GE Healthcare

XR 6000

Analog Radiographic System

System Applications

The XR6000 is a general purpose radiographic system with high frequency generator, integrated table and wallstand, providing you the latest technology, and image quality with a small footprint.

Free–standing system with minimum room preparation time.

No ceiling support allows it to fit almost any room configuration.

Large travel range of tube, wide range of tube rotation, large patient coverage of table allows the XR 6000 to meet all of your clinical requirements.

Standard icons and user friendly interface provides the easiest way of using the system.

Features

- Auto tracking with mechanical linkage between the tube stand and the table cassette tray
- Auto centering cassette tray makes you easy to load the cassette
- Programmable APR 270
- AEC available for option
- Multiple grid available for different applications and different usages

Specifications

Table standard

- Integrated tube-stand support rails (2300mm length x 370mm height), that combined with table frame
- Table height: 695mm
- Front pedals with EM brake to lock and release the tabletop
- Standard cassette tray sizes: 8”x10”, 10”x12”, 11”x14”, 14”x17”, 17”x17”
- Cassette tray travel range 530mm
- Tabletop to film distance (OID) 55mm
- 3 Optional fixed grid offerings enhance the image quality: 40lp/cm, 60lp/cm, 78lp/cm 10:1 F100cm (range 85 ~ 120 cm); 78lp/cm grid is CR compatible
- Tabletop outside dimension 2100mm x 850mm
- Patient coverage 1800mm x 581mm
- Maximum tabletop filtration: less than 0.7mm @100kV aluminum equivalent
- Four way floating tabletop with +/-425mm longitudinal and +/-110mm lateral range
- The maximum load of tabletop 220kg (485lb)
- Table top lock electromagnetic

Advanced Table

- Integrated tube-stand support rails (2300mm length x 370mm height), that combined with table frame
- Table height: 695mm
- Front pedals with EM brake to lock and release the tabletop.
- Standard cassette tray sizes: 8”x10”, 10”x12”, 11”x14”, 14”x17”, 17”x 17”
- Cassette tray travel range 530mm
- Tabletop to film distance (OID) 75mm
- Optional Bucky: Motorized oscillating (dynamically balanced) Associated with a table grid: 36 l/cm 12:1 F100 cm (range 88 ~ 116cm)
- Tabletop outside dimension 2100mm x 850mm
- Patient coverage 1800mm x 581mm
- Maximum tabletop filtration: less than 0.7mm @100kV aluminum equivalent
- Four way floating tabletop with +/-425mm longitudinal and +/-110mm lateral range
- The maximum load of tabletop 220kg (485lb)
- Table top lock electromagnetic

Tube stand

- Cassette movement track the tube stand within the range of cassette travel, automatic centering.
- Longitudinal motion 1710mm
- Tube focus height: 555mm-1760mm
- Travel range 1205mm
- Tube stand with rotation +/-180 deg
- Tube tilt –30deg to +20deg
- Tube rotation (+/-) 120degree locked @ any angles
- Maximum SID (source to image distance) with table application 1100mm

Wallstand standard

- Vertical motion (from cassette center to ground)
  500mm (lowest point)
  1760mm (highest point)
  Vertical travel range 1260mm
- Mechanical lock for carriage can be locked (any position)
- Cassette tray housing assembly with fixed grid and ion chamber
- Object to film distance 40mm
- Column Maximal Height 2060mm
- Standard cassette tray sizes: 8”x10”, 10”x12”, 11”x14”, 14”x17”, 17”x17”
- 3 Optional fixed grid offering enhance the image quality: 40lp/cm , 60lp/cm, 78lp/cm 10:1 F180cm (range 138 ~ 259 cm); 78lp/cm grid is CR compatible

Wallstand advanced

- Vertical motion (from cassette center to ground)
- 500mm (lowest point)
- 1760mm (highest point)
- Vertical travel range 1260mm
- Vertical movement can be locked by EM brake at any position
- Cassette tray housing assembly with Bucky and ion chamber
- Object to film distance 55mm
- Column Maximal Height 2060 mm

- Standard cassette tray sizes: 8”x10”, 10”x12”, 11”x14”, 14”x17”, 17”x17”
- Bucky: Motorized oscillating (dynamically balanced) Associated with a wallstand grid: 43 l/cm 10:1 F180 cm (range 138 –257cm)

Console

The console is designed for maximum productivity with a simple user-interface. Touch sensitive input and LCD display for output. There is also an audible confirmation of each entry.

- Power-on/Power-off control of the system
- Programmable APR
- AEC and density selection
- Patient size and focus spot selection
- Receptor and view selection
- Previous exposure parameter display
- Technique parameter (kV, mAs, mA, mSec) display and adjustment buttons
- Exposure, System Ready, Tube-warm warning LED, Inhibit, Power indicators
- Error information and dose display
- Audible prompt and alarm
- Hand-switch or button for preparation and exposure operation
- Console power-on self-diagnosis (memory, membrane key)
- Optional console column allows the easy installation on the floor with small foot print

Image quality

The carefully designed image chain provides high Resolution imaging technology for general radiography. Image resolution is no less than 4.0lp/mm.
Additional filter 1mmAl & 2mm Al is an optional feature that could filter out the undesired portion of the X-ray spectrum and substantially reduce the radiation dose delivered to the patient to improve the image quality.

AEC (optional)

The AEC function is able to control film screen combination from sensitivity 100 to 800.
The product of X-Ray tube current and exposure time will not be more than 600mAs per exposure in AEC mode.

HF Generator

This system is available with a high frequency 50KHz generator.
Normal Output Power: 50 kW
KV 40 to 150 in 1 KV increments (Unless Tube Limited)
mAs: 0.50- 630 in (Max is 600mAs for AEC) Renard scale
mSec: 1.0 to 6300ms, in Renard scale
mA: mA selection consists of the following: 10-630 in Renard scale

50KW Tube Housing Features

- Shock proof housing is to minimize leakage radiation.
- Housing filled with insulating oil specially formulated to meet the requirements of high-voltage X-Rays.
- Ambient Operating Temp 10 ~ 40°C
- Ambient Transport Temp –20 ~ 70°C
- Natural air cooling
- Pressure switch inhibits exposure if oil pressure reaches a preset limit
- IEC 60526 standard high-voltage cable receptacle labeled anode and cathode.
- Integrated system design and Collimator minimizes off-focal spot radiation

50KW Tube Insert Features

- Specially processed Rhenium-tungsten faced molybdenum target minimizes surface distortion for consistent image quality, and provides increased radiation output.
- Special treatment of inner surface of glass envelope improves high-voltage stability for consistent techniques.
- Glass envelope facilitates "near" unidirectional heat radiation from target to the interior of the housing for improved heat dissipation.
- High thermal emittance oxide coating on anode and rotor provides high anode heat dissipation rate for improved loading, cooler bearings, and increased tube life.
- Bearing assembly and bearing lubricant system are specifically designed for long life under extreme X-Ray operating conditions. Bearing design allows longitudinal thermal expansion of shaft with no increase in friction.
- Special anode and cathode design minimizes metal deposits.

50KW Tube Specifications

- Focal Spot Sizes 0.6 mm/1.2 mm
- Target Angle 12°
- Maximum Voltage:
  - anode to cathode 150 KV rectified
  - anode or cathode to ground 78 KV
- Minimum tube permanent Filtration: 1.3 mm aluminum equivalent @ 75 kV
- Anode rotation speed
  - 2700 RPM @ 50Hz
  - 3200 RPM @ 60Hz

50KW Tube Thermal Ratings

- Heat Storage Capacity:
  - Anode 111,000 Joules, (150,000 heat units)
  - Tube Housing 900,000 Joules (1,250,000 heat units)
- Maximum Heat Dissipation Rate
  - Anode 40,020 heat units per min. (475 Watts)
  - Tube Housing 15,000 heat units per min., blower operating (180 watts).

Primary Source Input Power

- Primary source is required for all installations.
- Allowed nominal input voltages: 380, 400, 440 and 480VAC+/-10%, Three phase with or without neutral, normal frequency 50/60Hz.

Phase	3	3	3	3
Nominal Line Voltage (Vasc)	380	400	440	480
Voltage Range (Vasc)	+/–10%	+/–10%	+/–10%	+/–10%
Momentary Line Current (Amp)	110	105	95	88
Continuous Line Current (Amp)	7	6.7	6	5.5
Power Demand (kVA)	70	70	70	70
Frequency	47/53Hz and 57/63Hz			

Line Impedance Requirement

The apparent line impedance guaranteed by the customer should be equal or less than the values indicated below, according to the voltage value and the commercial power of the generator.

Voltage range (V) 3 phase	Line Impedance (ohms) 50kw
380	0.15
400	0.17
440	0.20
480	0.24
Note: 400-480 VAC impedance values are based on IEC 601-2-7 standard values are interpolated from values in standard	

Recommended

Parameter	**Three phase generator - 50kw**					
Input Voltage						
Wire Size Length	380 VAC	400 VAC	415 VAC	440 VAC	460 VAC	480 VAC
15 m (50 ft.)	10 mm^2 (#8 AWG)	10 mm^2 (#8 AWG)	10 mm^2 (#8 AWG)	10 mm^2 (#8 AWG)	10 mm^2 (#8 AWG)	10 mm^2 (#8 AWG)
30 m (150 ft.)	16 mm^2 (#6 AWG)	16 mm^2 (#6 AWG)	16 mm^2 (#6 AWG)	16 mm^2 (#6 AWG)	16 mm^2 (#6 AWG)	16 mm^2 (#6 AWG)
46 m (200 ft.)	22 mm^2 (#5 AWG)	22 mm^2 (#5 AWG)	22 mm^2 (#5 AWG)	22 mm^2 (#5 AWG)	22 mm^2 (#5 AWG)	22 mm^2 (#5 AWG)
60 m (100 ft.)	60 mm^2 (#3 AWG)	60 mm^2 (#3 AWG)	60 mm^2 (#3 AWG)	60 mm^2 (#3 AWG)	60 mm^2 (#3 AWG)	60 mm^2 (#3 AWG)

Recommended Wall"Circuit-Breaker"Ratings

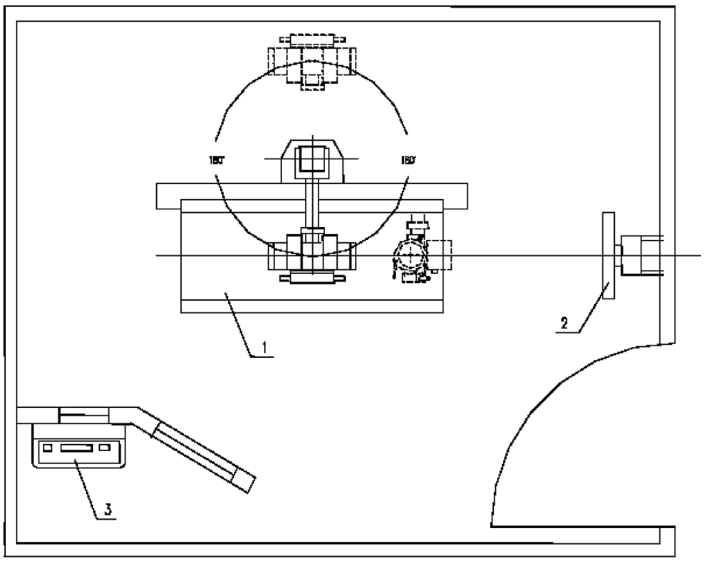
Power Voltage	50 kw
380 V	110 A / 600V
400 V	105 A / 600V
440 V	95 A / 600V
480 V	88 A / 600V

Room Considerations

Recommended room length 6000mm
Minimum room length 5300mm
(w column +/-180 degree rotation)
Minimum room length 5000mm
(w/o column +/-180 degree rotation)

Recommended room width 6000mm
Minimum room Width 4000mm
(w column +/-180 degree rotation)
Minimum Room Width 3000mm
(w/o column +/-180 degree rotation)

1 - Table
2 - Wall Stand
3 - Console



Environmental Conditions

Temperature

- Operating ambient temperature range: +10°C to +40°C. Maximum allowable temperature gradient of 10°C per hour.
- Non-operating ambient temperature range: -20°C to +70°C. Maximum allowable non-operating temperature gradient 20°C per hour.

Humidity

- Operating ambient humidity range: 30% to 80% relative humidity, non-condensing. Maximum allowable humidity gradient 30% RH per hour.
- Non-operating ambient humidity range: 20% to 90% relative humidity, non-condensing. Maximum allowable non-operating humidity gradient 30% RH per hour.

Atmospheric Pressure

- Operating ambient atmospheric pressure range: 700 hPa to 1060hPa.
- Non-operating ambient atmospheric pressure range: 500hPa to 1060 hPa.

Altitude

- Operating altitude range -100 meters to +3,000 meters relative to sea level.
- Non-operating altitude -100 meters to 15,000 meters to support non-pressurized air transport.

Regulatory Compliance

- CE Mark
- ITS/ETL Certification

GE Medical Systems, a General Electric company, going to market as GE Healthcare.

Healthcare Re-imagined

GE is dedicated to helping you transform healthcare delivery by driving critical breakthroughs in biology and technology. Our expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, and biopharmaceutical manufacturing technologies is enabling healthcare professionals around the world to discover new ways to predict, diagnose and treat disease earlier. We call this model of care “Early Health.” The goal: to help clinicians detect disease earlier, access more information and intervene earlier with more targeted treatments, so they can help their patients live their lives to the fullest. Re-think, Re-discover, Re-invent, Re-imagine.

GE Healthcare
No. 1 Yongchang North Road
Economic & Technological Development Zone
Beijing 100176
P.R. China

www.gehealthcare.com

imagination at work

DOC0297472 Rev6