

GE Healthcare

OEC* 9800 Plus

Technical Data Specifications



X-ray System

Generator

- 60kHz high frequency
- 15kW power
- Up to 120kVp
- Up to 75mA for radiographic film exposure
- Continuous high level fluoro (HLF) up to 20mA
- Digital spot up to 75mA
- Digital cine pulse
 - 15 pulses per second, 60 Hz
 - 12 pulses per second, 50 Hz
 - Up to 150mA
 - 10ms pulse width
- Full power from standard wall outlet
- Patented battery buffered design

X-ray Tube

- Rotating anode X-ray tube
- 0.3 and 0.6 nominal focal spots
- Anode heat capacity: 300,000 HU
- Anode cooling rate: 85,000 HU/min.
- Housing heat capacity: 1,600,000 HU
- 9" (23cm) Standard C-arm housing cooling rate 15,000 HU/min.
- 9" (23 cm) Super C-arm and 12" (31 cm) standard C-arm housing cooling rate 22,500 HU/min.

Digital Image Rotation

- Digitally adjusts image display
- Image update
 - Image rotation
 - Image reversal (side-to-side)
 - Image invert (top-to-bottom)
- Image positioning without additional exposure

PreView™ Collimator

- On-screen collimator position indication
- PreView™ iris collimator
- PreView™ Tungsten rotatable double leaf collimator
- Adjusts collimators without X-ray exposure

Fluoro Mode

- kVp range: 40 -120
- mA range: 0.2 - 10 normal mode
0.2 - 20 HLF (high level fluoro)
- Auto and manual fluoro modes
- AutoTrak™ ABS varies mA, kVp, camera gain

Pulsed Fluoro Mode

- kVp range: 40 - 120
- mA range: 0.2 - 10
- Pulse rate: 1, 2, 4, 8
- Pulse Width: 25 or 50ms
- AutoTrak™ ABS, mA, kVp, camera gain
- Reduces X-ray dose to patient and operator

High Level Pulsed Fluoro

- kVp range: 40 - 120
- mA range: 0.2 - 40
- Pulse rate: 1, 2, 4, 8
- Pulse width: 25 or 50ms
- AutoTrak™ ABS, mA, kVp, and camera gain

Digital Cine Pulse Mode

- kVp range: 40 - 120
- mA range: up to 150
- Pulse rate: 15 pps (60 Hz), 12 pps, (50 Hz)
- Pulse width: 10ms
- AutoTrak™ ABS, mA, kVp, camera gain

Digital Spot Mode

- kVp range: 40 - 120
- mA range: Up to 75
- Automatic exposure termination and automatic image save

Radiographic Mode

- mA range: up to 75
- mAs range: up to 300
- Computer controlled exposure time
- Optional Film Casette Holder
 - 10" x 12" (24cm x 30cm) for 9" I.I.
 - 14" x 14" (35cm x 35cm) for 12" I.I.

Video Imaging System

9" Image Intensifier

- Tri-mode 9"/6"/4.5" (23cm/15cm/11cm) image intensifier
- Minimum central resolution (at monitor):
 - 9" (23cm): 2.1 lp/mm
 - 6" (15cm): 2.9 lp/mm
 - 4.5" (11cm): 3.4 lp/mm
- DQE: 65% (typical)

12" Image Intensifier

- Tri-mode 12"/9"/6" (31cm/23cm/15cm) image intensifier
- Minimum central resolution (at monitor):
 - 12" (31cm): 1.5 lp/mm
 - 9" (23cm): 2.1 lp/mm
 - 6" (15cm): 2.6 lp/mm
- DQE: 65% (typical)

AutoTrak™

Automatic Brightness Stabilization (ABS)

- Automatically seeks the subject anatomy anywhere within the imaging field and selects the optimum imaging technique
- Automatically adjusts to anatomical size and location
- Provides uniform image quality throughout entire image
- Simplifies operation

Image I.Q.

- Smart Window
 - Dynamically senses the collimator position and automatically adjusts brightness and contrast to produce high image quality.
- Smart Metal
 - Allows user to adjust automatic brightness and contrast sensitivity levels to metal
 - Provides optimum image quality even when metal is introduced to the field
- Tungsten Collimator
 - Denser collimator limits X-ray exposure area
 - Reduces scatter radiation
 - Improves image detail

Video Camera

- High resolution 1k x 1k CCD camera
- Full frame capture
- Motorized rotation
- On-screen orientation indicator (real-time feedback without fluoro)
- Left-right image reversal
- Top-bottom image invert

Video Display

- Dual 16" (41cm) square monitors
- Anti-glare, progressive full frame scan monitor
- Touch screen system control
- 1,000 line high resolution monitors
- Ambient room-light compensation

Configurations

ESP Platform

- 1k x 1k x 16 bit image processing
- Noise filter with on-screen indicator
- Real-time variable edge enhancement
- Automatic digital brightness and contrast control
- Manual digital brightness and contrast control
- Negate mode
- Save and auto-save feature
- Swap and auto-swap feature
- Patient information
 - Examination list
 - Customized patient information
- Customize functions
 - Workstation set-up
 - Mainframe set-up
 - Patient information set-up
 - Date/time set-up
 - DICOM 3.0 interface set-up
- Last image hold
- 400 image storage
- Integrated DICOM interface (store, print, worklist)
- HIPAA SecureView®
 - Password protection
 - Blank screen function
 - Delete all
- Zoom and roam function
- Image annotation
- Measurement software

PMCare Platform

Includes all the ESP features and:

- Real-time Digital subtraction (DSA)
- Peak opacification
- 8fps Dynamic digital disk
 - Recording /playback rate: 1, 2, 4, 8fps
 - Recording time: 5 minutes @ 8fps

Vascular Platform

Includes all the ESP features and:

- Real-time subtraction
- Roadmapping
- Peak opacification
- Re-registration
- Variable landmarking
- Mask save/recall
- Auto cine loop playback
- Digital cine pulse mode
 - 15 pulses/sec
 - Up to 150mA
 - 10ms pulse width
- 15fps Dynamic digital disk
 - Recording/playback rate: 1, 2, 4, 8, 15fps
 - Recording time: 10 minutes @ 15fps (time depends on record frame rate)

Additional Features

Other Image Storage Options

- CD/DVD Writer digital interface (external)
- Integrated DICOM 3.0 interface

Hardcopy Options

- Integrated film/paper printer
 - No film developing required
 - 8" x 10" (20.3 cm x 25.5 cm) laser quality film/paper
 - Multi-format, 1, 2, 4 on 1
 - Multi-copy capability
- Thermal printers

User Interface

- Entire system is computer controlled and software upgradeable
- Touchscreen control simplifies operation
- Automated system operation requires minimum operator interface
- Multi-functional controls
 - Footswitch
 - IR remote (optional)
 - Hand-held control
- Simplified keyboard
- Multi-purpose image directory
 - Retrieve and review images
 - Compose hardcopy films
 - Copy images
- X-ray dose summary

Electrical

- Input power (60Hz or 50Hz) 9800 Plus
 - 100V @ 20 A (Japan)
 - 120V @ 12 A
 - 200V, 220V, 230V, 240V @ 10A

Regulatory Compliance

- U.S. 21 CFR Subchapter J
- NFPA 99
- UL 60601-1 (CSA/NRTL)
- IEC60601-1 (plus relevant Collateral and Particular Standards)

System configuration options

| Description | ESP | PM Care | Vascular |
|---|-----|---------|----------|
| Standard C-arm Assembly with 9"/6"/4.5" (23/15/11cm) I.I. | ● | ● | |
| Standard C-arm Assembly with 12"/9"/6" (31/23/15cm) I.I. | ■ | ■ | ● |
| Super C-arm Assembly with 9"/6"/4.5" (23/15/11cm) I.I. | ■ | ■ | |
| Rotating Anode X-ray Tube | ● | ● | ● |
| Tungsten Dual-Leaf Collimator | ● | ● | ● |
| Iris Collimator | ● | ● | ● |
| Pulsed Fluoro (up to 8pps) | ● | ● | ● |
| Digital Subtraction Angiography(DSA) | | ● | ● |
| Roadmapping | | | ● |
| Peak Opacification | | ● | ● |
| Re-Registration (Pixel Shift) | | | ● |
| Variable Landmark | | | ● |
| Digital Cine Pulse (15 PPS, Up to 150 mA) | | | ● |
| Digital Spot | ● | ● | ● |
| High Level Pulsed Fluoro (up to 40 mA) | ● | ● | ● |
| Radiographic Film Mode | ● | ● | ● |
| 1k x 1k x 16 Bit Image Processing | ● | ● | ● |
| Image I.Q. (Smart Window/Smart Metal) | ● | ● | ● |
| Measurement Software | ● | ● | ● |
| Digital Image Rotation | ● | ● | ● |
| Noise Filtering (Averaging) | ● | ● | ● |
| Digital Zoom and Room | ● | ● | ● |
| Real-time Edge Enhancement | ● | ● | ● |
| Image Annotation Function | ● | ● | ● |
| Multi-Purpose Image Directory | ● | ● | ● |
| X-ray Summary | ● | ● | ● |
| Static Image Storage | 400 | 400 | 400 |
| Floppy Disk Drive | ● | ● | ● |
| 8fps Dynamic Disk | | ● | |
| 15fps Dynamic Disk | | | ● |
| 9" I.I. (23cm) Laser Aimer/Image Localizer | ■ | ■ | |
| 12" I.I. (31cm) Laser Aimer/Image Localizer | ■ | ■ | ■ |
| IR Remote Control | ■ | ■ | ■ |
| Sony UP-D72XR Instant Film/Paper Printer | ■ | ■ | ■ |
| Sony UP970 Thermal Printer (prints dose summary) | ■ | ■ | ■ |
| Sony UP990 Thermal Printer (prints dose summary) | ■ | ■ | ■ |
| CD/DVD Writer (external) | ■ | ■ | ■ |
| Two Pedal Footswitch | ● | ● | ● |
| MedRad Injector Interface Capability | | ■ | ■ |
| Room-In-Use Indicator Interface | ● | ● | ● |
| HIPAA SecureView® | ● | ● | ● |

● = Standard feature Blank = Feature not available
 ■ = Optional feature

Physical Specifications

| | 9" I.I. (23cm) | 12" I.I. (31cm) | Super C 9" I.I. (23cm) |
|---------------------------|---------------------|---------------------|---------------------------|
| Mainframe* | | | |
| System length | 77.8 in (197.6 cm) | 81.0 in (205.7 cm) | 80.1 in (203.5 cm) |
| System height | 69.7 in (177.0 cm) | 73.8 in (187.5 cm) | 71.7 in (182.1 cm) |
| System width | 33.5 in (851 mm) | 33.5 in (851 mm) | 33.5 in (851 mm) |
| Weight | 610 lbs (277 kg) | 660 lbs (299 kg) | 630 lbs (286 kg) |
| C-arm | | | |
| SID | 39.4 in (100.1 cm) | 39.4 in (100.1 cm) | 39.0 in (991 mm) |
| Free space in arc | 31.5 in (800 mm) | 31.5 in (800 mm) | 31.0 in (787 mm) |
| Depth in arc | 26.0 in (660 mm) | 28.0 in (711 mm) | 33.0 in (838 mm) |
| Orbital rotation | 115° (90°/25°) | 115° (90°/25°) | 145° (90°/55°) |
| Lateral rotation | 360° (180°/180°) | 360° (180°/180°) | 360° (270°/90°) |
| Flip/flop | 180°/90° | 180°/90° | N/A |
| Wig/wag | 20° | 20° | 20° |
| Horizontal travel | 8.0 in (203 mm) | 8.0 in (203 mm) | 8.0 in (203 mm) |
| Vertical travel | 18.0 in (457 mm) | 18.0 in (457 mm) | 18.0 in (457 mm) |
| Workstation* | | | |
| Height | 64.25 in (163.2 cm) | 64.25 in (163.2 cm) | 64.25 in (163.2 cm) |
| Width | 27.25 in (692 mm) | 27.25 in (692 mm) | 27.25 in (692 mm) |
| Depth | 27.25 in (692 mm) | 27.25 in (692 mm) | 27.25 in (692 mm) |
| Weight | 450 lbs (204 kg) | 450 lbs (204 kg) | 450 lbs (204 kg) |
| Operating Range | | | |
| Temperature | 10° to 35°C | 10° to 35°C | 10° to 35°C |
| Humidity | 20% - 80% | 20% - 80% | 20% - 80% |
| Electrical Service | | | |
| 100V | 20 A | 20 A | 20 A |
| 120V | 12 A | 12 A | 12 A |
| 200, 220V, 230V, 240V | 10 A | 10 A | 10 A |

* System in transport position.



Standard C 9" (23cm) I.I.

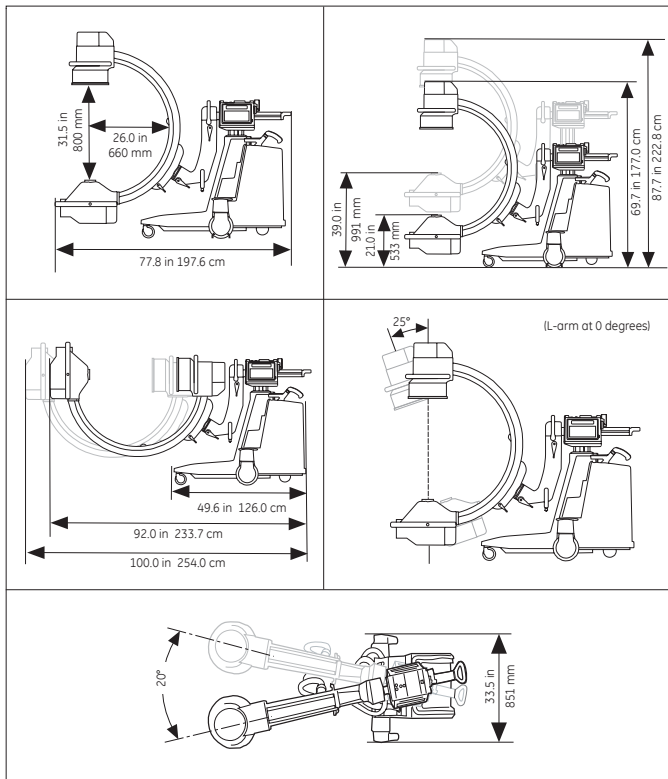


Standard C 12" (31cm) I.I.

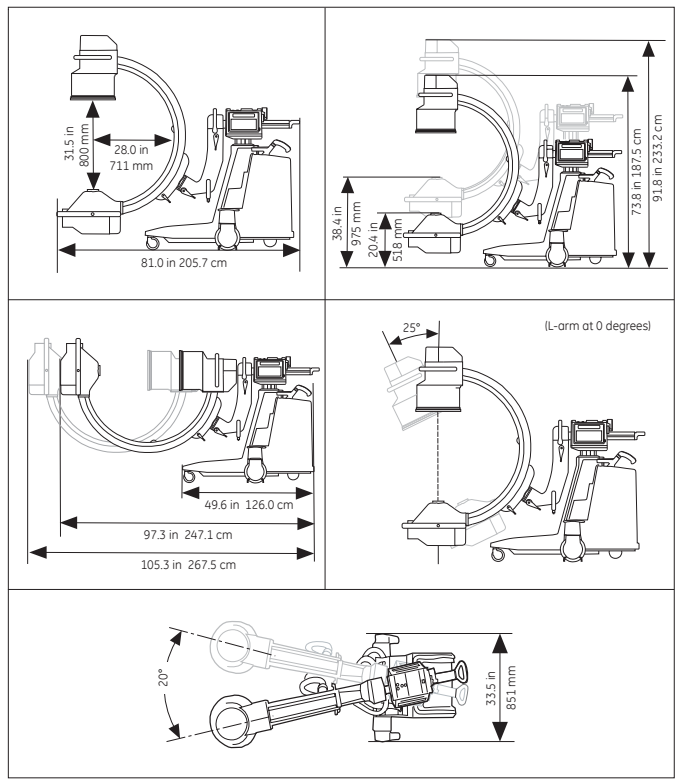


Super C 9" (23cm) I.I.

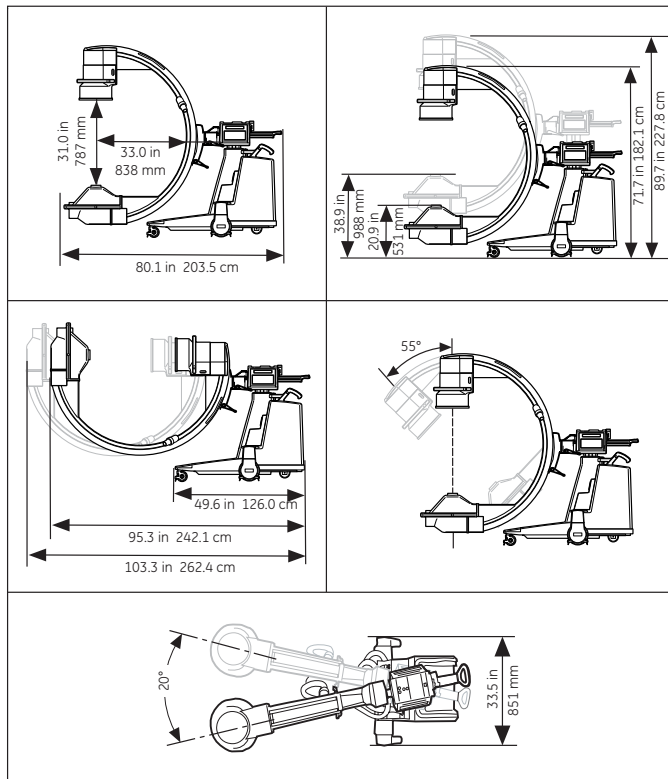
Mobile C-arm (9", 23cm I.I.)



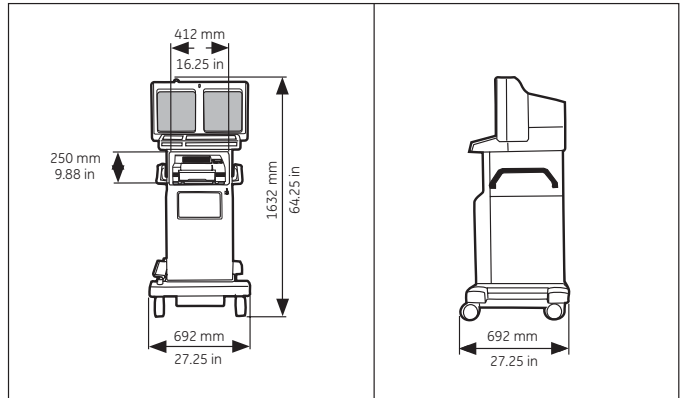
Mobile C-arm (12", 31cm I.I.)



Super C-arm



Workstation



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