

# **SPECIFICATIONS OF HIGH FREQUENCY MAMMOGRAPHY MACHINE**

## **A) X-RAY GENERATOR**

- High frequency 20 KHz or more X-Ray Generator should be provided.
- Power of generator should be more than 3.5 KW or more
- Maximum mA output should be more than 100 mA or more
- K V Range should be 23 to 32 KV in steps of increment of 1 KV each/ or more.
- mAs Range for large filament should be from 4 mAs to 500 mAs or more.
- 1 No. High Voltage Cable should be provided.

## **B) X-RAY TUBE**

- Rotating Anode X-Ray Tube of BEL/Toshiba/Imported having dual focus, dual angle should be provided.
- Focal Spots:  
Small Focus= 0.1 mm<sup>2</sup>  
Large Focus=0.3 mm<sup>2</sup>
- Anode Heat Storage Capacity should be more than 150 KHU or more
- Tube Assembly Heat capacity should be at least 1.25 MHU

## **C) CONTROL PANEL**

- Micro Processor controlled Feather Touch Control Panel with LED display should be provided.
- Technique selection: Manual Two Point Technique (i.e. KV, mAs) should be possible.
- Anatomic Program for small, medium & Large breasts should be provided.
- More than 2 Step Film Density Control be provided.
- Automatic Exposure Control device should be provided
- Automatic selection of filter as per the KV selected (Molybdenum Filter and Rhodium) should be provided.
- **Following Digital display should be provided:**
  - Large format LED display on the stand -- compression force in Kg. compressed breast thickness and Gantry angle should be provided.

### **Breast Release mechanism in case of power failure:**

- Facility to manually release the breast or push to OFF type emergency switches should be available on both sides of gantry to release breast in case of power failure.

### **Below Safety feature should be provided:**

- Microcontroller based embedded platform to ensure accurate delivery of exposure parameters.
- Automatic compression locking after maximum compression of compression paddle.
- Electro Magnetic/Earthing interlock is provided in the machine for safety of user.
- Fast Compression release mechanism in case if patient is uncomfortable with compression.
- Automatic breast release after X-Ray exposure is completed.

## **D) STAND ASSEMBLY**

- A compact Stand having Iso-Centric movement on which C-Arm containing X-Ray Tube & Bucky Assembly is mounted should be provided.
- Vertical Movement (Motor operated) should be 600mm or more.
- Source to image distance (SID) should be 600mm or more.
- Breast Compression: Automatic compression with digital display of compression force should be provided. Adjustable compression force should be available. Automatic Compression release after Exposure completion should be available.
- Compression Paddles for Normal & Magnification Mode (Spot Compression) should be provided.
- Magnification Device: 1.5X or 1.8X should be provided.
- 18 X 24 cm Bucky & collimation plate with Motor operated Oscillating Grid 5:1, 30 lines/cm should be provided.
- Molybdenum Filter & Rhodium Filter Changer.
- Light Beam collimator with Halogen Lamp with Auto shut off facility should be provided.
- Cone for Localization & Radiation protection should be provided.
- Switches for up/down movement of gantry, placed conveniently on both sides of gantry should be provided.



**Separate foot control for gantry movements should also be available for hands free operation.**

- Hand Switch with Retractable cord for initiation of exposure should be provided.
- Film marking device & Alpha Number identification system should be provided.
- Free standing fully Transparent Lead Glass Screen for operator protection should be provided.

**E) POWER SUPPLY REQUIREMENT**

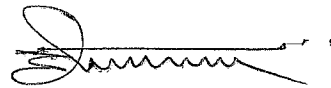
- Single Phase, 230 Volts  $\pm$  10%, AC, 50 Hz, 15 Amps with Independent earthing on the wall socket.

**F) Accessories :**

- 24 X 30 cm Bucky with Grid & collimation plate (Motor operated).
- Breast equivalent phantom

**G) Other Requirements :**

- The company should be ISO certified and machine and USFDA/European CE Certified
- The unit should be approved by AERB
- The company should have a local Service centre.
- The company should have proven track record in Govt. sector.
- Three year warranty from the date of installation
- The system should be quoted with guarantee of 3 year & CAMC of 7 year after completion of 3 years guarantee.
- 1.5 Ton split AC should be supplied with machine with complete installation (Hitachi / O-general / DAIKIN / Mitsubishi)



Executive Director (EPM)

Rajasthan Medical Services Corporation Ltd.,  
Jaipur

