transducer alongside the patient table.
Two color monitors 18 inch OR more LCD/ LED inside the control room.
DVD /CD writer for archiving of study data and wave from stored on hard disk.
Facility for freezing the homodynamic data and simultaneous recovery of recent data/ compare stored data with current waveform.
Laser black & white printer, 2400 DPI or better (HP, Lexmark, Xerox, Canon) network ready x1 with extra toner cartridges (10 Nos.)

QUALITY AND SAFETY STANDARDS FOR ANGIOGRAPHY MACHINE:

FDA 510K and CE(MDD)

OTHER ALLIED ACCESSORIES: (All below given equipment should be from the USA , Europe and Japan origin)

Writeable CDs should be delivered with the system.

Lead glass window size 4x1 meter or more PB equivalent 2.0mm or better.

Pb aprons for the male, Double side with different sizes, Pd equivalent front 0.5mm and back 0.35 mm with belts.(FDA & CE approved) wall mounted hangers.

Pb aprons for the female, Double side with different sizes, Pd equivalent front 0.5mm and back 0.35 mm with belts.(FDA & CE approved)

Thyroid shields.

Pb Goggles.

160 KVA or more true on line sine wave Double onversion UPS for whole system with a minimum back up time eof 10 minutes including room lights, microprocessor based IGBT

technology. Display and alarams of parameters. Three phase line voltage of 220 50Hz with all necessary standard parts including batteries.

Programmable contrast media injector with 500 disposable syringes.Medrad, Angiomat or

Medtrone. Two crash cart with three biphasic defibirrllators with pediatric paddles

Patient trolleys (Heavy duty, Hydraulic, Patient Weight capacity 150 Kg with side rails)

Intra Aortic Balloon Pump (IABP) (01 No)

Dual Chamber ACT machines (02 No)

Digital Dosimeters for radiation protection (05 No)

200 KVA Prime Power Generator with ATS Panel

INSTALLATION:

Complete building/civil work for state of the art Angio suite including storage aluminum racks, aluminum doors with elbow action controls, paneling , lead lining , flooring , paints etc. Oxygen and suction system connection with the existing hospital pipeline.

Split air conditioner units for whole suite.

Complete electricity works from power station to Anglo room including earthling, power Racks, breakers, DB etc. Lead lining of walls, windows and doors complete full length Pneumatically/Automatically actuated fire protection/Suppression system for the UPS and

Electrical room. As per drawing of the room.

POWER REQUIRMENT:

Three phase with line voltage of 220V. 50 Hz.

TRAINING:

Two visits of application specialist are mandatory for doctors, Local training of technician and one factory training of hospital biomedical engineer; one visit will be immediately after complete installation of the system and second will be following by 3

months.
Accessories: Complete with standard accessories
Optional (If any):

Clinical Specialty	Cardiology
Generic Name	Dual Head Gamma Camera Complete with Hot Lab
Clinical Purpose	A gamma camera , also called a scintillation camera or Anger camera , is a device used to image gamma radiation emitting radioisotopes, a technique known as scintigraphy. The applications of scintigraphy include early drug development and nuclear medical imaging to view and analyse images of the human body or the distribution of medically injected, inhaled, or ingested radionuclides emitting gamma rays.

TECHNICAL SPECIFICATIONS	
<p>1.1 Two rectangular (> 36 cm x 20 cm FOV) high resolution digital detectors fixed at 90 degrees to each other.</p> <p>1.2 ≥ 8.5 mm thick NaI crystal</p> <p>1.3 .PMTs:= > 24 PMT tubes per detector</p> <p>1.4 Static, dynamic, planar, SPECT and gated SPECT capability.</p> <p>1.5 Microprocessor controlled energy, linearity and uniformity corrections.</p> <p>1.6 Automated PMT gain stabilization for extended image uniformity</p> <p>1.7 Intrinsic energy resolution for 99mTc $\leq 9.7\%$</p> <p>1.8 Intrinsic spatial resolution: ≤ 3.9 mm at FWHM in UFOV, ≤ 7.6 mm at FWTM in UFOV</p> <p>1.9 PHA windows: $\Rightarrow 3$ for simultaneous imaging</p> <p>1.10 Energy range 60-170 Kev</p> <p>1.11 Monitor for gantry position and image display</p> <p>2 Collimators</p> <p>2.1 Low energy general all purpose (2)</p> <p>2.2 Low energy high resolution (2)</p> <p>2.3 Collimator Storer and Collimator Server</p> <p>3 Table/ Chair</p> <p>3.1 Low attenuating material</p> <p>3.2 Maximum patient weight capacity= > 300 lb.</p> <p>4 Acquisition Console</p> <p>4.1 Computer for cardiac planar, SPECT, gated, static and dynamic acquisitions.</p> <p>4.2 Ability to perform gated studies in "list mode" / "frame mode"</p> <p>4.3 Factory protocols for all type of cardiac and non cardiac studies.</p> <p>4.4 Ability to make user defined protocols and edit factory protocols and acquisition parameters</p>	

- 4.5 SPECT acquisition: 64x64, 128x128 word matrix, step and shoot / continuous acquisitions over 180 and 360 degrees
- 5 Gating Device
 - 5.1 Gating device with patient leads and camera connection for gated planar and SPECT studies.
- 6 Processing Workstation (2)
 - 6.1 64 Bit RISC (700 MHz or higher) / Intel XEON processor (3 GHz or higher)
 - 6.2 SCSI/ Serial ATA Hard Disk: > 80 GB
 - 6.3 24 GB RAM
 - 6.4 DVD RW/CD-RW drive
 - 6.5 Interface for gamma camera / acquisition computer
 - 6.6 10/100/1000 Base T Ethernet card
 - 6.7 56 K Fax modem
 - 6.8 128 MB graphic card
 - 6.9 18 inches flat TFT monitor (1280 x 1024 res.)
 - 6.10 Desktop for workstation
- 7 Software
 - 7.1 UNIX/ LINUX/ Windows NT/ Windows XP/Solaris operating system
 - 7.2 TCP/IP, NFS, FTP software for communication with networked (LAN, WAN) computers.
 - 7.3 Patient database management software
 - 7.4 Programming tools for making acquisition, processing and display protocols
 - 7.5 DICOM 3 convert, DICOM transfer (import, export) and DICOM print software
 - 7.6 Postscript printer driver for networked printers (Codonics, Tektronix, HP, Lexmark)
 - 7.7 Licensed Software for converting and exporting images in common PC formats e. g. GIF, TIFF, JPEG, BMP, AVI.
 - 7.8 Quality control software for uniformity, center of rotation, spatial resolution, and linearity correction complying with NEMA
 - 7.9 Image Algebra tools
 - 7.10 Tools for filter back projection reconstruction and reformatting
 - 7.11 Iterative reconstruction software supporting OSEM, MLEM methods
 - 7.12 Choice of filters for 2D and 3D filtering
 - 7.13 Motion correction software
 - 7.14 Cine and 3 D display software
 - 7.15 Image analysis tools
 - 7.16 mage and count manipulation tools
 - 7.17 Tools for Scatter Correction
 - 7.18 Standard software for Gated and non-gated Myocardial Perfusion SPECT
 - 7.19 Standard software for gated blood pool and first pass study for assessment of RV / LV Function
 - 7.20 Software for cardiac shunt analysis
 - 7.21 Emory Cardiac Toolbox / Michigan University 4D MSPECT with 5 normal databases.
 - 7.22 Cedars-Sinai Autoquant Plus (QGS+QPS+QBS) software.
- 8 Imager(Codonics, Hp Printer or Equivalent)
 - 8.1 320 dpi, 12 bit gray scale, 16.7 million colors

- 8.2 Media: 8x10 Film; A, A4 Gray scale paper; A, A4 color paper; A, A4 color Film
- 8.3 10/100/1000 Base T Ethernet Card, 256 MB RAM, 10 GB HD and 100MB Zip Disk
- 8.4 DICOM, PostScript printing
- 8.5 100 sheets of ChromaVista color paper with ink sheet
- 8.6 100 sheets of DV film, DV film tray
- 8.7 Printer drivers
- 8.8 Network cable
- 9 STANDARD ITEMS
- 9.1 UPS: 10 KVA (Emerson, Liebert, Chloride, MGE) Online uninterrupted power supply (Sine wave) for gamma camera, workstations and printers. Minimum backup time = 30 minutes
- 10 Quality Assurance Tools
- 10.1 Rectangular flood source holder
- 10.2 Rectangular refillable flood source (detector head size)
- 10.3 SPECT phantom holder
- 10.4 SPECT phantom
- 10.5 IRC source holder
- 10.6 Bar Phantom (detector head size)
- 10.7 Rectangular Cobalt 57 flood Source (740 MBq) (detector head size)
- 10.8 Cobalt 57 disc sources (100 uCi) for COR / IRC correction
- 10.9 Cobalt 57 Pen point Marker (100 uCi)
- 11 MOD/ EOD/ DV D Writer for data archive
- 12 Color Laser Printer
- 12.1 Up to 20 pages per minute black and color printing
- 12.2 4800 Image quality
- 12.3 160 MB RAM
- 12.4 3 paper trays
- 12.5 PostScript printer drivers for UNIX, LINUX, Windows and MAC
- 12.6 10/100 Base T Network Card with network cable
- 13 B & W Laser Network Printer
- 13.1 Up to 24 pages per minute 600 x 600 black & white printing
- 13.2 128 MB RAM
- 13.3 2 paper trays
- 13.4 PostScript printer drivers for UNIX, LINUX, Windows and MAC
- 13.5 10/100 Base T Network Card with network cable
- 14 Dose Calibrator / Gamma Well Counter
- 14.1 Console (9 pre-defined isotopes and 5 user defined)
- 14.2 Ionizing chamber with shielding (1/8 inches)
- 14.3 Well counter thin wall, deep well, high pressure Argon gas
- 14.4 Max. Activity = 240 GBq
- 14.5 Well Detector: Drilled NaI crystal detector, Max count rate 60,000 cps
- 14.6 Serial port with software
- 14.7 Auxiliary display with cable
- 14.8 Data printer
- 14.9 Ticket Printer
- 15 Survey Meters
- 15.1 Portable Survey Meter with external GM probe (0-20 mR/h)
- 15.2 Portable Survey Meter with external GM probe (0-200 mR/h)

- 16 L Shield
 - 16.1 18.5" w x 17.25"d x 26" h
 - 16.2 ¼" Lead Glass
 - 16.3 ¼" Lead shielding
- 17 Lead Bins
 - 17.1 Foot operated waste bins
 - 17.2 ¼" thick lead lining
- 18 Syringe Shields
 - Tungsten (2 mm) Syringe shields with lead glass window and safety lock
 - 18.1 For 3CC Syringes
 - 18.2 For 5CC Syringes
 - 18.3 For 10CC Syringes
- 19 Transporter Shielded Syringe Carrier
 - 19.1 1/8 inch lead lined. Size 7x3x3 inches
- 20 Lead Goggles
 - 20.1 Lead Equivalent: 0.75mm front; 0.75mm side
- 21 Lead Gloves
 - 21.1 Flexible vinyl cover
 - 21.2 0.5mm Lead protection
 - 21.3 15" length
- 22 Lead Lined MIBI Boiling Apparatus
 - 22.1 Automatic boiling apparatus
 - 22.2 ¼ inches thick lead casing
- 23 Lead Aprons
 - 23.1 0.5" front, 0.3" back lead wrap around aprons
- 24 Injection stand with Instruments Tray
 - 24.1 Chrome Plated Steel with Adjustable Height (30-45 inches)
- 25 Lead Lined Safe for storage of sealed sources:
 - 25.1 Dimensions: 17.4" w x 17" depth x 19" h (44.2 x 43.2 x 48.3cm)
 - 25.2 I.D.: 12" w x 12" depth x 12" h (30.5 x 30.5 x 30.5 cm)
 - 25.3 Lead Shielding: 2" thick (5 cm)
 - 25.4 Finish: Powder coat
 - 25.5 Door: Key-locked
- 26 Lead Castle U shaped:
 - 26.1 25mm lead protection
- 27 Lead Lined Phantom Cabinet for storage of Flood Sources
 - 27.1 Dimensions: 8.2" w x 25.6" depth x 34.2" h (11.6x 25.1x 36 cm)
 - 27.2 Lead Shielding: .25" thick (.64 cm)
 - 27.3 Door: Key-locked
 - 27.4 Countertop: Stainless steel with 4" backsplash and .5" spill proof lip
 - 27.5 Finish: Powder coat
- 28 Stainless Steel Top Table: 75x75x45 cm
- 29 Treadmill:
 - 29.1 Complete Stress test system as per approved SPECS
- 30 Bicycle Ergometer:
 - 30.1 Maximum Energy upto 400 Watts
 - 30.2 Programmable protocols with 5-50 Watts increments

- 31 Three Channels ECG machine with interpretation software.
 - 32 Volumetric Infusion Pump:
 - 32.1 Battery Powered
 - 32.2 Flow rate: 1-999.9 ml/hour
 - 32.3 100 compatible infusion sets
 - 33 Cardiac Defibrillator with monitor and ECG recorder, Biphasic, Colored Screen
 - 34 Transcription System
 - 34.1 Desk set with head phone and foot pedals
 - 34.2 Digital Hand Recorder
 - 35 Power Requirements:
 - 35.1 Complete electrification work and earthing of equipment.
 - 35.2 All equipment for 220 V 50 Hz power supply
 - 36 Documentation
 - 36.1 All English user manuals (Soft and Hard Copies)
 - 36.2 All English service manuals (Hard Copies)
 - 37 Upgrades/ Bug Fixes
 - 37.1 Free upgrades and bug fixes in warranty and maintenance contract period.
 - 37.2 The manufacturer will guaranty the availability of all parts for ten years after installation.
- Network switches (Giga bit)
 Isolator for radioisotopes (amercare/Biodex/LamerPax)
 Aluminum Breakthrough Kit
 Cardiac Phantom
 QC Kit for dose calibrator
 Lead lined ventilation apparatus with 100 mobilizing sets
 Radioactive decontamination kit
 Desktop PCs with licensed Window, MS Office and antivirus software
 Sharps container shield
 Mobile radiation shield
 Fridge Capacity: 12 CFT for cold kits
 Fire extinguisher
 Digital personal radiation monitors
 Patient screen
 DVDs for data archiving
 External Hard Disks for data archiving (1 TB).
 Storage and disposal of radioactive vial and waste facility.(3 x 3 x 2)(L x W x H)

Accessories:
 Complete system with all equipment of hot lab.

Optional (If any):