TECHNICAL SPECIFICATIONS 60 mA mobile x-ray unit

X-Ray Generator: 60mA – 100KVP, High Frequency (40 KHz) X-Ray Generator (40 KHz) X-Ray Generator. **Output: 2.5KW**
mAs: Up to 200mAs
KVP Range: 40 to 100KVP.

**Control:**
- Attractive & Ergonomically designed Control Panel with total Soft Touch Switches for various operations.
- KV Increase & Decrease Switches.
- MAs Increase & Decrease Switches
- Machine ON/OFF Switch.
- Bucky Selection Switch.
- Collimator Lamp 'ON' Switch.
- Stand by & Exposure Release Switch.
- Self diagnostic Program with indicators for:
  - Earth fault Error
  - KV Error
  - Filament Error
  - X-Rayon Indicator.

**Tube Head:**
Monoblock version, Stationary Anode X-Ray Tube, Focus 1.4 mm².

**Accessories:**
- Hand Switch with retractable cord.
- Aluminum filter.

**Stand:** Spring Balanced Mobile Stand very light in weight with Tube arm for easy to maneuver and smooth movements of the tube head in vertical plane should be provided. Lead lined cassette storage box. The stand should be able to achieve tube focus to floor distance 75 inch and tube focus to tabletop distance 46 inches. The equipment should occupy minimum floor area and should be capable to be taken through elevator with ease. The tube arm should be able to swivel in the range of ± 90° (total 180°) for taking radiography on both sides of the machine without moving it.

**Power Requirement:**
230 Volt AC, 50Hz, Single Phase. Max. Allowable Line Regulation ± 10%.

**Other Requirements:**
The Manufacturing company should be ISO Certified.
The unit should be approved by BIS and AERB.
300mA X-RAY MACHINE WITH MOTOR DRIVEN TABLE

X-RAY GENERATOR
- The x-ray generator should be of 2 pulse 24KW full wave rectified.
- The x-ray control should have digital display of KV, mA and mAs.
- The radiography KV should be upto 125KV.
- The radiography rating should be: 6mA stations on large focus & 6 on small focus Le. 50, 100, 150, 200, 250 & 300mA.
- The exposure time should be of 96 steps Le from 0.01 to 5.0 seconds.
- The radiography mAs should be on large focus from 0.5 to 975 & on small focus from 0.5 to 725mAs.
- The techniques selector switch should be provided for selecting table radiography/bucky/spot fluoroscopy, etc.
- The fluoroscopy KV should be from 40 to 100KV and fluoroscopy mA should be from 0 to 5mA stepless.
- The voltage indicator should be provided which indicates low/normal/high voltage.
- The generator should have micro processor based electronic overload system.
- The generator should have dynamic range control with which maximum mAs can be achieved at specific KV and mA.
- The spot film work should be possible on any mA station Le. both on large and small focus.
- The x-ray tube should be rotating anode of 20/40 KW.

MOTOR DRIVEN TABLE:
- The table should be all positioned motor operated table Le from +90 deg. to -15deg. trendlenburg.
- It should have automatic stop at horizontal, vertical and trendlenburg position.
- The table should have arrangement for manual operation in case of power failure.
- The motorized bucky with grid of 17 'X1" x 18 '% 8: 1 1 03 lines should be provided. The bucky tray should accept cassettes up to 14 x 17 size.

SPOT FILM DEVICE:
- It should be mounted on table.
- It should consists of 14 x 14 fluoroscopy screen, lead glass and grid of ratio 6:1 inches/inches.
- It should be capable of taking 4 spot on 8" x 10" and 1 spot on 10" x 12" cassette.
- The spot film device should have lateral parking.

COLUMN STAND:
- It should be floor to ceiling column stand with vertical counter balanced travel.
- It should have 360deg. rotation.
- It should have manual locking for various movements.

OTHER REQUIREMENTS:
- The manufacturing company should be ISO 9001: 2000 certified.
- The unit should be approved by BIS and AERB certificate should be enclosed.
SPECIFICATION OF HIGH FREQUENCY X-RAY MACHINE [500MA] WITH BUCKY TABLE with CR system

X-RAY GENERATOR
- The X-ray generator should be high frequency 32 KW.
- The x-ray control panel should be feather touch.
- The x-ray control should have digital display of KV, mA and mAs.
- The radiography KV should be 40 to 125KV in steps of 1KV.
- The radiography rating should maximum 500mA to 10mA.
- The exposure time should be from 0.01ms to 10.0 ms.
- The radiography mAs should be 0.1 to 500mAs
- The APR should be 216
- The control should have programmed protection for x-ray tube.
- It should have automatic line voltage compensation.
- The control should have anatomical program selection for various body parts with body type
- The generator should have micro processor based electronic overload system.
- The X-ray tube should be rotating anode of 0.6 & 1.5 mm focal spot
- It should have self diagnostic circuit with error code reporting

COLUMN STAND:
- It should be floor to ceiling column stand with vertical counter balanced travel.
- It should have 350deg. rotation.
- It should have manual locking for various movements

TABLE:
- Four way floating table top with electromagnetic locks.
- The motorized bucky with grid of 17 ¾” x 18 ¾” 8:1 85 lines should be provided.
- The bucky tray should accept cassettes upto 14 x 17 size.
- The sliding movement of the top longitudinal and transverse should be specifying.

VERTICAL BUCKY:
- Standalone vertical motorized Bucky with counter balanced height adjustment with grid is of size 17 ¾” x 18 ¾”, 8:1 ratio.

SPECIFICATION FOR COMPUTED RADIOGRAPHY.
- Should be compact size of the reader features improved versatility and simplified functions for more practical and efficient operations. Processing capacity should higher than 40 IPs/hour for 14 X17 inch IP.
- The system should be a single-cassette reader with automatic feed/load mechanism resulting in an efficient operation for streamlined workflow.
- Image processing parameters should be automatically selected through the anatomical region selection menu.
- System Should be integrated with the console unit, making it possible to network with other devices.
- Reading: 10 pixels/mm
LASER IMAGER

Dry laser imaging should be possible to new levels offering outstanding performance, remarkable efficiency and superb quality, fulfilling all your medical imaging needs.

- Touch panel operation system
- Should Offer upto 3 sizes online 35 X 43 cms, 26 X 36 cms and 18 X 24 cms online.
- Should Print at about 180 prints / hour for 35 X 43 cms films
- Automatic calibration and unrivalled image quality.
- Built in hispeed DICOM server should allow direct communication with any other modality linked to the network, setting new standards in convenience and versatility.

DICOM Workstation

ImageWorks is DICom 3.0 compliant.

Detailed Features:

Image Viewing

- Multiple Series & Image Viewing.
- Any format image view.
- Multiple Patients view at a time.
- Image Comparison.
- Image export to DICOM as well as JPEG and BMP.
- Import Images from CD, Hard Disk, Pen Drive, etc.
- Zoom in and Zoom Out option at the same can be applied on single image as well as all the Images at the same time.

Measurement

The measurement package includes, Advanced ROI selection tools, Distance & area calculation in regular & irregular shapes. Angle measurement, Image Filters, etc.

Annotations

Straight line, Circle, Freehand Draw, Text Rectangle, Arrow, Body Marks, Standard & Customisable annotations

Zooming

In IMAGEWORKS the images should be zoomed to 400 %. It should have magnifier for detection of fractures & other problems.
Import – Export Images
- Export images to non DICOM format like bmp, jpg etc
- Import non DICOM images like bmp, jpg etc

Reporting
Reporting possible for different modalities.

Image Printing
1. Smart Printing
   - Adjustable layout
   - Patient Photo on Film
   - Customized footer
   - Scale on image border
   - Multi Modality printing - CR, CT, MRI, Ultrasound etc images on single film
   - Create your own formats
   - Can Invert the Images and Print.

2. Windows Printing
   - Print on any windows compatible laser / Inkjet printer
   - Pre-fed formats
   - Multi Modality colour printing - CR, CT, MRI, Ultrasound etc images on single film

3. Dicom Printing
   - Print on any format supported by Dicom Laser / Thermal Printer.
   - Zoom in Print window
   - Window Adjustment in print window
   - Printer Compatible film footers & headers
   - Multi Modality printing - CR, CT, MRI, Ultrasound etc images on single film.

Dicom Communication
- Dicom Receive
- Dicom Store
- Dicom Echo
- Dicom Print

DICOM Media
- Create a DICOM CD(DVD optional) with autorun facility & DICOM viewer on CD
- Advance DICOM viewer with facilities like image measurement, Window adjustment, Chroma, grayscale inversion, zooming, panning etc.
- Read DICOM CD
- Backup database on hard disk, CD etc

UPS : Suitable UPS with 30 minutes backup should be supplied.
## Accessories to be supplied along with the main system:

<table>
<thead>
<tr>
<th>S.L No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Reader Unit</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Console Unit with 17&quot; LCD Monitor with Bar code reader</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Imaging Plates Size: 8&quot; X 10&quot;</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Imaging Plates Size: 10&quot;X14&quot;</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Imaging Plates Size: 14&quot; X 17&quot;</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>IP Cassettes Size: 8&quot; X 10&quot;</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>IP Cassettes Size: 10&quot; X 14&quot;</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>IP Cassettes Size: 14&quot; X 17&quot;</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Dry Laser Imager (with three sizes of the films online, 8” X 10”, 10” X 14”, and 14” X 17”)</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Work station (For Magnification printing and Multiple Image printing on film, CD writing with 17&quot; TFT Monitor)</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Mammo compatible cassettes with IP size 18x 24”</td>
<td>2</td>
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</table>

**Note:**
1. X-Ray unit should have AERB & BIS approval.
2. Digitizer & DRY Laser camera should be from one manufacturers only and should have CE & FDA approval, certificate should be enclosed.
COLUMN STAND:
- It should be floor to ceiling column stand with vertical counter balanced travel.
- It should have 350deg. rotation.
- It should have manual locking for various movements

VERTICAL BUCKY:
Standalone vertical motorized Bucky with counter balanced height adjustment with grid is of size 17 ¾" x 18 ¾", 8:1 ratio.

Configuration which should supplied along with X-Ray machine.
Hand grip, Foot rest, Foot switch, Compression band. Cones and scattered radiation guard should be supplied.

NOTE: SYSTEM SHOULD BE QUOTED WITH SUITABLE 9" IITV SYSTEM.

The supplied equipment should be confirmed by AERB safety code.