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| Clinical Specialty | **Cardiology** |
| Generic Name | **High End Mobile Echocardiography Machine**  |
| Clinical Purpose | High End Echocardiography Machine used for advance cardiac evaluation with special features. |
| **TECHNICAL SPECIFICATIONS** |
| The high-end machine is defined as the one which has all the latest modalities of Cardiac Echocardiography capabilities defined by the leading International Echocardiography societies. This quoted model for the Echocardiography Machine must be latest and Top- End / Top of the Line for the said category / specifications.1. A complete dedicated digital Echocardiography unit for wide range of premium performance application of cardiovascular imaging in paediatrics andadults
2. Wheel based Mobile Trolley mounted system with user friendly Ergonomics, adjustable Height, and sideways easymaneuverability
3. Built in workstation / data management system for digital acquisition, storage and review of complete cardiac ultrasound studies including static and dynamic clips in DICOM format, read / writezoom
4. Studies can be reviewed, and output should be stored to CD / DVD /USB
5. The machine must have sharp and high-quality image reproduction with heavy duty performance

**Operating Features and Characteristics:**1. Display Resolution: Full High Definition 1920 × 1080, non-interlaced, flicker free, Tilt- able, and Swivel-abletype
2. Minimum Display Size: 21” or better LCD / LED /OLED
3. Operating & DisplayModes:
4. 2DB-Mode
5. 2DM-Mode
6. 2D-CDIMode
7. 2D-CDI -DopplerMode
8. 2D Tissue /Mode
9. Color M-Mode
10. Anatomical M-Mode
11. SpectralDoppler
12. ColorDoppler
13. Velocity Mode
14. Doppler (PW &CW)
15. Duplex and TriplexDoppler
16. CW DopplerSteerable
17. ECGGating
18. PW / HPRFDoppler
19. Intima Media Thickness(IMT)
20. Tissue HarmonicImaging
21. Myocardial 2D - Strain Imaging / Tissue Tracking (Tissue Doppler based / Speckle Tracking based)
22. Stress Echo Mode (Physical andPharmacological)
23. Transesophageal Echo
24. Vascular Calculations /IMT
25. Tissue Synchronization ImagingMode
26. Tissue Velocity Imaging Mode / CRT Evaluation Tool / Tissue Doppler ImagingMode
27. 2D Angio Flow / Power DopplerImaging
28. Color Flow / Color DopplerImaging
29. CardiacMeasurements
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| **On Board Review Display Formats:**1. Live and Stored Display Format: Full size and splitscreen
2. Post Processing of images and Biometry of Storedimages
3. Review Image Format: For still and cine, simultaneous capability B+PW, B+ CFM / CDI (TVI / TDI)+PW, CW, B+ or triplex mode, B+ color split screendisplay

**Control Panel:**1. 12” touch screen.
2. Alphanumeric keyboard with built-intrackball
3. Direct access to system functions through dedicatedkeys
4. Indicator lights identify activatedkeys
5. Audio volume control with bidirectional / stereo speakers and footswitch
6. User selectable image magnificationcontrol
7. Adjustable transmit focusingcontrol
8. Time Gain Compensation controls (6 ormore)
9. Total and / or Lateral Gain Compensation controls (6 ormore)

**Caliper / Measurements:****21.**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 acceleration1. Artificial Intelligence / Auto Measurements for 2D (Diameters, Areas and M-Mode Based / Volumatic Ejection Fraction (EF) Calculations) and Doppler Spectrum Recognition should beavailable

**Application:**1. Cardiac, Peripheral, Paediatric, Adult Cephalic, Carotids, Peripheral Venous, Vascular, and Transesophageal with all required software formeasurements

**Frame Rate:**Machine to be quoted with maximum available frame rate.**24.**2000 f / sec or more in B-Mode and / or 400 f / sec in Doppler mode**Cine Memory:****25.**Minimum Cine Memory for 2,000 frames or 500 Mb or better**Image Viewing Depth:****26.**20 – 280 mm or more for Cardiac Application**Imaging Modes / Techniques:**1. 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 quantity myocardialfunction)
2. Capability to display time difference in myocardial motion in color for CRT (Cardiac ResynchronizationTherapy)
3. Quantitative Strain Rate Imaging (Doppler & Speckle Tracking Rate): An advanced quantitative technique of Tissue Doppler Velocity of at least two chambers ormore
4. Strain Rate (A measure of the contractile motion ofMyocardium)
5. Contrast Harmonic Imagingcapability
6. Vascular imaging software for carotids with IMTmeasurement
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| **Stress Echo Mode (Physical and Pharmacological):**1. Integrated multistage stress echo system for advance and flexible stress echo Acquisition and measurement for LV B-Modeimaging
2. Quantitative analysis for contrast during stress examinations used with TDI / TVI protocols

**System Requirement:**1. Storage Device: Built-in USB / CD / DVDDrive
2. Dynamic Range: Minimum 300 dB ormore
3. Communication Software: System should conform to DICOM 3 communication software for Image Storage, Print, Query / Retrieve, NetworkCommunication
4. Permanent Licensed DICOM 3 Communication Software must be installable on External Individual Computer

**Probes:**1. 4 active transducers connectors for Trans-Thoracic, Transesophageal Probes and one for CW Pencil Probe
2. Should be light weight, capable of multiple center frequencies on transmit for 2D, Color Doppler PW, CW (Steerable) Imaging and to performHarmonics

**Other Parameters:**1. Operating Requirement: AC 220 V & 50Hz
2. Online pure sinewave UPS (Recommended by manufacturer) for at least 30 mins or better operational backup time for complete unit includingPrinter

**Communication:**1. Networking DICOM Enabled: System must be compatible with Picture Archiving & Communication System (PACS) / Hospital Information System (HIS) / Radiology Information System (RIS)(The Procuring Agency and End-user todecide)
2. Export Formats: PDF / JPEG, BMP / MPEG, AVI / Window Media, DICOM, RAW DICOM
3. ThesystemmusthaveprovisiontoattachExternalMonitorviaUSBor

VGA/HDMI/DVI |
| **Accessories:*** Complete with standardaccessories
* Linear Probe multi frequency to cover frequency of 6.0 – 8.0MHz
* Multi frequency Phased Array Sector Probe to cover 2.0 / 2.5 – 4.0 MHz

(SingleCrystal / Matrix)* Multi frequency Phased array sector probe to cover 5.0 – 8.0MHz
* Digital B / W Thermal Printer with 50 rolls ofpapers
* Gel 20 L in bottles as per manufacturer’srecommendation
* Operational & ServiceManual
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