



# OEC<sup>®</sup> 9900 Elite

## Premium C-arm Technical Data



Simple. Certain. Precise.

The OEC 9900 Elite is designed to enhance your clinical workflow and clinical confidence for your surgical practice. The OEC 9900 Elite select configurations are ideal for Office, Outpatient and Ambulatory Center settings.

### Superb Imaging

- 1k x 1k x 16 bit resolution imaging
- Advanced image processing accentuates what needs to be seen and attenuates what isn't needed
- Dynamic Range Management technology processes images such as bone and vasculature separately for optimum definition
- Dose management options for more control: Digital Spot, High Level Fluoroscopy, Standard Fluoroscopy, Low Dose, and Pulse Mode
- Smart Metal for enhanced imaging when metal is present
- AutoTrak sampling window automatically moves with the anatomy to ensure superb images during live fluoro

### Workflow Efficiency

- Simple user interface with touchscreen reduces procedure time to improve efficiency
- Flat panel monitors on an articulating arm allow viewing of images from anywhere in the room
- Superb mechanical C-arm design features counterbalancing and friction controls for easier AP and lateral movement, orbital rotation, and head-to-toe angulation

### Peace of Mind

- On-site certified Clinical Specialist training provided during initial orientation and training
- Expert installation and dedicated Field Service team with over 200 Engineers located in all 50 states
- Service support when needed with 30-minute call-back commitment
- Comprehensive service offerings available to support your needs -from full-service to limited coverage for on-site support, GE parts and accessories, and more

# Technical Specifications

## X-ray System

- |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Generator              | <ul style="list-style-type: none"> <li>• 60kHz high frequency</li> <li>• 15kW power</li> <li>• Up to 120kVp</li> <li>• Up to 75mA for radiographic film exposure</li> <li>• Continuous high level fluoro (HLF) up to 20mA</li> <li>• Digital spot up to 75mA</li> <li>• Digital cine pulse               <ul style="list-style-type: none"> <li>- 15 or 30 pulses per second, 60 Hz</li> <li>- 12 or 25 pulses per second, 50 Hz</li> <li>- Up to 150mA</li> <li>- 10ms pulse width</li> </ul> </li> <li>• Full power from standard wall outlet</li> <li>• Patented battery buffered design</li> </ul> |
| X-ray Tube             | <ul style="list-style-type: none"> <li>• Rotating anode X-ray tube</li> <li>• 0.3 and 0.6 nominal focal spots</li> <li>• Anode heat capacity: 300,000 HU</li> <li>• Anode cooling rate: 85,000 HU/min.</li> <li>• Housing heat capacity: 1,600,000 HU</li> <li>• Housing cooling rate:               <ul style="list-style-type: none"> <li>- 9" I.I. Super C- 22,500 HU/min</li> <li>- 12" I.I. - 22,500 HU/min</li> </ul> </li> </ul>                                                                                                                                                                |
| Digital Image Rotation | <ul style="list-style-type: none"> <li>• Digitally adjusts image display</li> <li>• Automatic image update               <ul style="list-style-type: none"> <li>- Image rotation</li> <li>- Image reversal (side-to-side)</li> <li>- Image invert (top-to-bottom)</li> </ul> </li> <li>• Image positioning without additional exposure</li> </ul>                                                                                                                                                                                                                                                      |
| PreView Collimator     | <ul style="list-style-type: none"> <li>• On-screen collimator position indication</li> <li>• PreView iris collimator</li> <li>• PreView Tungsten rotatable double leaf collimator</li> <li>• Adjusts collimators without X-ray exposure</li> </ul>                                                                                                                                                                                                                                                                                                                                                     |
| Fluoro Mode            | <ul style="list-style-type: none"> <li>• kVp range: 40 -120</li> <li>• mA range: 0.2 - 10 normal mode<br/>1.0 - 20 HLF (high level fluoro)</li> <li>• Auto and manual fluoro modes</li> <li>• AutoTrak ABS varies mA, kVp, camera gain</li> </ul>                                                                                                                                                                                                                                                                                                                                                      |

- |                          |                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pulsed Fluoro Mode       | <ul style="list-style-type: none"> <li>• kVp range: 40 - 120</li> <li>• mA range: 0.2 - 10</li> <li>• Pulse rate: 1, 2, 4, 8</li> <li>• Pulse width: 25 or 50ms</li> <li>• AutoTrak ABS, mA, kVp, camera gain</li> <li>• Reduces X-ray dose to patient and operator</li> </ul>                                                                      |
| High Level Pulsed Fluoro | <ul style="list-style-type: none"> <li>• kVp range: 40 - 120</li> <li>• mA range: 1 - 40</li> <li>• Pulse rate: 1, 2, 4, 8</li> <li>• Pulse width: 25 or 50ms</li> <li>• AutoTrak ABS, mA, kVp, and camera gain</li> </ul>                                                                                                                          |
| Digital Spot Mode        | <ul style="list-style-type: none"> <li>• kVp range: 40 - 120</li> <li>• mA range: Up to 75</li> <li>• Automatic exposure termination and automatic image save</li> </ul>                                                                                                                                                                            |
| Radiographic Mode        | <ul style="list-style-type: none"> <li>• mA range: up to 75</li> <li>• mAs range: up to 300</li> <li>• Computer controlled exposure time</li> <li>• Optional film cassette holder               <ul style="list-style-type: none"> <li>- 10" x 12" (24cm x 30cm) for 9" I.I.</li> <li>- 14" x 14" (35cm x 35cm) for 12" I.I.</li> </ul> </li> </ul> |

## Video Imaging System

- |                                                       |                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9" Image Intensifier                                  | <ul style="list-style-type: none"> <li>• Tri-mode 9"/6"/4.5" (23cm/15cm/11cm) image intensifier</li> <li>• Minimum central resolution (at monitor):               <ul style="list-style-type: none"> <li>- 9" (23cm): 2.2 lp/mm</li> <li>- 6" (15cm): 3.0 lp/mm</li> <li>- 4.5" (11cm): 3.5 lp/mm</li> </ul> </li> <li>• DQE: 65% (typical)</li> </ul> |
| 12" Image Intensifier                                 | <ul style="list-style-type: none"> <li>• Tri-mode 12"/9"/6" (31cm/23cm/15cm) image intensifier</li> <li>• Minimum central resolution (at monitor):               <ul style="list-style-type: none"> <li>- 12" (31cm): 1.6 lp/mm</li> <li>- 9" (23cm): 2.2 lp/mm</li> <li>- 6" (15cm): 2.6 lp/mm</li> </ul> </li> <li>• DQE: 65% (typical)</li> </ul>   |
| Precision Imaging with Dynamic Range Management (DRM) | <ul style="list-style-type: none"> <li>• Preset Imaging Profile: Orthopedic</li> <li>• Enhances features of interest while attenuating background noise</li> </ul>                                                                                                                                                                                     |

# Technical Specifications

**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 Quality Features**

- 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
  - Dense 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 19" (48cm) display anti-glare, LCD flat panel monitors mounted on an articulating arm
  - 22" horizontal travel
  - 7° up/10° down
  - Monitors viewable from all four sides of workstation
  - Horizontal and vertical viewing angle 170°
- 1200 CD/M<sup>2</sup> maximum brightness
- Touch screen system control
- 1280 x 1024 high resolution monitors
- Integrated color monitor for display of VGA, DVI, DVI-D, S-VHS, and SDI-SD formats

## Software Package

**Office Pain (OP) and Ambulatory Center (AC)**

- 1k x 1k x 16 bit image processing
- Preset Imaging Profile: Orthopedic
- Noise filter with on-screen indicator
- Minimal difference spatiotemporal noise filter (MDST)
- Real-time dynamic range management (DRM)
- 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 interface set-up
- Last image hold
- 63 image storage
- CD/DVD burner with DICOM viewer for displaying images on PC platforms
  - 512 x 512 or 1k x 1k
- Integrated DICOM interface (store, print, worklist, and query/retrieve)
- HIPAA SecureView
  - Password protection
  - Blank screen function
  - Delete all

**Ambulatory Center Extended (ACE)**

Includes all the AC features and:

- 1000 image storage
- Zoom and roam function
- Image annotation
- Measurement software

**Office Pain Extended (OPE)**

Includes all the OP 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
  - Automatic image playback
  - Frame-by-frame review

# Technical Specifications

## Additional Features

- Hardcopy Options
- Integrated film/paper printer
    - No film developing required
    - 8" x 10" (20.3cm x 25.5cm) laser quality film/paper
    - Multi-format, 1, 2, 4 on 1
    - Multi-copy capability
  - Thermal printers
  - Integrated DICOM interface (storage class/print class/query work-list)

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

- Uninterruptible Power
- Orderly shutdown

- Electrical
- Input power (60 Hz or 50 Hz) 9900 Elite
    - 100V @ 20 A
    - 120V @ 12 A

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

## OEC 9900 Elite C-arm



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



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



Workstation

## System Configurations

Description	OP	OPE	AC	ACE
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 15pps)	●	●	●	●
Digital Subtraction Angiography (DSA)		●		
Peak Opacification		●		
Digital Spot	●	●	●	●
High Level Pulsed Fluoro (Up to 40mA)	●	●	●	●
Radiographic Film Mode	●	●	●	●
Orthopedic Preset Imaging Profile	●	●	●	●
1k x 1k x 16 Bit Image Processing	●	●	●	●
Image Quality Features (Smart Window/Smart Metal)	●	●	●	●
Measurement Software		●		●
Digital Image Rotation	●	●	●	●
Noise Filtering (Averaging)	●	●	●	●
Minimal Difference Spatiotemporal Noise Filter	●	●	●	●
Digital Zoom & Roam		●		●
Real-Time Dynamic Range Management (DRM)	●	●	●	●
Image Annotation Function		●		●
Multi-Purpose Image Directory	●	●	●	●
X-ray Summary	●	●	●	●
Static Image Storage	63	1000	63	1000
8fps Dynamic Disk		●		
Laser Aimer/Image Localizer	■	■	■	■
IR Remote Control		■		■
Integrated CD/DVD burner with DICOM Viewer	●	●	●	●
Integrated DICOM Interface (store, print, worklist query)	●	●	●	●
Two Pedal Footswitch	●	●	●	●
Hand Control	●	●	●	●
Room-In-Use Indicator Interface	●	●	●	●
HIPAA SecureView	●	●	●	●
Sony Thermal Hardcopy Printers*	■	■	■	■

\*Contact your sales representative for specific model options.

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

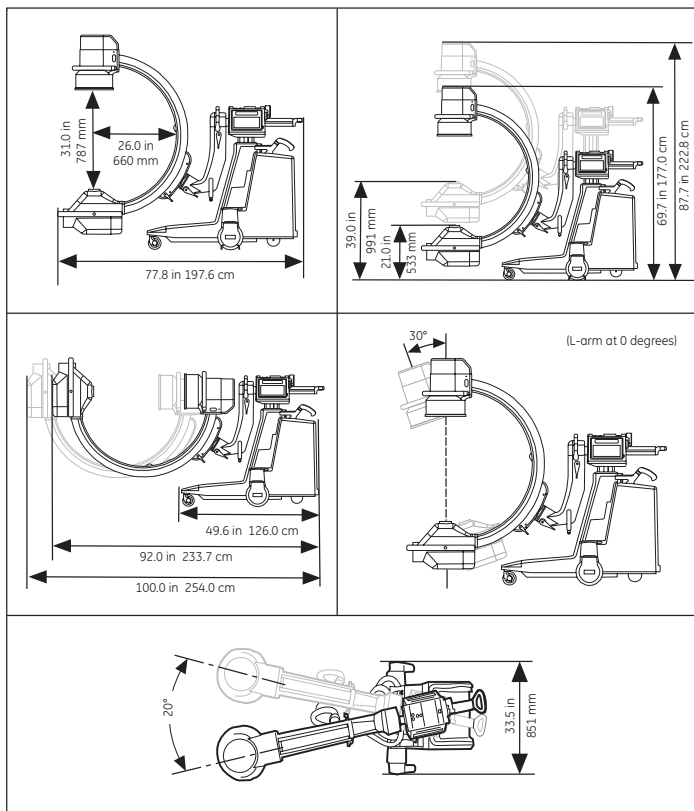
## Physical Specifications

	12" I.I. (31cm)	Super C 9" I.I. (23cm)
<b>Mainframe <sup>(1)</sup></b>		
System length	81.0 in (205.7 cm)	80.1 in (203.5 cm)
System height	73.8 in (187.5 cm)	71.7 in (182.1 cm)
System width	33.5 in (851 mm)	33.5 in (851 mm)
Weight	660 lbs (299 kg)	630 lbs (286 kg)
<b>C-arm</b>		
SID	39.4 in (100 cm)	39.4 in (100 cm)
Free space in arc	31.0 in (787 mm)	31.0 in (787 mm)
Depth in arc	28.0 in (711 mm)	33.0 in (838 mm)
Orbital rotation	120° (90°/30°)	145° (90°/55°)
Lateral rotation	270° (180°/90°)	360° (270°/90°)
Flip/flop	180°/90°	N/A
Wig/wag	20°	20°
Horizontal travel	8.0 in (203 mm)	8.0 in (203 mm)
Vertical travel	18.0 in (457 mm)	18.0 in (457 mm)
<b>Workstation <sup>(1)</sup></b>		
Height	69.0 in (175.3 cm)	69.0 in (175.3 cm)
Width	38.0 in (96.5 cm)	38.0 in (96.5 cm)
Depth	27.3 in (693 mm)	27.3 in (693 mm)
Weight	530 lbs (240 kg)	530 lbs (240 kg)
<b>Operating Range</b>		
Temperature	10° to 35°C	10° to 35°C
Humidity	20% - 80%	20% - 80%
<b>Electrical Service</b>		
100V	20 A	20 A <sup>(2)</sup>
120V	12 A	12/ 16 A <sup>(3)</sup>
200V	N/A	10 A

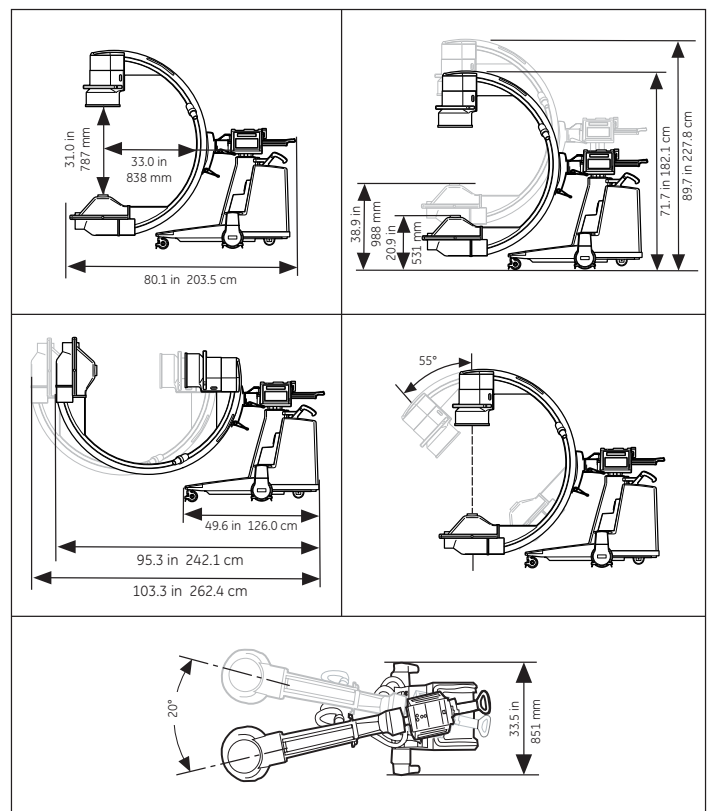
<sup>(1)</sup> System in transport position. <sup>(2)</sup> Without active cooling. <sup>(3)</sup> 16 A Service required for active cooling.

# Dimensions

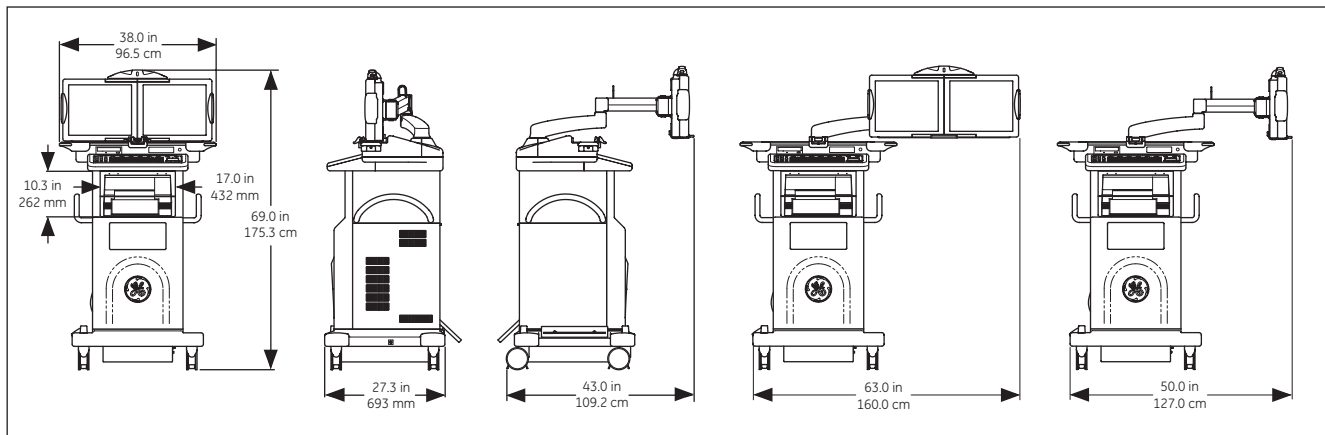
## Mobile C-arm (12", 31cm I.I.)



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



## Workstation





Imagination at work

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