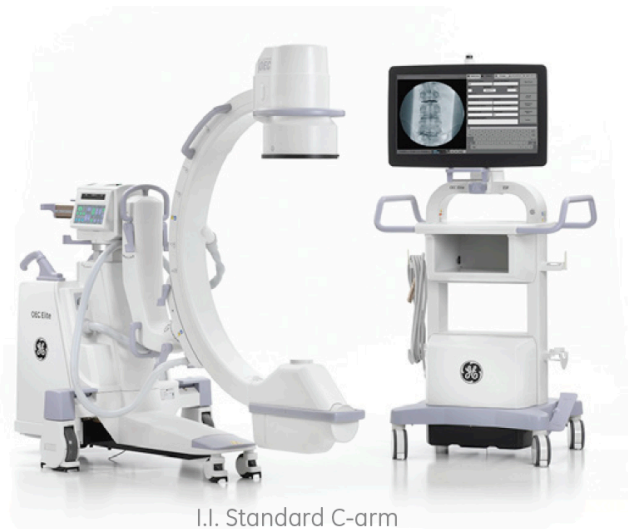CFD Super C-arm

I.I. Standard C-arm

OEC Elite™

Premium Digital Mobile C-arm
Technical Data

Now, a C-arm platform smart enough for you and your team.
This is just INGENIOUS.

Specifications

Image Acquisition

21 cm CMOS Flat Panel Detector (CFD)
- Tri-mode 21 cm/15 cm/11 cm
- Minimum central resolution (at display):
  - 21 cm: 2.5 lp/mm
  - 15 cm: 3.0 lp/mm
  - 11 cm: 3.3 lp/mm
- Matrix: 1536 x 1496 total pixels
- DQE(0): 72%
- Pixel Pitch: 135.3 μm
- Removable grid with on-screen detection status

31 cm CMOS Flat Panel Detector (CFD)
- Tri-mode 31 cm/21 cm/15 cm
- Minimum central resolution (at display):
  - 31 cm: 1.8 lp/mm
  - 21 cm: 2.2 lp/mm
  - 15 cm: 2.4 lp/mm
- Matrix: 1548 x 1524 total pixels
- DQE(0): 72%
- Pixel Pitch: 198.0 μm
- Removable grid with on-screen detection status

9" Image Intensifier
- Tri-mode 9"/6"/4.5" image intensifier
- Minimum central resolution (at monitor):
  - 9": 2.2 lp/mm
  - 6": 3.0 lp/mm
  - 4.5": 3.5 lp/mm
- DQE: 65% (typical)
- Removable grid

12" Image Intensifier
- Tri-mode 12"/9"/6" image intensifier
- Minimum central resolution (at monitor):
  - 12": 1.6 lp/mm
  - 9": 2.2 lp/mm
  - 6": 2.6 lp/mm
- DQE: 65% (typical)
- Removable grid

Image Processing
- 1.5 k x 1.5 k x 16 bit: CFD
- 1 k x 1 k x 16 bit: image intensifier

Generator
- 60 kHz high frequency
- 15 kW power
- Up to 120 kVp
- Continuous high level fluoroscopy (HLF) up to 20 mA
- Pulsed HLF up to 40 mA
- Digital spot up to 75 mA
- Full power from a standard wall outlet
- Patented battery buffered design

X-ray Tube
- Rotating anode X-ray tube
- 0.3 mm and 0.6 mm nominal focal spots
- Anode heat capacity: 300,000 HU
- Anode cooling rate: 85,000 HU/min
- Housing heat capacity: 1,600,000 HU/min
- Housing cooling rate:
  - 21 cm CFD - 22,500 HU/min
  - 31 cm CFD - 31,000 HU/min
  - 9" I.I. - 22,500 HU/min
  - 12" I.I. - 22,500 HU/min

Digital Image Orientation
- Digitally adjusts image display for live and last image hold
- Automatic image update preserves image orientation settings applied during live and last image hold for subsequent images
  - Image rotation
  - Live and last image hold rotated in real-time
  - On-screen display of rotation degrees
  - Image reversal (left-to-right)
  - Image invert (top-to-bottom)
- On-screen orientation indicator (real-time feedback without fluoroscopy)
- Fully digital with precise 1 degree rotation increments or auto-repeat for quick rotation (CFD models)

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

Fluoroscopy Mode
- kVp range: 40 - 120
- mA range: 0.2 - 10 normal mode
  0.2 - 20 HLF
- Auto and manual fluoroscopy modes

Pulsed Fluoroscopy Mode
- kVp range: 40 - 120
- mA range: 0.2 - 10 normal mode
  0.2 - 40 HLF
- Pulse rate: 8 pps
- Pulse width: 25 ms
- Auto and manual pulsed fluoroscopy modes
- Reduces X-ray dose to patient and operator

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

TechView Monitor
*optional on image intensifier models
- 10.4" (26.4cm) display, LCD flat panel monitor mounted on mainframe
  - 270° side/side rotation
  - 30° up/ 5° down tilt
  - Horizontal viewing angle 80°, Vertical viewing angle 70°
- 800 x 600 resolution monitor

Image Processing

Precision imaging with General-Purpose Dynamic Range Management (GDRM) enhances anatomy of interest while attenuating background features.
- Preset Imaging Profiles
  - General
  - Orthopedic
  - Spine

AutoTrak
Automatic Brightness Stabilization (ABS)
- Automatically seeks the subject anatomy anywhere within the imaging field
- Selects the optimum imaging technique by varying mA, kVp, and gain
- Automatically adjusts to anatomical size and location
- Provides uniform image quality throughout the entire image

Image I.Q.
- Smart Window
  - Dynamically senses the collimator position and automatically adjusts image brightness and contrast
- Smart Metal
  - Adjusts brightness and contrast automatically and allows user to adjust sensitivity levels for optimum image quality even when metal is introduced into the field
- Tungsten Collimator
  - Denser collimator limits X-ray exposure area
  - Reduces scatter radiation
  - Improves image detail

Software Package

Expanded Surgical Platform (ESP)

- Preset Imaging Profiles
  - General
  - Orthopedic
  - Spine
- Noise filter with on-screen indicator
- Minimal difference spatiotemporal noise filter (MDST)
- Real-time dynamic general purpose range management (GDRM)
- 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
- Set-up functions
  - Acquisitions
  - Image Profile
  - DICOM
  - Network
  - Regional
  - Security
  - Utilities
- Last image hold
- 50,000 image storage
- USB export with DICOM viewer for displaying images on PC platforms
  - Full-size or half-size
  - Web viewable
  - JPEG and BMP
  - DICOM compatible
  - OEC compatible
  - De-identify DICOM images
  - Remove patient information
- HIPAA SecureView
  - Password protection
  - Blank screen function
  - Delete all patient information
- Zoom and pan function
- Image annotation
- Measurement
  - Distance
  - Angles
  - Percent stenosis
- Digital image rotation

Workstation

Hardcopy/Connectivity

- Wired Ethernet
- USB data transfer
- DVI-I output
  - Full screen (requires DVI-I dual link cable)
    - 2560 × 1600
    - 2560 × 1440
    - 2048 × 1536
    - 1920 × 1200
    - 1920 × 1080
  - Left screen only
    - 1280 × 1024 for input to a separate OEC Elite workstation or OEC 9900 Elite workstation
- Integrated film/paper printer (optional)*
  - No film developing required
  - Multi-format, 1, 2, 4 on 1
  - Multi-copy capability
- Thermal printers

Video Monitor

- 27 in (69 cm) LCD TFT color display
- Anti-glare
- Monitor mounted on an articulating arm
  - 45 in (114 cm) horizontal travel
  - 17 in (43.2 cm) vertical travel
  - 27 in (68.8 cm) forward travel
  - 5° up/5° down tilt
  - Display viewable from all four sides of workstation
  - Horizontal and vertical viewing angle 170°
- 450 cd/m² maximum brightness
- Touch screen system control
- 2560 × 1440 high resolution display
- Integrated PIP window to display color DVI-D input

User Interface

- Touchscreen control simplifies operation
- Automated system operation requires minimum operator interface
- Multi-functional controls
  - Footswitch
  - Hand-held control
- Physical keyboard with integrated touchpad
  - Sealed silicone design for dust-free, contaminant-free and water-resistant use
- Physical image control keypad
- On-screen virtual keyboard and image control keypad
- Multi-purpose image directory
  - Retrieve and review images
  - Copy image(s)
  - Manual deletion of image(s)
- Exams
  - Patient centric view of exams
  - Manual deletion of exam(s)
  - Display multi-modality exams
  - View older exams
  - Search saved/scheduled exams
- Integrated DICOM interface
  - Storage commit, store, query, retrieve, modality, worklist and print
  - Queue DICOM Store, Storage commit and Print requests for later transmission
  - Retrieve Modality Worklist (MWL) Referenced Studies from PACS with one button press
  - On-board IT diagnostic support for DICOM transfer
- Radiation dose structured report (RDSR)
- X-ray dose summary
- Room-in-use indicator interface
- SmartConnect allows workstation to operate independently of C-arm and connect/disconnect C-arm when needed
- 3 Position X-ray and motion keyswitch
  - X-rays and lift movement are disabled
  - X-rays and lift movement are enabled
  - X-rays are disabled and lift movement is enabled

Additional Features

C-arm Positioning Aides

- Integrated laser aimer: CFD
- Optional laser aimer: I.I.
- Motorized vertical lift

Uninterruptible Power

- Controlled shutdown
- Power monitoring and display
- Accidental power loss protection
  - 20 seconds battery back-up power to workstation and C-arm

Regulatory Compliance

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

Physical Specifications

|	21 cm CFD Super C-arm (Passive Cooling)	31 cm CFD Super C-arm (Active Cooling)	9" I.I. Standard C-arm (Passive Cooling)	12" I.I. Standard C-arm (Passive Cooling)
Mainframe				
Length	80.25 in (204 cm)	80.25 in (204 cm)	77.8 in (197.6 cm)	81.0 in (205.7 cm)
Height	70.75 in (179.7 cm)	70.75 in (179.7 cm)	69.7 in (177.0 cm)	73.8 in (187.5 cm)
Width	33.2 in (84.3 cm)	33.2 in (84.3 cm)	33.5 in (85.1 cm)	33.5 in (85.1 cm)
Weight	635 lbs (288 kg)	654 lbs (297 kg)	610 lbs (277 kg)	660 lbs (299 kg)
C-arm				
SID	39.4 in (100 cm)	39.4 in (100 cm)	39.4 in (100.1 cm)	39.4 in (100.1 cm)
Free space in arc	31.25 in (79.4 cm)	31.25 in (79.4 cm)	31.0 in (78.7 cm)	31.0 in (78.7 cm)
Depth in arc	33.0 in (83.8 cm)	33.0 in (83.8 cm)	26.0 in (66.0 cm)	28.0 in (77.1 cm)
Orbital rotation	145° (90°/55°)	145° (90°/55°)	115° (90°/25°)	115° (90°/25°)
Lateral rotation	360° (90°/270°)	360° (90°/270°)	360° (180°/180°)	360° (180°/180°)
Wig/wag	20°	20°	20°	20°
Horizontal travel	8.0 in (20.3 cm)	8.0 in (20.3 cm)	8.0 in (20.3 cm)	8.0 in (20.3 cm)
Vertical travel	18.1 in (46 cm)	18.1 in (46 cm)	18.0 in (45.7 cm)	18.0 in (45.7 cm)
Workstation				
Height	67.5 in (171.5 cm)	67.5 in (171.5 cm)	67.5 in (171.5 cm)	67.5 in (171.5 cm)
Width	34.1 in (86.7 cm)	34.1 in (86.7 cm)	34.1 in (86.7 cm)	34.1 in (86.7 cm)
Depth	25.8 in (65.5 cm)	25.8 in (65.5 cm)	25.8 in (65.5 cm)	25.8 in (65.5 cm)
Weight	428 lbs (194 kg)	428 lbs (194 kg)	428 lbs (194 kg)	428 lbs (194 kg)
Operating Range				
Temperature	10° to 35° C (50° to 95° F)	10° to 35° C (50° to 95° F)	10° to 35° C (50° to 95° F)	10° to 35° C (50° to 95° F)
Humidity	10% - 80%	10% - 80%	10% - 80%	10% - 80%
AC Mains Electrical Supply System Requirements (50 or 60 Hz)				
100 V, 110 V	20 A	N/A(2)	20 A	20 A
115 V, 120 V(1), 127 V(3)	15 A	20 A	15 A	15 A
200 V, 220 V, 230 V, 240 V	10 A	10 A		

(1) In North America, 120 VAC systems are required to have a 20% de-rating from the service or outlet rating on the system rating labels for current. Therefore, systems designed for use with 120 VAC @ 15 A service are labeled as 12 A, and systems designed for use with 120 VAC @ 20 A service are labeled as 16 A.

(2) Active Cooling systems are not available at 100 or 110 VAC. These require a 115-127 or 200-240 VAC electrical supply.
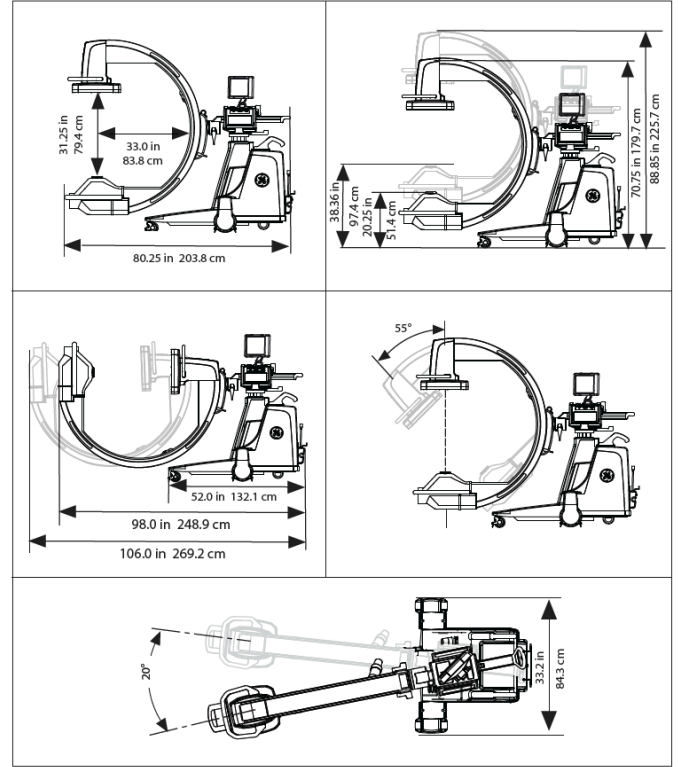
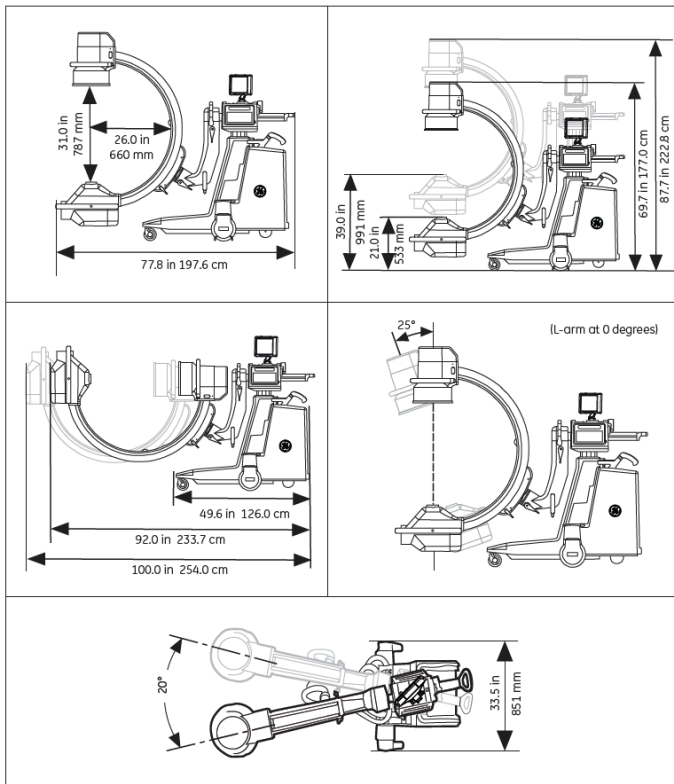(3) 127 VAC tolerance -10% to +5%

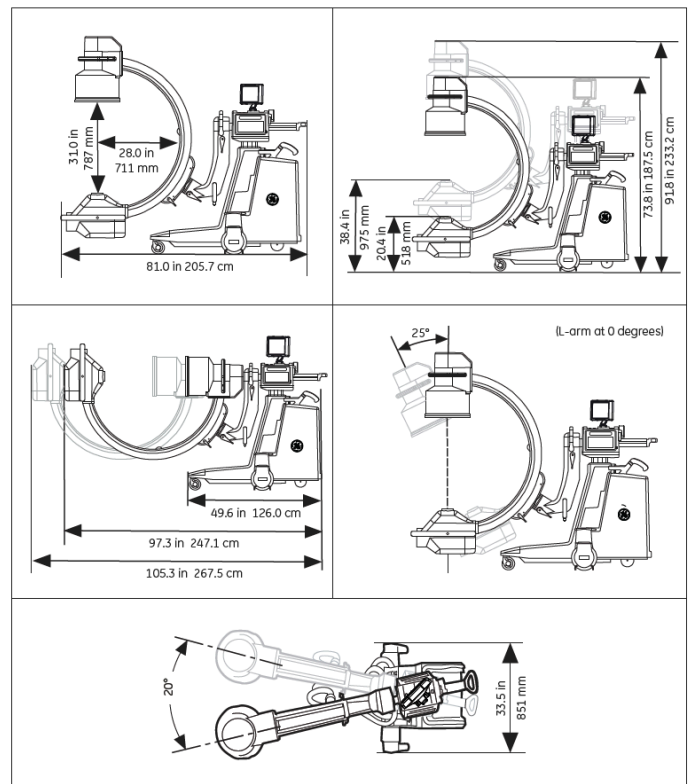# Dimensions: C-arm

21 cm CFD Super C-arm
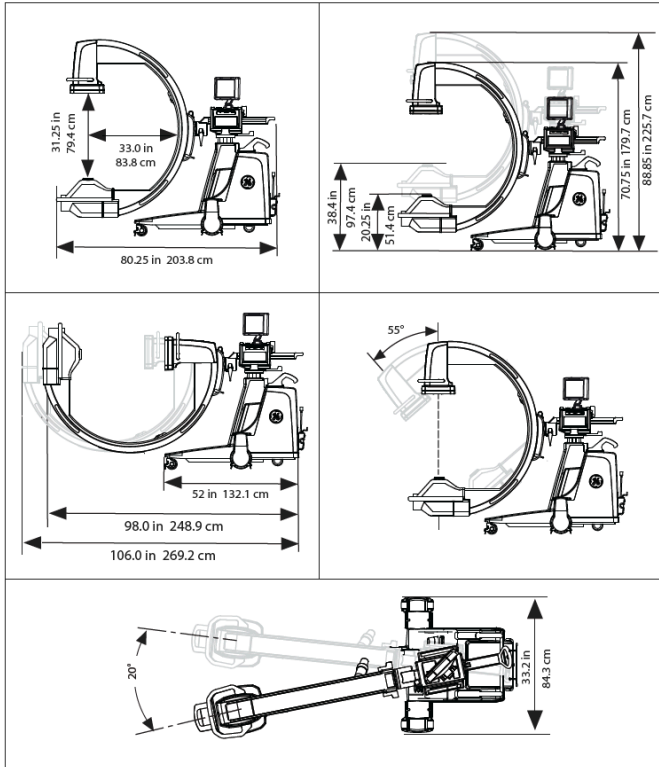
31 cm CFD Super C-arm

9" I.I. Standard C-arm

12" I.I. Standard C-arm

Dimensions: Workstation
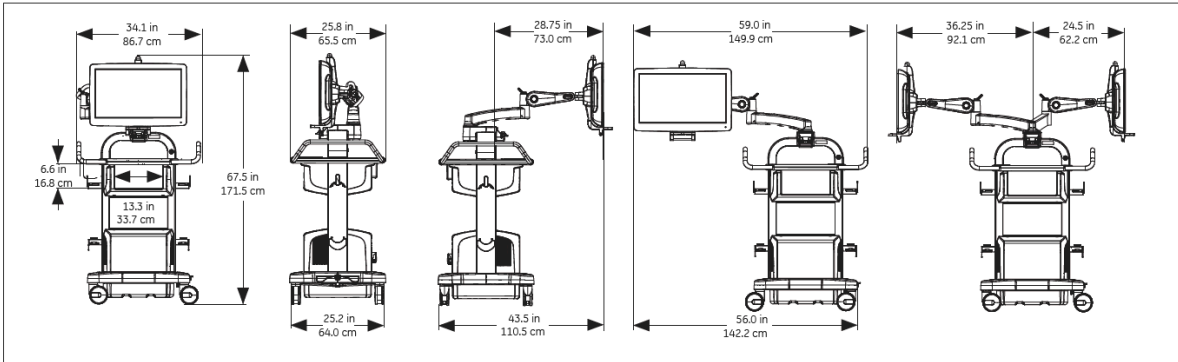
Dimensions shown:
- 34.1 in / 86.7 cm
- 25.8 in / 65.5 cm
- 28.75 in / 73.0 cm
- 59.0 in / 149.9 cm
- 36.25 in / 92.1 cm
- 24.5 in / 62.2 cm
- 6.6 in / 16.8 cm
- 67.5 in / 171.5 cm
- 13.3 in / 33.7 cm
- 25.2 in / 64.0 cm
- 43.5 in / 110.5 cm
- 56.0 in / 142.2 cm

Product not available for sale in the United States.
Availability of select models and configurations varies by country.
Please contact your local sales representative.

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