



MX-300

## Unsurpassed Image Quality and Easy Operation

- Stable Output by The Inverter System
- Full AEC Mode (Auto kV)
- Auto Release Compression After Exposure
- High Performance Dual Focus System
- Highly Sensitive Fiber Grid Bucky Device
- 19 Step Density Control
- 2 Precise Collimation Formats



*icanview*

# MX-300 Mammography system

## Product Data

### DIAGNOSTIC MAMMOGRAPHY SYSTEM

# MX-300

## APPLICATION

This product is an X-ray radiography unit designed specifically for mammography.

## FEATURES

- The X-ray high-voltage generator that is equipped with a high frequency inverter system, provides high output and the beam quality best.
- Magnification radiography (1.5X) employs a micro focus X-ray tube, increasing diagnostic accuracy.
- The Automatic Exposure Control (AEC) system ensures mammography with stable film density.
  - ✓ The thickness and density of the compressed breast are detected, and the optimal radiography tube voltage is automatically set.
  - ✓ An AEC sensor position can be set. This allows the optimal AEC sensor position to be set according to the projection direction.
  - ✓ The AEC sensor size can be switched between large and small according to breast size. In particular, this function ensures stable AEC radiography for small breasts.
- The moving grid eliminates scattered radiation from objects, providing high-quality images.
- A molybdenum filter (0.03mm Mo) is provided to absorb unnecessary soft X-rays.
  - ✓ Mo filter covers low level kV range (22~35kV) and Mo



filter is useful for increasing image contrast in large breast with large amounts of glandular tissue.

- Both motorized and manual breast compression are available.
  - ✓ It is possible to display compression strength and thickness number on the operation and positioning panel behind the lead glass. The thickness shows where the compression plate locates when you press down the breast.
- The supporting C-Arm, with motorized vertical travel of 780mm, is designed for complete axial rotation (+180°/-160°), which makes MX-300 a fully versatile system.

## Product Data of Mammography MX-300

### Composition

#### (1) Radiographic table

- ◆ Stand
- ◆ X-ray Tube assembly
- ◆ Stand column assembly

#### (2) Generator and Lead Acryl

- ◆ H.V. Generator
- ◆ Controller

#### (3) Standard accessories

- ◆ Compression paddle for 18x24cm bucky
- ◆ Bucky device (18 x 24cm)
- ◆ Spot compression plate
- ◆ 2 precise beam limiting plates

- ◆ Film marking device
- ◆ Face protection guard
- ◆ A pair of foot switches

#### (4) Optional accessories

- ◆ 24×30 cm Film Cassette (Kodak Min R/R II)
- ◆ Bucky device for 24×30 cm
- ◆ Compression paddle for 24×30 cm
- ◆ Magnification device
- ◆ Hand switch
- ◆ Pb Acryl Plate

\* Kodak Min-R or Kodak Min-R II film cassettes for 18 x24, 24x30 bucky are strongly recommended since the calibration is being adjusted in the factory.

## TECHNICAL SPECIFICATIONS

### 1-1. Rating

#### (1) Rating at large focus

Tube voltage :	22 to 35KV
Max. tube current :	85mA
mAs :	1 to 600mAs

#### (2) Rating at small focus (for magnification)

Tube voltage :	22 to 35KV
Max. tube current :	15mA
mAs :	1 to 100mAs

### 1-2. H.V. Generator

H.V. generating circuit :	High Frequency Inverter type
High voltage ripple :	less than 1kV
Tube voltage raising time :	less than 2 ms

### 1-3. Controller

Method :	Microprocessor control, Digital display
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Radiographic mode : Manual and AEC mode

#### Automatic Exposure Control (AEC)

KV setting range :	22 to 35kV
Max. mAs :	100mAs at small focus 600mAs at large focus
Detector :	Diode
Density :	19 steps
mAs display :	Actual mAs value during AEC radiography is being displayed

### 1-4. X-ray tube

Type :	Beryllium window, Molybdenum rotating anode tube
Focal points :	0.1mm / 0.3mm
Anode Heat Storage :	300KHU
Target angle :	16 degrees
Inherent Filtration :	0.63mm Beryllium window

## Product Data of Mammography MX-300

### 1-5. Additional Filter

Kinds of additional filter : 30  $\mu$  m Mo

Switching method : Automatic switching by KV setting

Automatic Release : Available when exposure is completed

### 1-6. Radiographic table

#### Vertical movement of C-arm

Stroke : 780mm (The distance between 560mm to 1,340mm from floor to radiographic table at 0° position of C-arm)

Lock : By electromagnetic lock (Off-lock type)

#### Rotation of C-arm

Rotating range: Right 180° , Left 160°

Lock : By electromagnetic lock (Off-lock type)

SID : 600mm

#### Compression mechanism

Method : Manual / Electric & Micom control's compression

LED display : Display of Thickness & Compression force

Pressure plates: 2 kinds

Radiation field limiting mechanism : Display of radiation field. The field is illuminated by the light which is lighted by manual switch or by the activation of the down switch by decreasing the compression plate (30sec)

### 1-7. Standard accessories

Bucky device : - For 18×24 cm cassette size  
-Grid 4:1, 9line/inch, carbon fiber grid

Compression plate : 2 ea. for 18×24 cm cassette size

Collimator mask : 2 ea.

### 1-8. Optional accessories

Exposure hand switch

Magnification device

Magnification device : 1.5 X

Cassette size : 18×24 cm

Bucky Device and Compression paddle (24 x 30 cm)

RH Filter

Lead Acryl (Pb Acryl plate)

### 1-9. Power Supply

Voltage : Single phase, 200-230Vac , 50/60Hz

Apparent power : 6KVA

### 1-10. Operating condition

Ground

Ambient temperature : 5 to 40° C

Atmospheric pressure : 70 to 106KPa

## Product Data of Mammography MX-300

### DIMENSIONS AND MASS

Unit	Net					
	Dimensions (L x W x H)					Mass
	mm (in)					Kg (lb)
C-arm stand main unit	940	x	540	x	1,880	220
	(37	x	21	x	74)	(485)
X-ray high voltage generator (Control unit)	380	x	600	x	900	80
	(15	x	23.6	x	35.4)	(176)

### INSTALLATION CONDITIONS

#### Power requirements

- Single phase AC power supply

Nominal line voltage	200-230 V, 1 $\phi$
Line frequency	50/60 Hz
Allowable voltage fluctuation range (without load)	Within +/-10% of the nominal line voltage shown above
Allowable line impedance	0.36 $\Omega$ or less for 220V
Recommended line capacity	4.5kVA or more

- Maximum line current : 25A at 220V – 10%

#### Grounding (3 earthling type)

Grounding must be provided in accordance with all applicable legal requirements for medically used electrical equipment.

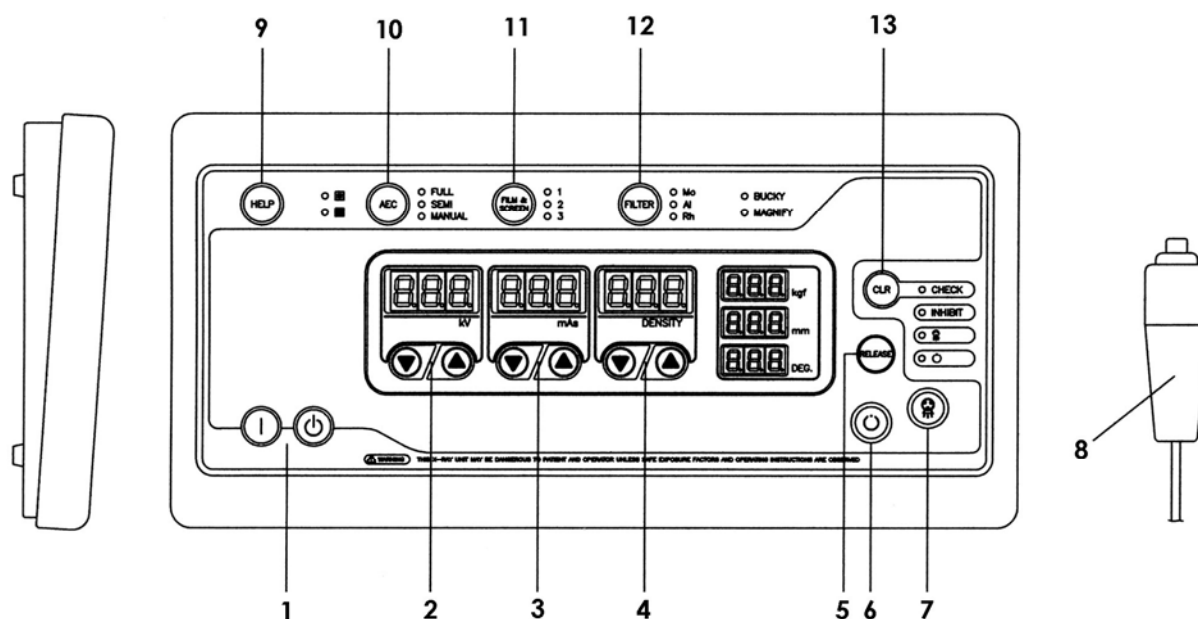
#### Ambient conditions

- Operating conditions
  - ✓ Temperature : 10°C to 40°C
  - ✓ Relative humidity : 30% to 50%
  - ✓ Atmospheric pressure: 700hPa to 1060hPa
- Transport and storage conditions (while packed)
  - ✓ Temperature : -10°C to 40°C
  - ✓ Relative humidity : 10% to 90%  
(no condensation)
  - ✓ Atmospheric pressure: 700 hPa to 106 0hPa

Caution: MX-300 must not be used in an explosive gas environment.

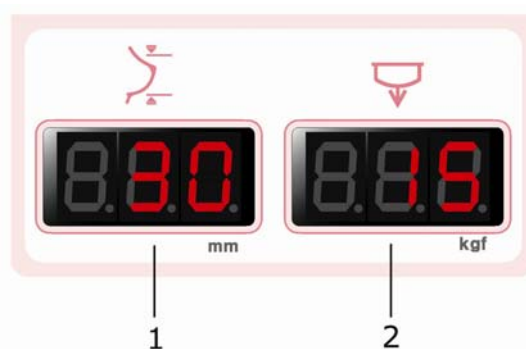
## Product Data of Mammography MX-300

### Control Panel



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|-------------------------------|------------------------------------|
| 1. Power switch               | 8. X-ray hand switch (Option)      |
| 2. kV setting switch          | 9. HELP switch                     |
| 3. mAs setting switch         | 10. AEC setting switch             |
| 4. DENSITY setting switch     | 11. Film sensitivity select switch |
| 5. Compression release switch | 12. Filter select switch           |
| 6. READY exposure switch      | 13. CLR switch                     |
| 7. X-Ray exposure switch      |                                    |

### Compression and Thickness Display Unit (Factory option)



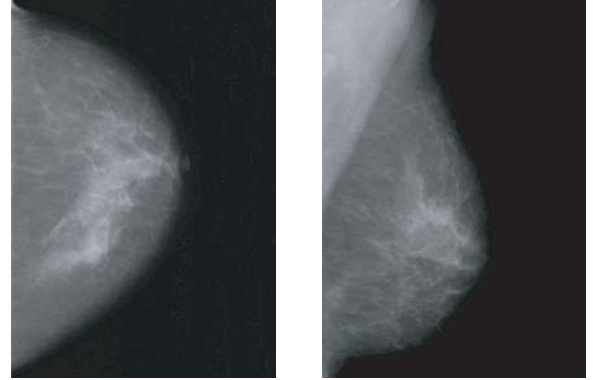
1. Thickness display (when compressed)
2. Compression force display (Max 20kg)



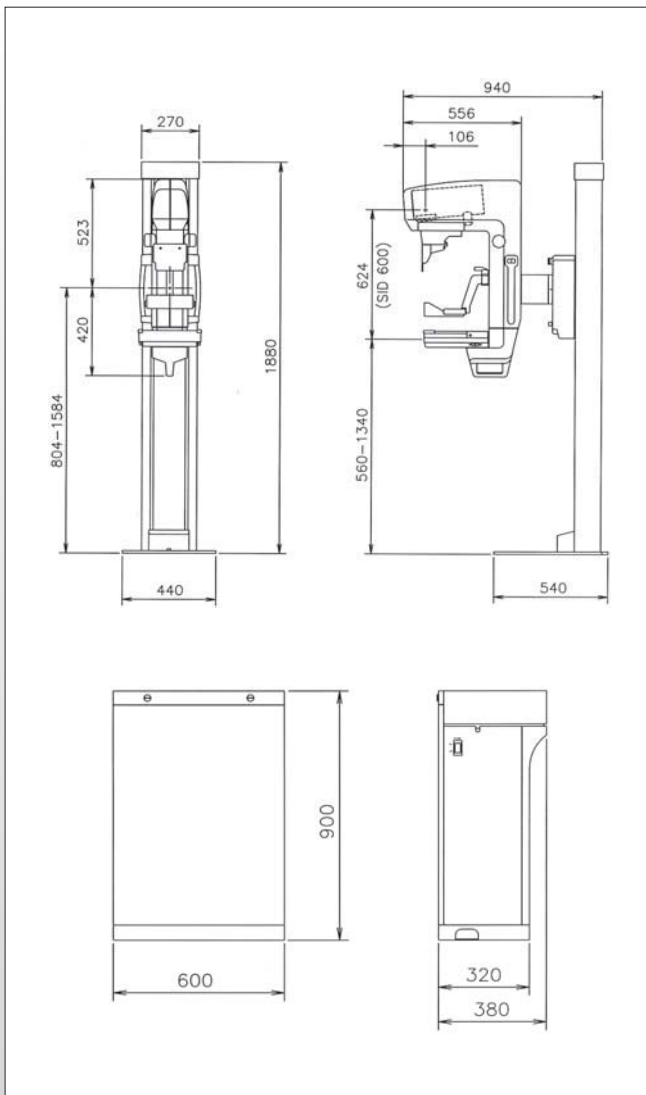


## Intelligent Automatic Exposure Control (AEC)

With the Automatic Exposure Control system, it is possible to produce images with reliable intensity suitable for any film, screen, or method of radiography. Furthermore, it greatly enhances the convenience of radiography by embedding the Full-AEC function which is capable of utilizing the Auto kV.



## Dimensions



## Specifications

### Generator

Type	High Frequency Inverter
Radiographic Ratings	Large Focal Point 22-35kV / 1-600mAs Small Focal Point 22-35kV / 1-100mAs

### X-ray Tube

Focal Spot Size	Dual Focus 0.3 and 0.1 mm
Rotating Anode	Molybdenum(Mo) / 300KHU
Port Material	Beryllium(Be)
Filtration	Mo

### Radiographic Stand

C-ARM	Vertical 560-1340mm Rotation Right 180° / Left 160°
SID	600mm Fixed distance
Compression	Manual and Motorized (Max 18kg) Automatic or manual Release

### Bucky Device

Cassette Size	18 X 24cm
GRID	Reciprocating, 4 : 1 91 line/inch

### Automatic Exposure Control

Type	Solid-State Detector Microprocessor Control
Mode	Full / Semi / Manual
Density Adjustment	19 density steps

### Optional

24 X 30cm Bucky Device  
Magnification Device  
Compression Force and Thickness Display Unit  
Pb Acryl Plate  
Biopsy unit

### Line Voltage

200~220Vac, 50/60Hz, Single Phase